

THE DEVELOPMENT, EVALUATION, AND IMPLEMENTATION OF A
MOTIVATIONS SCALE IN THE CONTEXT OF THE SECOND SCREEN
EXPERIENCE

by

Lama Khoshaim

Submitted in partial fulfilment of the requirements
for the degree of Doctor of Philosophy

at

Dalhousie University

Halifax, Nova Scotia

August 2020

© Copyright by Lama Khoshaim, 2020

DEDICATION

This dissertation is dedicated to Hani, you are the support and strength that has seen me through this journey. To my mom, dad, mother-in-law, father-in-law, and my brothers, you always encouraged me to persevere and follow my ambitious goals. To my sons Mohammed and Sameer, your love always cheered me up and helped me reach the finish line.

Table of Contents

Dedication	ii
List of Tables	x
List of Figuers.....	xiii
Abstract.....	xiv
List of Abbreviations and Symbols Used	xv
CHAPTER 1 Introduction	1
1.1 The Second Screen Experience and TV Viewing.....	1
1.2 Why the Motivations Matter	5
1.3 The Structural Framework.....	10
1.4 Research Goals.....	12
1.5 Methodology	13
1.6 Scope	14
1.7 Implications	15
1.8 The Structure of the Dissertation.....	15
CHAPTER 2 The Composition of Viewer Motivation in the Context of the Second Screen Experience: A Review of the Literature.....	17
2.1 The Second Screen Experience.....	17
2.1.1 The Second Screen (SS).....	19
2.1.2 Second Screen Use (SS Use)	22
2.1.3 Second Screen Experience (SSE)	25
2.1.4 Other Factors Affecting the SSE.....	31
2.2 Motivations for the Second Screen Experience.....	36
2.3 The Uses and Gratifications Framework	37
2.3.1 Overview of the U & G Framework	38

2.3.2	Limitations of the U & G Framework.....	43
2.3.3	The U & G for the Current Research.....	45
2.3.4	Summary.....	47
2.4	Other Theories Related to the SSE and/or the U & G Framework.....	48
2.4.1	Social Media Engagement.....	48
2.4.2	The Theory of Flow (Flow Theory).....	49
2.4.3	The User Engagement Scale.....	49
2.4.4	Social Determination Theory.....	50
2.4.5	The Task-Technology-Fit Theory.....	50
2.5	Summary.....	51
CHAPTER 3	Research Methodology and Design.....	54
3.1	Epistemological Perspective and Methodological Approach.....	54
3.2	Methodology.....	57
3.3	Measuring the SSE While Watching TV.....	58
3.4	Questionnaire Design.....	61
3.5	Stage 1: Scale Creation.....	63
3.5.1	Stage 1.1: Item Generation.....	64
3.5.2	Stage 1.2: Item Selection.....	68
3.5.3	Stage 1.3: Item Testing and Refinement.....	70
3.5.4	Stage 1.4: Initial Analysis of the Final Questionnaire.....	72
3.6	Stage 2: Scale Evaluation.....	73
3.6.1	Stage 2.1: Methods.....	73
3.6.2	Stage 2.2: Reliability Assessment.....	75
3.6.3	Stage 2.3: Validity Assessment.....	76
3.6.4	Stage 2: Analysis.....	78

3.7	Stage 3: The Assessment of the First and Second Research Goals	79
3.7.1	Stage 3.1: Methods.....	80
3.7.2	Stage 3.2: Testing the First Goal.....	81
3.7.3	Stage 3.3: Testing the Second Goal	81
3.7.4	Stage 3.4: Analysis.....	82
3.8	General Analyses	87
3.9	Summary	87
CHAPTER 4	Stage 1: Scale Creation.....	89
4.1	Stage 1.1: Item Generation	90
4.2	Stage 1.2: Item Selection	95
4.2.1	Stage 1.2: Methods.....	95
4.2.2	Stage 1.2: Materials	96
4.2.3	Stage 1.2: Participants.....	96
4.2.4	Stage 1.2: Procedure	97
4.2.5	Stage 1.2: Analysis.....	99
4.2.6	Stage 1.2: Results.....	99
4.2.7	Stage 1.2: Final Set of SSE-MS Items	100
4.2.8	Stage 1.2: Summary	101
4.3	Stage 1.3: Item Testing and Refinement.....	102
4.3.1	Stage 1.3: Methods.....	102
4.3.2	Stage 1.3: Materials	102
4.3.3	Stage 1.3: Participants.....	103
4.3.4	Stage 1.3: Procedure	106
4.3.5	Stage 1.3: Analysis and Results	107
4.3.6	Stage 1.3: The Final Questionnaire.....	118

4.3.7	Stage 1.4: Initial Analysis of the SSE-MS.....	120
4.3.8	Additional Analyses.....	122
4.4	Summary	123
CHAPTER 5 Stage 2: Scale Evaluation		124
5.1	Stage 2.1: Scale Evaluation Methodology.....	124
5.1.1	Materials	125
5.1.2	Recruitment.....	130
5.1.3	Participants.....	131
5.1.4	Procedure	132
5.1.5	Stage 2 Results.....	134
5.2	Stage 2.2: Results for the Reliability Analysis.....	134
5.2.1	Conclusions for Reliability	142
5.3	Stage 2.3: Results for the Validity Analysis.....	142
5.3.1	Conclusions for Validity.....	148
5.4	Summary	148
CHAPTER 6 Stage 3: The Assessment of the First & Second Research Goals		149
6.1	Stage 3.1: Research Methodology	149
6.1.1	Materials	150
6.1.2	Recruitment.....	151
6.1.3	Participants.....	153
6.1.4	Procedure	155
6.1.5	Stage 3: Methods of Assessing First and Second Research Goals	157
6.2	Stage 3.2: Results for the Assessment of the First Research Goal	157
6.3	Stage 3.3: Results for the Assessment of the Second Research Goal	168
6.4	Stage 3.3.1: Analysis of the Simple Correlations	170

6.4.1	Demographics	170
6.4.2	TV Viewing Habits	172
6.4.3	SS Use	184
6.5	Stage 3.3.2: The Full Analysis.....	192
6.6	Stage 3.3.3: Final Analysis to Reduce the Set of Predictors (IVs).....	196
6.7	Summary	200
CHAPTER Discussion		201
7.1	The Development of the SSE-MS	202
7.2	The First Research Goal	204
7.3	The Second Research Goal	206
7.3.1	SSE-MS and Demographics	207
7.3.2	SSE-MS and TV Viewing Habits	211
7.3.3	SSE-MS and SS Use	220
7.4	Summary of the Main Results for the Second Research Goal.....	227
7.4.1	Modelling.....	228
7.5	Theoretical Implications of Findings	230
7.5.1	Motivations	230
7.5.2	Background Predictors of Motivations	231
7.5.3	Defining the Second Screen Experience.....	232
7.5.4	The SSE-MS	233
7.6	Future Research and Limitations of the Study	233
7.7	Limitations.....	237
7.8	Summary	240
CHAPTER 8 Conclusion		242
8.1	Main Findings	243

8.2	Limitations of the Study	246
8.3	Future Work.....	248
8.4	Summary	251
BIBLIOGRAPHY		252
Appendix A-1	Dimensions of Studies that Explored the U & G Framework ..	276
Appendix A-2	Stages of Questionnaire Design (variations).....	277
Appendix A-3	Mehrens & Lehmann (1984) Guidelines of Creating Items for a Questionnaire	280
Appendix A-4	Pool of Items from Item Generation	281
Appendix A-5	General Guidelines for Generating Items.....	288
Appendix A-6	Ethics Approval Dalhousie – Stage 1	290
Appendix A-7	Letter to Moderators - Recruitment Material for Stage 1-3.....	291
Appendix A-8	Recruitment Material for Stage 1 – Posted Recruitment.....	292
Appendix A-9	Informed Consent for Stage 1	293
Appendix A-10	Stage 1: Instructions to Experts.....	296
Appendix A-11	Item Language Rating Scales	300
Appendix A-12	Background items.....	301
Appendix A-13	Items after Items Selection	305
Appendix A-14	Final Item Set.....	309
Appendix A-15	Ethics Approval Dalhousie - Stage 2	310
Appendix A-16	Recruitment Material for Stage 2 – Posted Recruitment	311
Appendix A-17	Informed Consent for Stages 2, 3.....	312
Appendix A-18	Recruitment Material for Stage 3	315
Appendix A-19	Recruitment Material for Stage 3 – Posted Recruitment - Ryerson sample.....	316
Appendix A-20	Ethics Approval Dalhousie – Stage 3.....	317

Appendix A-21	Ethics Approval Ryerson	318
Appendix A-22	Ryerson University consent to participate in research	320
Appendix A-23	Stage 1.3 Descriptive Statistics for TV Viewing Habits and SS Use	322
Appendix A-24	Considerations for the Examination of the Univariate Statistics.....	326
Appendix A-25	Stage 1.3 Descriptive Statistics for the SSE-MS Items.....	329
Appendix A-26	Bivariate Statistics for the SSE-MS Items	333
Appendix A-27	Opinio and Qualtrics survey package – stage 3.....	346
Appendix B	Analysis of Questionnaire Use for the Validity Analysis.....	360
Appendix C	Sample Analyses.....	383
Appendix D	Final Sample Analysis of the SSE-MS	423

LIST OF TABLES

Table 1	Needs as Defined by Klatz, Blumler and Hass (1973)	40
Table 2	Comparison of the U & G framework and Other Theories or Structures for Conceptualizing the use of Social Media or TV	51
Table 3	Factors that might be related to the SSE motivations	52
Table 4	The Primary Background Variables by Category and Component.	55
Table 5	Dimensions of the U & G for the Current Study	65
Table 6	The Demographic Variables and Items.....	83
Table 7	The TV Viewing Habits Variables and Items.....	84
Table 8	The SS Use Variables and Items.....	85
Table 9	Detailed Summary of the Thesis Stages	88
Table 10	The Main Questionnaires Used to Source Items.....	90
Table 11	Criteria for Rating Items During Item Selection.....	97
Table 12	Sample Size as a Function of Age Groups.....	103
Table 13	Sample Size as a Function of Education Groups.....	104
Table 14	Sample Size as a Function of Residential Location (Urbanization)	104
Table 15	Sample Size as a Function of Living Arrangements.....	105
Table 16	Sample Size as a Function of Relative Income Group	105
Table 17	Sample Size as a Function of Occupations Selected	106
Table 18	Final Set of Cognitive Items.	115
Table 19	Final Set of Personal Identity Items.....	116
Table 20	Final Set of Social Integration Items.	117
Table 21	Final Set of Diversion Items.	118

Table 22	Final item set of items with distributions as percentages.	119
Table 23	The Factor Analysis for the final 30 Items.	121
Table 24	Demographic Variables and Codes.....	125
Table 25	The TV Viewing Habits Variables and Codes.....	126
Table 26	The SS Use Variables and codes	128
Table 27	Descriptive Statistics for the Items of the SSE-MS.....	135
Table 28	The Four Factor Solution.....	137
Table 29	Correlations Between the Factors of the Four-Factor Solution.	138
Table 30	Reliability Statistics for the Subscales of the New SSE-MS	138
Table 31	The Reliability Statistics for Each Item of Each Subscale.	140
Table 32	Descriptive Statistics for Each Subscale of the New SSE-MS.....	141
Table 33	Correlations for the Subscales of the SSE-MS.	141
Table 34	Descriptive Statistics for Each Subscale of the New SSE-MS.....	146
Table 35	Descriptive Statistics for the SSE-MS	158
Table 36	Reliability Statistics for the Subscales of the New Questionnaire.....	160
Table 37	Descriptive Statistics for Each Subscale of the SSE-MS.....	160
Table 38	Descriptive Statistics for the Items of the New Questionnaire with Percentage Endorsement as Agree, Neutral or Disagree	164
Table 39	The Profiles of the Ten Groups Identified in a Cluster Analysis.....	167
Table 40	Descriptive Statistics for Demographics and their Correlations with the Four Subscales of the SSE-MS.	171
Table 41	Descriptive Statistics for Genre and their Correlations with the Four Subscales of the SSE-MS.....	173
Table 42	Descriptive Statistics for Mode of Access & Intensity of TV Viewing and their Correlations with the Four Subscales of the SSE-MS.....	176

Table 43	Descriptive Statistics for the Timing & Emotional Commitment for Particular Shows and their Correlations with the Four Subscales of the SSE-MS.....	180
Table 44	Descriptive Statistics for the Social Context of TV Viewing and their Correlations with the Four Subscales of the SSE-MS.	183
Table 45	Descriptive Statistics for the Type and Process of SS Use and their Correlations with the Four Subscales of the SSE-MS.	185
Table 46	Descriptive Statistics for the Social Media Outlets & Activities Associated with the SS and their Correlations with the Four Subscales of the SSE-MS.	188
Table 47	Descriptive Statistics for the Social Context Associated with the SS and their Correlations with the Four Subscales of the SSE-MS.	191
Table 48	Correlations Among Background Items	193
Table 49	Order of Variable Entry for Hierarchical Regression	194
Table 50	The hierarchical regression showing the R^2 , the change in R^2 (ΔR^2) and the significance of that change p (ΔR^2) for each set of variables	195
Table 51	The Analysis of Set of IV (Predictors), within each Subscale of the SSE-MS.....	197
Table 52	The Utility of the Demographic Variables by Component.	208
Table 53	The Utility of the TV Viewing Habits Variables by Component.	212
Table 54	The SS Use Variables by Component.....	220

LIST OF FIGURES

Figure 1: The the Conceptual Structure of the Thesis	16
Figure 2: Stages of Questionnaire Design, (adapted from many sources: O'Brien & Toms, 2010a; Malhotra & Grover, 1998; Forza, 2002; Fogg et al. ,2001; Hinkin et al. 1997; Saunders & Munro, 2000; DeVellis, 2016 – a consensus settled on for the current research).	63
Figure 3: The Distribution of Responses for the Cognitive Subscale.....	161
Figure 4: The Distribution of Responses for the Social Integration Subscale	162
Figure 5: The Distribution of Responses for the Personal Identity Subscale	163
Figure 6: The Distribution of Responses for the Diversion Subscale.....	163

ABSTRACT

Increasingly TV viewers are engaging in the Second Screen Experience (SSE): using secondary screens to discuss television shows while watching them. This dissertation explores motivations to engage in the SSE through in-depth analysis of the results of an online survey of second screen (SS) users. The core component of this online survey was the Second Screen Experience: Motivations Scale (SSE-MS), a new 30-item questionnaire developed as a main element of this research. The ultimate goal of the research was to assess the motivations for engaging in the SSE, and then to explore factors such as Demographic, TV Viewing Habits, and Second Screen Use variables that are related to the use of the SS (who, what, where, when, and how the SS is used).

This research was conducted in three stages. Stage 1 was the development of the SSE-MS, which was based on the widely used Uses and Gratifications (U & G) framework. The resulting questionnaire contained subscales assessing the fulfillment of Cognitive, Personal Identity, Social Integration, and Diversion needs via the SSE. The items comprising these subscales used a common stem-and-completion format and a five-point response scale to itemize gratifications sought and/or received through the SSE. In Stage 2, the reliability and validity of the SSE-MS was established using a sample of 348 undergraduate students. In Stage 3, a sample of 450 participants (primarily, but not exclusively, undergraduate) was employed to assess the motivations for SS use and to relate the subscales of the SSE-MS to Demographic, TV Viewing Habits, and Second Screen Use variables.

All motivations were endorsed by participants, with the endorsement of Diversion needs slightly higher than Cognitive needs, which was slightly higher in turn than Personal Identity and Social Integration. A profile analysis of the results reveals that there were distinct groupings of participants based on Demographics and TV Viewing Habits variables. Interestingly, living arrangements and occupations were related to the use of a SS to fulfill needs, while age, gender, education, income, and place of residence were not. With regard to TV Viewing Habits, the use of the SS to fulfill needs was related to the social situation of TV viewing (e.g., with family, with friends, with roommates, alone), the choice of TV programming (i.e., genres), and the emotional connection with particular TV shows (e.g., shows followed on social media); however, use of the SS was not related to the intensity of TV watching (e.g., hours per day) or the distinction between video on demand and live TV. Finally, for Second Screen Use, the study revealed that the use of the SS to fulfill needs was related to the social context of SS use (i.e., type and actions of physical company) and the type of social media outlets used on the SS (e.g., blogs, forums), but not to other activities that might be used on a SS (e.g., work, shopping) or to the type of SS (e.g., dual screens, split screens).

In addition to contributing to research on the SSE, this dissertation produced a valid, reliable, and easy to use scale capable of determining the motivations for using a SS to talk about TV while watching that TV.

LIST OF ABBREVIATIONS AND SYMBOLS USED

<i>adj-α</i>	Adjusted Alpha	<i>R</i>	Multiple correlation coefficient
ANOVA	Analysis of Variance	<i>R</i> ²	Multiple coefficient of determination
CFA	Confirmatory Factor analysis	<i>r</i> ²	Simple coefficient of determination
CLT	Central Limit Theorem (CLT)	<i>SD</i>	Standard deviation
D	Disagree	SPSS	Statistical Package for Social Sciences
<i>df</i>	Degree of Freedom	SS	Second Screen
DV	Dependent Variable	SSE	Second Screen Experience
DVD	Digital Video Desk	SSE-MS	Second Screen Experience Motivations Scale
DVR	Digital Video Recorder	TV	Television
EFA	Exploratory Factor Analysis	U & G	Uses and Gratifications
H	Hypothesis	UES-SF	The User Engagement Scale Questionnaire
HandE	The Hedonic and Eudaimonic Scale	URL	Uniform Resource Locator
ICM	The Interpersonal Communications Motives Questionnaire	USM	The Use of Social Media Questionnaire
IMDb	Internet Movie Database	VHS	Video Home System
IV	Independent Variable	VoD	Video on Demand
KMO	Kaiser-Meyer-Olkin	α	Cronbach's Alpha
MR	Multiple Regression	Δ	Difference
MSA	Major of Sampling Adequacy		
MUIInternet	The Motivations for Using the Internet Questionnaire		
MWTV	The Motivations for Watching TV		
N	Number		
<i>p</i>	p Value – probability		
PAF	Principal Axis Factoring		
PCA	Principal Components Analysis		
<i>r</i>	Correlation coefficient		

ACKNOWLEDGEMENTS

This thesis would not have been completed without the help and support of others. While it is not possible to acknowledge everyone who supported me to reach my goal of completing this thesis, I wish to acknowledge and thank the following people.

First and foremost, my incredible supervisor Dr. Vivian Howard who supported me in every way possible with timely advise and useful feedback throughout the development of this thesis, my supervisor Dr. Anatoliy Gruzd who shared his passion for research with me, and my committee members Dr. Sandra Toze and Dr. Evangelos Milios each of whom contributed significantly to enhance my knowledge.

A very important tribute to James Ross who helped me put the last period that completed this thesis. I have learned how to improve my academic writing using his positive and remarkable advice and tips, comment by comment.

A special thank you to the writing center especially Dr. Margie Bohan for all the time and effort she provided to make this thesis better.

My heartfelt appreciation goes to Dr. Lynne Robinson, for her encouragement and inspiring influence.

Also, this thesis was generously financially supported by the Saudi Arabian Ministry of Higher Education led by the late King Abdulla Al-Saud. I am so grateful for this opportunity.

Most crucially, this thesis would not have been possible without the contributions of the participants who shared their experience with me to help add to the knowledge in this field. Thank you!

Further, a sincere gratitude to my neighbours and greatest cheerers; Linda, Eric, Milda, George, Patricia and Hugh for their encouragement and support.

Finally, thanks to my friends who were always interested in my work, and always had “something to say”.

CHAPTER 1 Introduction

The overarching goal of this thesis is to understand what motivates viewers to use social media – through some form of second screen – to talk about TV while watching that TV. This is referred to herein as the Second Screen Experience (SSE). The SSE is now possible because of the increasing capabilities of modern internet-related technology. This current chapter first describes SSE, explains why it is worthy of study, provides a conceptual framework for the study, and finishes with an overview of the current quantitative study to explore those motivations.

The SSE is deceptively simple. On the one hand the SSE seems like a rather minor extension of that which people have always done – “talk about TV shows”. However, the SSE is a possible game changer for TV viewing. According to a report by Nielsen – a leading data measurement company – 45% of US TV viewers very often or always use another device while watching TV (Nielsen, 2019).

The SSE represents the merger of two ubiquitous technology-based, social phenomena: TV viewing and social media. It is this intersection that makes the study of the SSE so important. The intersection amplifies the power of TV (role as a social force) by the power of the internet (reach, breadth, speed of communication). Any who might plan to use online discussions of TV content need to understand what motivates viewers to discuss TV on social media while watching TV. Herein, it is argued that the motivations for the SSE should not be assumed to be the same as the motivations to watch TV, or the same as the motivations to use social media in a more general sense.

1.1 The Second Screen Experience and TV Viewing

The TV set is usually the focus of attention in a modern-day living room: the orientation of people and the configuration of furniture is typically towards the TV set (Oliveira & Marquioni, 2017). This living room setting, which is generally a shared physical space, facilitates communal TV viewing (Miller, 1995). When TV viewers are in the living room together they can easily discuss the show being watched, to the enjoyment, or perhaps frustration, of those around them.

This structure may be experiencing its largest shift since the invention of TV. TV viewing is no longer tied to the physical TV set in the living room (Bury & Li, 2015). Internet streaming services now provide scheduled programming (e.g., HBO, Hulu, online network broadcasters) and/or video-on-demand (VoD) services (e.g., Netflix, Amazon Prime, Crave, PlayStation Vue) (Barkhuus, 2009) with an expanding breadth of content – to an increasing number of devices (e.g., televisions, computers) many being increasingly portable (e.g., tablets, smartphones) – at the time and place that is most convenient to the TV viewer. These new services are competing with, and possibly displacing, the more traditional cable TV and over-the-air broadcasts.

However, that is not the only change. Technology has enabled the TV viewing to be simultaneous with other access of the internet (Nielsen, 2019); using devices other than the TV, a viewer can shop, socialize, or work online while watching TV. Completing other tasks while watching TV is not a new phenomenon. Socializing while watching TV is also not new. What is new is the ability to engage in these alternative activities online while watching TV – TV that itself, is increasingly presented online. In particular, the advent of the internet has greatly expanded the ability to talk about TV while simultaneously watching TV through the use of online social media (e.g., social networking sites like Facebook, forums, blogs & microblogs like Twitter, chat programs). This is the core of the SSE and that is the main focus of the current thesis. The introduction of the use of online social media to talk about TV on a second screen while watching that same TV on a first screen represents a change in TV watching (Jenkins, 2006; Wilson, 2016). In their Communications Market Report *Ofcom*, an independent regulator for the U.K. communication industries, dubbed this “the reinvention of the 1950s living room”.

Furthermore, the advent of the internet has also expanded the ability to simultaneously “research” aspects of the TV program that is currently being viewed. This means that TV viewers can look up prior episodes (or backstories) (Abreu et al., 2015), possible future episodes (teasers), access reviews or commentaries (Doughty et al., 2011b), or check supporting facts (Case, 2012) (e.g., within historical dramas) while watching the show. This has the potential to place unprecedented pressures and constraints on TV productions. The SSE includes access of the other online content relevant to the TV show.

Additionally, the ubiquitous availability of social media means that TV viewers now have the opportunity to discuss TV programs with the production staff (e.g., directors, actors) if that

production staff should decide to participate online. This would be particularly relevant to scheduled (online-live) broadcasts, such as new releases. This raises the potential questions such as, “Is the availability of production staff a factor in the success of a TV show?” or “Are TV fans going to expect or demand such interactions?”

The confluence of TV viewing and the increasing capabilities of the internet is changing the way in which TV is consumed. TV viewing is no longer the passive absorption of selected programming by an individual or two seated in the same room, but now includes the simultaneous online discussions about content, the search for additional (online) information about content (e.g., backstory, artist profiles), and possible interactions with production staff (e.g., actors, directors). Which of these aspects (social interactions or accessing other online content) will be more important in the future is difficult to predict, but all of this is the SSE. TV viewing is now an interactive multi-media, multi-tasking event (Brasel & Gips, 2011). TV viewing now “requires” the consumption of content from at least two screens (the TV and the second screen), and that second screen may itself contain content from multiple sources (e.g., social media content, Wikipedia content).

To be more specific, the SSE is the use of a second screen to access content that is relevant to a TV show that is being watched on a first screen. At this point, the content of the second screen can be any material that is relevant. The first screen can be any device that is capable of providing TV content. Currently this includes TVs, computers, tablets and smartphones (Crawford, 2016). The second screen can be any device that is capable of internet access. Currently, this includes computers, tablets, smartphones, and some TVs. Furthermore, the first and second screen need not be separate devices; the TV show and the online social interaction can occur on one device by switching screens, or by splitting the one screen into multiple sub-screens.

The SSE must include the use of a second screen to “talk” about a TV show that is simultaneously watched. The “talk” can be an online (bidirectional) discussion, the posting of a comment, or the reading of prior posted comments. The “talk” can be synchronous or asynchronous. The “talk” would occur through the use of some internet enabled app or web browser. Typically, one would expect the “talk” to be facilitated by the use of social networking sites like Facebook, through chat programs like IM or WhatsApp, through an email exchange, through forums like IMDb (that allow user content), or through blogs or microblogs like Twitter.

Talk could be synchronous or asynchronous. One would expect Twitter use to primarily consist of posting and reading messages asynchronously. Conversely, Facebook, other forums, and chat could provide a venue for conversations. The definition of “talk” encompasses talk through all social media including collaborative authoring sites (Sloan & Quan-Haase, 2017) such as Wikis (referred to as information channels in this thesis). There is little difference between following (without contributing) a dialogue on Facebook about a particular TV show and reading a posted review if both are conducted while watching the show. Different TV viewers may have different preferences, and these differences may simply reflect personal experiences or access constraints (e.g., a person who has never used Facebook would be unlikely to follow comments on Facebook but might read an online review).

The TV content can be “live” (viewed at the time the TV show is broadcast), or streamed (i.e., video on demand, VoD), or be pre-recorded material (e.g., DVDs). A main distinction is between "live" and "not-live": A second distinction is "streamed" vs "not-streamed" (cable or over-the-air). VoD is typically associated with online streaming services, but streaming services may include scheduled broadcasts. Hence, VoD and streaming are not the opposite of "live". TV broadcasters (online and over cable) that offer scheduled programming fall primarily within the “live” category because such programs are usually consumed at the time of broadcast. There is often advertising and promotion associated with the schedule of the show and the timing of new releases (e.g., season premieres). That scheduled broadcast may be online (a streaming service) or offline (a cable or over-the-air service) or both. However, time-shifting technologies (e.g., DVRs, VHS) can change the actual time of viewing so the term "live" or "scheduled" cannot be trusted to mean "viewed at the time of broadcast". Alternatively, online streaming services (e.g., Netflix, Amazon Prime) and pre-recorded material (e.g., DVD) tend to fall in the "not-live" category. Such programming is consumed at a time that is at the discretion of the TV viewer. To make things more complicated, some online services (e.g., HBO) offer a mix of "live" and "not-live" services, and these may be online (streamed) or cable. On the other hand, VoD services (e.g., Netflix) often offer a timed and advertised "release" of new content to generate excitement. Hence, one cannot trust the term "VoD" to mean "watched at any time". The difference between "scheduled" and "unscheduled" viewing of a program is now in the hands of the TV viewer.

Does the SSE matter? The SSE is a relatively new phenomenon, so it is difficult to assess its long-term prevalence. It is increasingly common. According to a report by Nielsen (2019)

45% of US TV viewers very often or always use another device while watching TV.

Furthermore, because it is an extension of that which TV viewers have always done – talk about TV while watching TV – it is likely to continue.

1.2 Why the Motivations Matter

The SSE represents a change in the way TV is viewed and discussed. The SSE matters because TV matters. The motivations of the SSE matter because TV is a core component of modern society.

According to Gerbner et al.: “Television is a centralized system of storytelling. Its drama, commercials, news, and other programs bring a relatively coherent system of images and messages into every home.” (2002, p. 44). They go on to suggest that “television has become the primary common source of socialization and everyday information (usually cloaked in the form of entertainment) of otherwise heterogeneous populations. We have now reached an unprecedented juncture at which television brings virtually everyone into a shared national culture” (p. 44) that “transcends historic barriers of literacy and mobility.” (p. 44). Others echo those thoughts. In his work on the social cognitive theory of mass communication, Bandura (2001) citing still others writes “Televised representations of social realities reflect ideological bents in their portrayal of human nature, social relations, and the norms and structure of society (Adoni & Mane, 1984; Gerbner, 1972)” (p. 281). Bandura adds that such influence is not always positive: “Indeed, many of the shared misconceptions about occupational pursuits, ethnic groups, minorities, the elderly, social and gender roles, and other aspects of life are at least partly cultivated through symbolic modeling of stereotypes (Buerkel-Rothfuss & Mayes, 1981; Bussey & Bandura, 1999; McGhee & Frueh, 1980)” (p. 282).

TV is also a mechanism or conduit for change. Bandura (2001) further writes, “Whereas previously, modeling influences were largely confined to the behavior patterns exhibited in one’s immediate environment, the accelerated growth of video delivery technologies has vastly expanded the range of models to which members of society are exposed day in and day out ... New ideas, values, behavior patterns, and social practices are now being rapidly diffused worldwide ... Because the symbolic environment occupies a major part of people’s everyday lives, much of the social construction of reality and shaping of public consciousness occurs through electronic acculturation. At the societal level, the electronic modes of influence are

transforming how social systems operate and serving as a major vehicle for sociopolitical change.” (p. 271). For example, TV viewers are now able to personalise their viewing experience largely because of “demassification of mass communication” (Valkenburg et al., 2016), which was a major restructuring that the media industry went through, from having a few large all-inclusive broadcasters to many small independent specialized ones.

The SSE matters because TV is the major mode for the presentation, maintenance and potential alteration of the standards and norms of society. Talking about TV leads to the spread of TV viewership, and specifically, to the spread of particular TV shows. When people talk about TV, they are presenting – even if not specifically supporting – the standards and norms presented in that TV program. Increased popularity of specific TV shows influences the evolution of TV content in that it creates a feedback loop with TV producers and distributors. Thus, the SSE has the potential to be a major part of “the electronic modes of influence ... serving as a major vehicle for sociopolitical change” (Bandura, 2001, p. 271).

TV content is not static. Although TV has a common thematic and social structure, there are differences between shows – both between and within genres as highlighted by Gerbner et al. (2002). The content of television as a whole evolves because some shows are more popular and others are less popular, which is the result of TV consumers selecting some programs in lieu of others. Since its inception, TV producers and distributors have monitored the reception of various programs through ratings and audience size. For example, the most commonly used Nielsen ratings began in the 1930s with radio, and moved to television in the 1950s. There are two somewhat different measures – shares and ratings – which essentially measure audience size and demographics (particularly age, gender, race, area and socio-economic class). There are a number of sampling techniques, and Nielsen has a number of competitors (e.g., comScore, Information Resources, Rentrak, TiVo). The key point is that such ratings are used as feedback that can alter production (e.g., cancelling, cast changes, role alterations) or distribution (e.g., more networks, better time slots) of particular shows. Audience size and ratings are – currently – the primary mechanisms through which viewers indicate their preferences. The SSE may alter that feedback loop. Specifically, online discussions could be monitored and feedback about the show can be extracted – possibly automatically (i.e., machine learning algorithms to extract ratings). Thus, rather than opinion polls that reach a tiny subset of the global population, TV producers could alter productions based on what is said in numerous online communities, and by

what TV viewers choose to research about particular shows (i.e., visit counts to various sites). This might include analyses to identify reviews that are predictive of audience size and ratings. This has some far-reaching implications. For example, is it the quantity or quality of discussion that matters? Who participates in such discussions? If production companies or advertisers should focus exclusively on such online communities, the portrayal of standards and norms in TV productions might be biased to a vocal minority, and all that implies for the evolution of societal standards and norms. The opinions of the silent or quiet, majority or minority, might be lost. Current TV ratings typically focus crude ratings of the show as whole and on the number of viewers. Content analysis of online discussion has far greater potential for feedback about particular elements of a show. Again, because TV is a major mode for the presentation, maintenance and alteration of societal norms and standards, such feedback could have far reaching implications. If that online discussion is not properly contextualized (e.g., participant demographics, participant motivations for discussions), all manner of distortion could result.

The SSE is also automatically a part of the dissemination of particular TV shows. TV viewers can learn about TV shows through a number of mechanisms (e.g., direct advertising & promotion, cross references within TV shows, title browsing – the new version of "browsing the TV guide"), but word-of-mouth communication is likely still one of the most important elements for the promotion of a TV show (see Cadario, 2015; Fossen & Schweidel, 2016). The SSE is a large word-of-mouth recommendation system. Thus, the SSE is an important element for the spread of a particular TV show, and all that means to the success of a show. The quantity and quality of discussion as the SSE may be seen as the “pulse” of a TV show.

The SSE also has the virtue of immediacy. It is a discussion about a TV show at the time the TV show is being watched. This is of particular importance when the show is a scheduled broadcast or a new release. Generally, this is the time frame in which a show has its greatest impact – the time when its audience is largest (though there are numerous exceptions). The online discussion generated within the SSE represents a gold mine of information in such situations that can alter the destiny of a show.

Viewers watch and talk about particular TV shows because those activities meet various personal needs. However, talking about TV leads to the spread of TV viewership, and specifically, to the spread of norms and standards associated with particular shows. That is, the motivations for the SSE may be distinct from the consequences of the SSE. The motivations are

at the individual level, but the consequences are at the societal level (i.e., at least at the level of TV shows). Thus, it is important to understand why people want to talk about TV while watching TV. Why people talk about particular shows is the precursor to what is said about the show, how often it is said, what discussions will spread, and other aspects of the TV show. For example, “I talk about my TV show because it makes me feel important” is a very different motivation than “I talk about my TV show because it helps me to see my problems in a new way”. If those who mine the content of the SSE for feedback fail to be aware of the distinction, the consequences for the TV show could be serious.

Interference and Cognitive Load

There is a second side to the SSE. The SSE is fundamentally a form of multitasking (using a SS while watching TV) which requires cognitive effort (Buser & Peter, 2012; Levine et al., 2012; Park et al., 2019). In this context, the SSE requires splitting of attention over two visual media (the TV show and the online interaction). This may also require the physical management of two different devices (e.g., the first and second screens). Despite the extra effort, viewers still use second screens while watching TV. What motivates viewers to participate in the SSE even though it is more work?

The SSE in this context may seem like a simple extension of what people have “always” done: When in the same room, TV viewers often talk about the show while they are watching. In the past, people in different locations have used a phone to do the same. However, the mix of talk and TV watching is not quite the same as two screens. The talk is primarily auditory while the TV show is primarily visual. The two streams can co-exist although the auditory streams from the conversation and TV may interfere. Generally, though one can converse without averting one’s eyes from the TV. On the other hand, the use of two screens is fundamentally the use of two visual media. There is competition for the same visual resource. It requires a shift in gaze direction. This interrupts the flow of information from one screen, and may also cause physical fatigue in the visual system (i.e., the eyes need to adjust to a new screen, new level of lighting, etc.). As such, the use of a second screen could interfere with the primary TV viewing (Van Cauwenberge et al., 2014) rendering it less enjoyable. We are led to ask, "Why do people engage in this behavior? – What are their motivations and what do they gain from it?"

Social Isolation

From inception until the 1970s, TV viewing was a form of family glue. Families gathered around their TVs in the evenings to watch “prime time” shows like *The Ed Sullivan Show*, *Gilligan’ Island*, *Bonanza*, *The Andy Griffith Show*, *Bewitched*, or *Green Acres* (these are the 1966 prime time shows). There were limited options, and TV shows had to be consumed at the time of broadcast. There was no internet. For example, in the 1950’s two-thirds of Americans tuned in to watch *I Love Lucy*. By the 1970s that began to change as the number of TV offerings increased (shows, broadcasters, and TV stations) and the number of TVs per home increased. In the 1970s, the ability to record TV shows (time-shifted viewing) and buy pre-recorded shows first appeared (VHS, Beta, now DVDs). But as time progressed social isolation was identified as a concern by Harrison & Amento (2007), they explained that TV shows used to bring families together, but the vast amount of content that was then being offered and the ability to watch at different times (i.e., VHS, Beta, DVRs) allowed family members to watch content based on their particular interests and schedules. This separated family members from what was previously considered family time. They also argued that DVRs and the like not only had an impact on family time, but also had an impact on the so called “water-cooler effect”. If people were not watching the same shows, they lacked a common experience for bonding. Thus, the fragmentation of viewing affected the extended family and the social network of friends and co-workers. They concluded their discussion by indicating that: “This declining ability for people to interact, particularly with those external to the immediate family, is eroding once strong social ties. However, all indications seem to point towards a lack of ability to communicate, not a lack of desire” (p. 2). This lack of interaction is likely to rise as Canadians are increasingly likely to live alone: about 14% in 2019 (Statistics Canada, 2019). Thus, the rise of the SSE may represent a desire to reconnect – to find a sense of bonding with others who share the same interests in TV shows even if those others are not, or cannot be, in the same room.

TV Is Not Dying

Many people think —in error— that “TV is dying” (Chulkov & Nizovtsev, 2015). However, rather than dying – it is flourishing (Ofcom, 2019). The apparent “death” of TV is really a metamorphosis. What is changing is the production and distribution of TV, and particularly the companies that control said production and distribution (Richter, 2018). This change was driven by TV viewers. Online streaming serves that offered VoD (e.g., Netflix)

provide a new way to view TV and this captured viewers. Existing television networks and cable channels were too slow to adapt. Viewers drove the evolution of the distribution of TV through collective behavioral feedback.

1.3 The Structural Framework

The core question that is being considered is the motivations for the use of an internet enabled second screen to talk about a TV show while watching that TV show, the SSE.

The focus of this thesis is on the motivations to talk about TV shows online, while simultaneously watching. The focus of this thesis was not on the motivations to watch TV. Indeed, the motivations to watch TV could be completely different from the motivations to talk about TV, though one would generally expect the two to align to some degree. The focus was not on the broader motivations to talk about TV offline or asynchronously, but again, it could be assumed that the motivations to talk offline and online would be similar.

Since the start of this research, the SSE was focused on the social media aspects of the online world (i.e., social media sites like Facebook, blogs or microblogs like Twitter, fan boards, online fan communities). Despite that, from the start, the goal was to not be limited to a single form of SNS (i.e., to be limited to Facebook) because this would limit the generalizability of the findings to that specific SNS. As such, SNS was always presented as a generic construct using Facebook, Twitter, and the like as specific examples. During the inception phase, the focus was expanded to include other online activities that were related to the TV show that were conducted simultaneously while watching the TV show. This expansion was meant to primarily encompass the acquisition of other information about the show such as back stories, prior episodes, actor profiles, plausibility or reality ratings, or reviews. This type of information is similar to that which could be obtained in online conversations (i.e., in the SSE) using SNS. It also provides important context.

To address such a broad domain, a structural framework was required. Several options were considered but after a review of relevant literature, the current thesis adopted the Uses and Gratifications framework (U & G). This framework is discussed in greater detail in *Chapter 2*, but briefly, this perspective was selected because it has a focus on the motivations for behaviors and because it has a long and successful history in the study of media effects in general (see Ruggiero, 2000 for a historical review; see also, Lin, 1996, Shao, 2009 and Case, 2012 for

summaries of the structure currently used). The U & G framework was developed initially within the domain of TV usage with a focus on the reasons TV viewers select particular content in lieu of other options. In other words, it was focused on why people watched particular TV shows. It has since been adapted for use in many other domains, particularly the use of the internet broadly defined, and social media in particular. This focus has largely been on the reasons why people use the internet or social media. The U & G framework has been successful because it views the person as an active consumer of media (which includes the use of online social media outlets like social media like Facebook or Twitter, information channels like Wikipedia Rotten Tomatoes, IMDb, fan sites). The consumer is seeking particular media to satisfy particular needs (Krämer et al., 2015).

Across all domains, U & G presents a relatively consistent framework: People engage in particular activities (in this case SSE) to fulfill needs that fall within one of four or five main dimensions: Cognitive, Personal Identity, Social Integration, and Diversion – Diversion is sometimes split into two dimensions that capture emotional arousal (Entertainment, Excitement) and emotional abatement (Diversion, Stress Release, Routine, Relaxation).

Cognitive Needs	The need for information.
Personal Identity Needs	The need for status, recognition and growth.
Social Integration Needs	The need to feel part of a group.
Diversion Needs	The need for escape (stress release), entertainment, relaxation and/or diversion from other daily rituals of life.

The way in which the particular media (the "consumption of media") behavior fulfills the need changes, but the needs remain consistent.

As noted, the U & G framework has had a long history in the study of motivations to watch TV. However, there is very little research on the motivations to talk about TV. If "talking about TV" is discussed at all it is tertiary and seems to assume that the motivations to talk about TV are the same as the motivations to watch TV. While, as noted previously, it is likely that the motivations overlap, there is also the possibility for a large mismatch. People may watch TV out of boredom or for entertainment (the Diversion Need) but use the SSE to avoid loneliness (fulfill Social Integration Needs) or to impress their friends or co-workers (Personal Identity Needs). The degree of mismatch is not known. There is a gap in the literature on this point.

Indeed, conceptually "talking about TV" seems to have more in common with psychological research on gossip. "Talking about the characters in a TV show" is quite similar to

talking about one's neighbors, or the people in the next town. Some have explicitly discussed the role of TV personalities in gossip (McAndrew, 2014; McAndrew et al., 2007). The motivations to gossip – the creation, maintenance & monitoring of social bonds, the exchange of information particularly social information group norms and standards, the maintenance and enhancement (or reduction) of status, and entertainment (Lee & Workman, 2013; Martinescu et al., 2014; McAndrew, 2014) – align quite nicely with the U & G framework. Unfortunately, that area of research also fails to deal with the motivations to "talk about TV". There is a gap in that literature as well. The link to gossip is only mentioned here to state that it was considered. Because it did not add insight to understanding why people talk about TV while watching TV, it is not discussed further.

1.4 Research Goals

The current research is focused on why people use a second screen to talk about TV while watching TV. Using the Uses and Gratifications framework, two main research goals were established:

1. Understanding the motivations for the use of a second screens to discuss TV shows while watching those TV shows (SSE). This goal resulted in five hypotheses:

- H 1.1: SSE will fulfill cognitive needs
- H 1.2: SSE will fulfill personal identity needs
- H 1.3: SSE will fulfill social integration needs
- H 1.4: SSE will fulfill diversion needs
- H 1.5: SSE will fulfill all needs

2. Understanding who, what, when and where viewers use second screens while watching TV. This goal resulted in three hypotheses:

- H 2.1: Demographic variables are related to the fulfillment of needs through the SSE
- H 2.2: TV Viewing Habits variables are related to the fulfillment of needs through the SSE
- H 2.3: Second Screen Use variables are related to the fulfillment of needs through the SSE

To reach these goals, it was necessary to first develop the Second Screen Experience:

Motivations Scale (SSE-MS). As will be discussed in more detail in *Chapter 2*, there are several research options that were considered to probe motivations to talk about TV while watching TV. In this thesis, a survey design was used. Further, given the review of the literature – and the prior success of the U & G framework in similar domains – I thought that there was sufficient

knowledge to itemize the possible motives for the SSE. In this thesis, the questionnaire approach was selected.

That decision to use a questionnaire approach and the lack of pre-existing appropriate, valid and reliable, questionnaires meant that considerable effort had to be devoted to the development of an appropriate instrument to capture the motivations to talk about TV while watching TV. This was the SSE-MS (Second Screen Experience: Motivations Scale). Again, details are provided later (particularly *Chapter 3 and 4*).

Basically, the SSE-MS assesses motivations within the four domains of the U & G framework: Cognitive needs (information seeking), Social Integration needs (bonding within a group), Personal Identity needs (personal growth, recognition, status) and Diversion needs (entertainment, stress release). Every item of the SSE-MS begins with an expression like, "While watching TV, I use a second screen to..." That is, the motivations are explored explicitly within the SSE. The resulting questionnaire has 30 items divided into four dimensions: Cognitive, Personal Identity, Social Integration, and Diversion.

The development was based on similar questionnaires in similar domains (watching TV, using social media, and using the internet). The development of the SSE-MS required rigorous testing and analysis to assess both the reliability and validity of the SSE-MS. These analyses showed the SSE-MS to be reliable and valid (see *Chapter 4*).

The development of the SSE-MS also rested on the development of a consistent definition of the SSE – one that was not limited to one type of social media or activity. Refinement of the definition of the SSE and the initial development of the SSE-MS went hand-in-hand. The SSE is any online activity on a second screen that is related to the watching of a TV show on a first screen.

Once the SSE-MS was available, it was possible to use the SSE-MS to gather information about the SSE. That is, it was then possible to study *who*, *when*, and *where* TV viewers engage in the SSE. Note that the SSE-MS actually provides an assessment of *why*.

1.5 Methodology

Survey research methodology was used for this thesis. Participants provided basic demographic information (gender, age, education, employment, income and living arrangements) as well as information about their TV Viewing Habits (TV genres, modes of TV access, intensity

of use, time of use, physical company associated with use) and their second screen (SS) use (modes of access, applications used, intensity of use, time of use, physical company associated with use). The SSE-MS was used to collect motivations for the SSE.

The first step was the development of the Second Screen Experience: Motivations Scale (SSE-MS) using standard methodologies for questionnaire development.

In the second step, the Demographics, TV Viewing Habits, and the SS use were used to predict the motivations for the SSE. That is, responses to the SSE-MS were related to Demographic measures, to TV Viewing Habits (e.g., genre, intensity of TV viewing, social situation of TV viewing) and to second screen use. The objective was to understand the motivations for the SSE and to provide some broad insights into its user base.

1.6 Scope

In this thesis, the SSE is about the use of a second screen to engage in activities related to a TV show that is watched on a first screen. The scope of “activities” is as broad as possible. It is focused on social media in its many forms (e.g., social networking sites such as Facebook, microblogging such as Twitter, blogs and forums such as those hosted on WordPress, media sharing sites such as YouTube, and collaborative authoring or information channels such as Wikipedia). The definition of a second screen was also as broad as possible including any internet capable device (e.g., a second computer or computer screen, a smartphone). The conceptualization explicitly allows for the use of a single device as both the first and second screen (e.g., switching between applications on a computer or tablet).

For the purposes of this thesis, the viewing of sporting events and news channels on the first screen were not considered. Sporting events and news tend to have a distinct literature (see for example Cunningham & Eastin, 2017; Kim, 2013). Sporting events and news are usually watched live, and it is uncommon that people watch reruns after acquiring the information (i.e., the score of a soccer match).

Furthermore, a SS may be used for other activities such as work, socializing, shopping, and unfocused internet browsing that is not related to the show. Such activities are not considered here.

1.7 Implications

This thesis has implications for those who are trying to understand the SSE at both research and practice levels. From the research side, the main contribution is the development of the SSE-MS. This scale helps to provide information about the motivations for the use of a SS while watching TV (the SSE). The SSE-MS is transferable to other domains and contexts. For example, the SSE-MS can be adopted to study discussions about TV that happen before or after the TV show. This scale can also be used to examine motivations of using second screens while watching TV by focusing on a specific genre or a particular social media platform.

On the practical side, this research can be used by designers of the SSE devices/applications and social media platforms. That is, if designers know what people use second screens for (and how), they can design applications with better user experience in mind. For instance, if the SSE is focused on social relationships, designers could make such platforms more amenable to supporting friend-based networks and interactions.

1.8 The Structure of the Dissertation

The thesis is organized as follows (see Figure 1): *Chapter 2*, the literature review, discusses prior related research. It begins by defining the SSE. A large part of the chapter is devoted to examining the composition of viewer motivations in the context of the SSE, and discovering Motivations Scale (MS) factors through the lens of the Uses and Gratification (U & G) framework.

Chapter 3 discusses the general research design and data collection methods. It compares and contrasts the commonly used data collection methods so to explain the rationale for the current design. *Chapter 3* discusses the methods used to collect data for the three different stages of the study. *Chapter 3* also discusses a number of analytical issues that are relevant throughout this thesis.

Chapter 4 discusses the questionnaire design process and creation of the SSE-MS. It is divided into four main stages:

- Stage 1.1 is item Generation,
- Stage 1.2 is item Selection,
- Stage 1.3 is item Testing and Refinement, and
- Stage 1.4 is the initial analysis of the SSE-MS.

Chapter 5 is the evaluation of the SSE-MS which is done through the analysis of the reliability and validity of the new SSE-MS. It is divided into three main stages:

Stage 2.1 is the methods that are specific to the analysis of reliability and validity,

Stage 2.2 is the analysis of reliability, and

Stage 2.3 is the analysis of validity.

Chapter 6 is the main analysis of the two main research questions. It is divided into three main stages:

Stage 3.1 is details of the methods that are specific to the analysis of the two research goals.

Stage 3.2 is the analysis of the first research goal: the motivations for the use of a second screen to talk about a TV show while watching that show,

Stage 3.3 is the analysis of the second research goal: the relationship between motivations to use a SS to talk about TV shows while watching that show and a number of background variables related to Demographics, TV Viewing Habits and general use of the SS while watching TV. Stage 3.3 has many sub-stages. *Chapter 7* is the main discussion of findings and implications, limitations, and future work. *Chapter 8* provides a general conclusion in a summary format. Figure 1 shows the conceptual structure of the thesis.

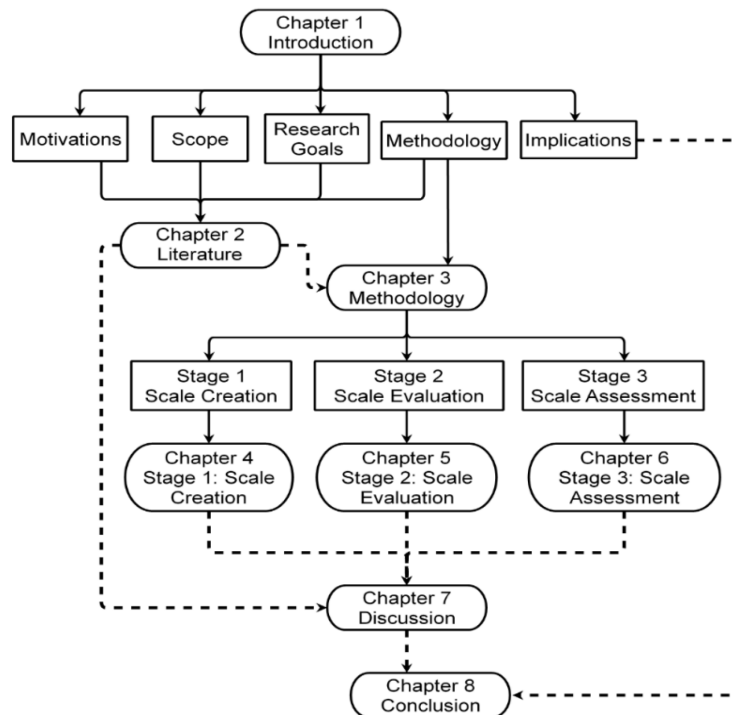


Figure 1: The the Conceptual Structure of the Thesis

CHAPTER 2 The Composition of Viewer Motivation in the Context of the

Second Screen Experience: A Review of the Literature

This chapter is a review of the literature relevant to understanding the motivations to use a second screen to talk about a TV show while watching that TV show. This chapter reviews literature from two key areas. The first section reviews the literature relevant to the second screen experience (including aspects of TV viewing that might be relevant). The second section reviews theories of, and approaches to, the study of the motivations for the use of a SS while watching TV, with a particular emphasis on the Uses and Gratifications framework.

2.1 The Second Screen Experience

This work is focused on the Second Screen Experience. However, the term “second screen experience” (SSE) is not universally used and is not well-defined. The SSE involves the use of a second screen (SS) while watching TV on a first screen. Previous studies have examined the use of a SS to talk about TV under the terms “usage of secondary screens” (Cesar, Bulterman, & Jansen, 2008), the “dual device user experience” (Basapur et al., 2011), “multiple screen watching” (Courtois & D’heer, 2012), “social TV” (Almeida et al., 2012; Shamma et al., 2008; Williams et al., 2009), or “interactions beyond the physical TV screen” (Vatavu, 2013). Much of the literature post 2014 used the term “second screen experience” (SSE) or “second screens use” (Bulterman, 2014; Herdem, 2014; Soskic et al., 2014) while a few used other terms such as “multi-screen social TV” (Dias, 2016; Hu et al., 2014) or the less conventional, “Orchestrated Media” (BBC: Jerry Kramskoy in Blake, 2017). Current literature has also referred to it as “dual screen”, “companion screen”, and the “second screen experience”¹. Researchers such as D’heer et al., (2012) specifically referred to the use of social media to talk about TV whilst watching by the unusual term “the remediation of TV consumption” (2012, p. 197). Nielsen (2019) further commented that the continuing increase in the use of tablets and smartphones will inevitably mean that usage will overlap with other media such as TV – thus, it

¹ Not all studies about “interaction” of TV and the internet are about the SSE: Terminology is not trustworthy. For example, the term “Interactive TV” can be used to describe SSE (Cruikshank et al., 2007), or to describe the communication between the viewer and the medium as a way to control that TV (Pramatari, A. Papakyriakopoulos, Lekakos, & Mylonopoulos, 2001; Chorianopoulos & Lekakos, 2008).

may be that trying to label one screen as first and the other as second may be a fruitless exercise. Similarly, in 2014, Geerts et al., (2014) stated that the “growing success of tablets and smartphones has dramatically changed the approach to interactive television ... the main focus used to be on how to add interactive features to the main television set ... this has shifted to interacting with television programs using tablets and smartphones as second screen devices” (2014, p. 95). Thus, terminology and focus have drifted in recent years.

After a review of the literature related to the use of a second screen *while watching TV*, it was clear that the first step of the current thesis had to be a clarification of terms. In this thesis, the SSE is:

- (1) the *experience* associated with
- (2) the use of a second screen that is
- (3) connected to the internet to
- (4) access online content related to the TV show, while
- (5) simultaneously watching that TV show.

In this thesis, the term “Second Screen” (SS) refers to the physical device used as the second screen (Parts 2 and 3 above). The first screen is the device that contains the TV show, and the second screen is some other device that is used to access the internet. The term “Second Screen Use” (SS Use) is focused on activities and contents that are associated with that SS (Part 3 above). SS Use is about how the SS is used. Finally, the term Second Screen Experience (SSE) refers to the *experience* associated with SS Use, and is focused on the motivations for, and benefits received from, that use. Each of these is defined below.

In this thesis, all parts are only considered in the context of the use of SS while watching TV. It is necessary to restrict the discussion of the SS, SS Use, and particularly the SSE to those activities on the SS (i.e., the SS Use) that are directly related to the TV show that is simultaneously viewed on the first screen. This is because the current thesis is about the impact of SS Use that is *related to the TV show* on the experience of TV viewing. The second screen experience derived from activities related to the TV show is likely not the same as the second screen experience derived from other activities: the “experience” part of the SSE would depend on the intentions of that SS Use. For example, if the SS were to be used for work, then the SSE of work layered on top of TV viewing might focus on the negative impact of work on the

enjoyment of TV, or perhaps on the impact of TV viewing on the quality or efficiency of that work. If the SS were to be used for shopping, then the SSE of shopping layered on top of TV viewing might focus on how the shopping distracts from the TV viewing or on how the TV show biases the perception of products. Each type of SS use might have a distinct experience related to TV viewing, so this thesis only considers the SSE when the SS Use is related to the TV show. However, this still includes a large variety of SS Uses (e.g., reading and posting reviews, accessing show-relevant information, shopping related to the show).

2.1.1 The Second Screen (SS)

The second screen refers to any visually-oriented, internet-enabled device that is used (or that can be used) to access the internet while simultaneously watching TV on a first, or primary, screen (e.g., Auverset & Billings, 2016; S. Kim & Baek, 2018; Shim et al., 2017). As noted, in this thesis, the first screen is considered to be the device that provides the TV show, and the second screen is considered to be the device that provides any other online content. This labelling was adopted because the focus of the current work is on the use of the SS as a supplement to watching the TV show. However, it is acknowledged that in other research, the TV show may, in fact, be on the second screen (e.g., if the primary focus is work on one screen, and the TV show merely provides a pleasant background).

The use of a SS while watching TV is a relatively new manifestation of the human propensity to multitask. Generally, the use of a SS has been made possible only in recent years through the increased hardware and software capabilities of the internet (e.g., bandwidth, applications; Dias, 2016).

That second screen can be a computer (desktop, portable), tablet, smartphone, or smart TV (Lauren A. Auverset & Billings, 2016; Blake, 2017; Doughty et al., 2012; Giglietto & Selva, 2014), laptops/tablets (Zúñiga et al., 2015), or hybrid media such as split screens (Zúñiga et al., 2015). The first screen would typically be a TV. However, the first screen may also be any internet-enabled device that allows access to TV content (e.g., streaming TV such as Netflix, HBO, Amazon Prime, Disney Plus or others). This now includes TV on computers, tablets, and smartphones (Bury & Li, 2015). In fact, the first and second screens need not be separate devices. The first and second screens can be a single computer, smartphone, tablet, or internet-enabled TV. The two screens could be presented simultaneously if the viewer uses a split screen,

or sequentially if the viewer chooses to switch between different social media outlets. The use of separate devices for the first and second screens is similar to, but not the same as, the use of a split screen because all of a split screen is within the visual field.

One must be mindful of the distinction between second screen usage that presents both streams of information concurrently (i.e., dual-screens using two devices or a split screen), and second screen usage that switches back and forth between the two streams of information (i.e., sequential screens such as switching between applications on one computer). Both the dual-screens and sequential-screens setups allow the TV viewer to *switch* attention between the two streams of information, but only the dual-screens setup allows the TV viewer to *divide* attention between the two streams of information. Dividing attention is only possible when the two devices are within the same visual field (i.e., in front of the TV viewer), so such may be limited to the case of a split screen (when one screen is used as both the SS and the TV). Divided attention and switching attention do not create the same amount of type of cognitive work, though they are related (see Buser & Peter, 2012; Gleitman et al., 2011 p 8-14, 208-212, 231-249; Levine et al., 2012). As such, the type of setup might be important for the SSE.

The use of SS while watching TV shows is on the rise due to the growing popularity of social media and the rapidly decreasing cost of (particularly mobile) devices that can be, and are being, used to access online social media. The use of smartphones and TV together is most common when multi-screening (Dias, 2016). The market research lab, Nielsen, reported in their Total Audience Report that 88% of Americans use a second digital device while watching TV (Nielsen, 2019). The YuMe lab (YuMe, 2017) —in conjunction with Nielsen lab— reported that 92% of viewers used a connected device while watching TV.

Tweets associated with three specific shows (*Dancing with the Stars*, *Mad Men*, and *True Blood*) during May 2013 were analyzed by Mukherjee & Jansen (2014). The interesting observation (for the current discussion) was that tweets during the show (i.e., simultaneously using a SS) were far more common than tweets before or after the show (i.e., when the show was not being aired). In contrast to the previous comment of Dias (2016), results also indicated that the amount of use associated with a mobile device did not differ from the amount of use associated with a desktop computer.

In a survey based on 821 US participants, Sruoginis et al. (2017) from IAB reported that streaming-enabled TV ownership (smart TVs and video streaming devices) increased from 35% of respondents in 2015 to 56% in 2017 (daily use increased from 32 to 46%), while “standard” TV ownership dropped by from 92 to 85% in the same time frame. More critically, 72% of streaming TV viewers and 81% of traditional TV viewers used second screens while watching TV. For streaming TV viewers, smartphones were the most popular second device at 56% of viewers, followed by computers at 38%, and tablets at 32%. For traditional TV viewers, the percentages were similar at 58%, 46% and 35%. At this point, the consensus would be that smartphones, tablets, and computers are all used as the SS but that smartphones or tablets may be the more common approach. This implies that the dual-screens setup is more common.

The type of SS may be an important factor for the SSE because the type of SS may limit the modes of access (dual screens vs sequential-screens). Different modes – in combination with different devices – may have different effects on the SSE. Monitoring a SS that is presented as a split-screen may be easier (less work) than sequentially switching between applications.

Although it is generally possible to configure one device (e.g., a computer, smart TV, smartphone) in multiple modes, some devices may impose various hardware or practical constraints. For example, some internet-enabled TVs are capable of split-screen operation (allowing for a dual-screens approach), while others are not. By its very nature, the small screen of a smartphone might prevent, or limit, the use of the split-screen (dual-screens) approach. That small screen might encourage one to combine the smartphone with a more traditional TV. If the (small-screened) smartphone is used at both the first and second screen, it would seem that the only option is sequential switching. It is acknowledged that the mode of access is a choice of the TV viewer, but it argued that it is a choice that is somewhat constrained by the devices available.

The combination of mode and device may have an impact on how the TV viewer controls the interaction between the SS and TV show, which in turn, may have an impact on the SSE. For example, Schirra et al., (2014) collected interview data from 11 participants who tweeted during the show *Downton Abbey* (a popular TV drama). Though it was not explicitly stated, participants seemed to be using a dual-screens approach (a smartphone in combination with a TV). To avoid missing the show, participants stated that they would wait for a slow part of the show (some

lamented the lack of commercials), pause the show, or more drastically, turn off the SS. Such tactics might not be necessary if one were to be using a split-screen approach.

As such, it was thought that a proper contextualization of the SSE would require some background information about the SS Use.

2.1.2 Second Screen Use (SS Use)

The term *Second Screen Use* (SS Use) is focused on processes or activities associated with that SS. This naturally includes the application(s) used on the SS (e.g., social media outlets such as Twitter or Facebook; information channels like Wikipedia). The SS Use also includes the content on that SS (e.g., the use of a browser to socialize, shop, work, play games, or browse the net).

For the purpose of this thesis, the primary focus would be the content of the SS – not the applications used on the second screen. The applications and content are linked, but not identical. For example, several social media outlets allow for social interaction (e.g., Twitter, Facebook, chat, even email), but they do so in different ways. Key differences might be the degree of synchronicity and the degree of asymmetry. For example, Twitter encourages relatively independent posting and reading of messages; Chat assumes a dialogue. Twitter allows one to post to a huge audience; Chat is usually functional within a small group. However, both applications could be used – if necessary or desired – in a synchronous or asynchronous fashion, and both could be used symmetrically or asymmetrically. As such, some applications may be more suited to the SS use, particular when the SS use involves a dialogue. For example, in the previously mentioned study by Schirra et al., (2014), participants explicitly stated that Twitter was preferable to Facebook for such interactions (though the comments did not specify “why”).

Despite application preference, it is the content that is likely more important than the application because such applications are adaptable. For example, as noted, one can use Facebook, Twitter, Chat or other platforms for social interactions. Each may have pros and cons, but the definition of pros and cons may be individualistic, and experience with a package can overcome its weaknesses. Similarly, one can also obtain information about a TV show (while watching) through multiple channels: Facebook (posting a question, waiting for a response), Twitter (posting a question, waiting for a response), Chat, or sites such as Wikipedia, Rotten

Tomatoes, Metacritic, or IMDb (reading an article or commentary). Also, multiple types of interactions are available depending on how the application is used: for example, if you use the Messenger component of Facebook to set up a multi-user message thread, you can replicate the chat experience. Twitter users can wind up having rapid back-and-forth in the “mentions” to individual tweets.

As can be seen, the content of the SS can be classified within two main areas: information exchange (cognitive) and social interactions (social). This is consistent with previous research that has noted the same general categories of SS use in the context of TV viewing (e.g., Auverset & Billings, 2016; Chen, 2011; Giglietto & Selva, 2014; Mukherjee & Jansen, 2014; Shim et al., 2017; Zúñiga, Perdomo, & McGregor, 2015). These categories are not mutually exclusive, and likely interact. Many TV viewers will engage in both (e.g., Auverset, 2017; Kim & Baek, 2018; Lin, Sung, & Chen, 2016; Zúñiga et al., 2015).

The primary focus of the online content on the SS would be social media interactions with family, friends, strangers, or possibly, with production staff (e.g., writers, actors, directors, producers, and other support staff; Auverset & Billings, 2016) and could take place through any social media outlet. Some TV viewers use the SS for discussions about the show on Twitter (Chen, 2011; Giglietto & Selva, 2014), or Facebook (Mukherjee & Jansen, 2014) or other social media outlets such as WhatsApp (Krämer et al., 2015). The social media outlet used on a second screen includes collaborative authoring sites (Sloan & Quan-Haase, 2017) such as Wikipedia and IMDb that provide relevant content, commentary or reviews of shows. This is because such channels can have an impact on the SSE by enriching the experience of the TV show. For the same reason, the notion of SS content was further expanded to include other online commercial enterprises (e.g., online stores with merchandise related to the show, fan clubs, podcasts, or events with an online presence devoted to a show; Nielsen, 2018 Q2). Both information exchange and social interactions can be achieved through online social networking sites (e.g., Facebook) but some aspects of these can also be achieved through alternative online channels (e.g., content summaries, reviews or opinions can be obtained from sites dedicated to providing such).

The point of this definition is to capture all uses of a SS that might be related to the TV show and, thus, to the SSE. It would be expected that some SS uses (e.g., discussions on social

media) are more common than others (e.g., shopping for paraphernalia). It would also be expected that such use would be individualistic (some use the SS for information exchange; some use the SS for social interactions).

In the previous section (The Second Screen Device) it was noted that the use of a SS is becoming common. However, some of that use would not be related to the TV show that is watched on the first screen and could be for work, or for shopping, or for socializing that is unrelated to the TV show, or for activities like gaming or browsing the internet more generally. Thus, one must carefully delineate the type of use. The SS is used for content related to the TV show. The study by Mukherjee & Jansen (2014) interviewed participants about their Twitter use relevant to the TV show, but these participants were recruited because they engaged in that activity. The prevalence of SS Use for material related to the TV show is more difficult to assess in part because there are so many applications that could be used (e.g., Facebook, Twitter, Wikipedia). Furthermore, the SS may be used for a number of activities during a single TV show (e.g., work, socializing unrelated to the show, socializing related to the show, information exchange unrelated to the show, information exchange related to the show), and the SS may be used differentially for different types of TV shows (e.g., the SS is never used while watching a favorite show, but the SS is used while watching shows at the bequest of a partner). Nonetheless, there is some general prevalence data. The survey by the YuMe lab (2017) indicated that 47% of SS users accessed content related to the TV show while watching (YuMe, 2017). In the previously cited survey by IAB (Sruoginis et al., 2017) participants indicated that 34% of the content on the SS was relevant to the TV show for those who watched streaming TV while 29% of the content on the SS was relevant to the TV show for those who watched traditional TV. To properly interpret, one must acknowledge that IAB is focused on advertising and as such, the definition of “relevant” included ads and sponsored content. The two studies imply that a reasonable proportion of the SS Use while watching a TV show is directed at content related to that show.

It is the content of the SS that is most directly related to the SSE. That is, a person who is motivated to use a SS by the need for social contact is not likely to be accessing information channels (e.g., Wikipedia, IMDb, Rotten Tomatoes). Nonetheless, the SS Use and the SSE are separable concepts. In particular, as noted, social media outlets could be used to fulfill a number

of motivations: information exchange, social contact, or entertainment. Thus, the content of the SS is a separate issue from the SSE.

In addition, the content might have additional separable effects on the SSE. For example, using the SS to read online reviews (e.g., information channels such as Wikipedia, IMDb, Rotten Tomatoes) might be more distracting than a dialogue on social media because a review usually consolidates information over several paragraphs (i.e., it requires extended time), whereas a dialogue is focused on the current sentence or two (e.g., particularly for Twitter). On the other hand, one can put a review aside when needed (to meet the demands of the TV program), whereas comments from other might require immediate attention. At this point, the impact of these factors is not known and therefore must be considered.

2.1.3 Second Screen Experience (SSE)

Finally, in this thesis, the term *SSE* is about the *experience* that is associated with the use of SS. What is that experience? That experience comprises both the motivations for the use of the SS and the benefits received from that use. Typically, motivations and benefits would be aligned, even if not perfectly. That is, if the benefits did not match motivations, the behavior would not likely continue. Hence, one can, at least temporarily, consider motivations and benefits as a single cohesive unit (hereafter, I use the term “motivations” to encompass motivations and benefits). The misalignment of motives and benefits would be of interest in further studies and would likely be a marker for behavioral change (see also the later more detailed discussion of the motives). One could further assume that the benefits would be positive – not generally negative.

Enhancement

It is thought that the SSE can enrich the experience of watching TV because it expands involvement with the show to include any supplementary add-ons accessed through the SS that have an impact on the viewing experience. Blake states that the “[second screen] is best understood not as an object or media device, but an experience” (2017, p.1). Watching the show is not isolated from the SS Use, and the SS Use is not isolated from the TV show. The SSE is a dynamic experience that takes place over time. As such, the SSE is not about the content on the SS per se, though it is directly related to, and dependent on, that content.

The content of the SS (SS Use) was considered under the categories of information exchange and social interaction. These map onto the motivations and experience. The motivations related to information exchange would include information seeking (e.g., accessing reviews or opinions about the show) and information sharing (e.g., reading or providing opinions or reviews). This includes reading reviews, looking up back-stories, and the events in prior or future (“teasers”) episodes. Note that gathering and providing opinions would be information exchange even though such may have a (sometimes large) component that is affective, or ego related. Information exchange could also include online shopping for paraphernalia related to the show (a form of information search)².

The motivations related to social interaction likely have a greater breadth. This would include the maintenance or creation of social connections (i.e., bonding; avoidance of social isolation), personal growth and development (relating the show, or commentary about the show, to one’s own life; status enhancement by association with the show), and shared emotion or affect (i.e., entertainment). Motivations might also include the need for distraction from other aspects of life (e.g., release from the stress of work or school).

It must be mentioned that – for this thesis– these motivations must be in some way tied to the TV show. For example, a person watching TV may resort to the use of a SS to avoid being alone, but if that SS use is not related to the TV show, it is not relevant to the current work. As mentioned, these motivations should, in some measure, improve or enhance the TV viewing. This is most easily seen in the notion of shared emotion. Often watching TV in company is more entertaining because there is the opportunity to discuss, applaud, or ridicule the characters or events. Such shared emotion also promotes social bonding (see, for example, Keane (2016) for bonding over entertainment, Dixon & Warner (2016) for bonding over sports, and Cesar & Chorianopoulos (2008) for bonding over watching TV).

Many previous studies suggest that the use of a SS to talk about TV while watching TV enhances the experience of TV viewing. Some studies actually collected participant feedback that explicitly tested this notion by, for example, asking participants whether or not – or how – the SS enhanced the viewing the TV content (e.g., Almeida et al., 2012; Basapur et al., 2011;

² I acknowledge that shopping related to the TV show might be better considered as a separate category. For now, it is considered with information search.

Schirra et al., 2014; Basapur et al., 2012; Cesar et al., 2008 ; Geerts et al., 2014) Generally, the results were positive but mixed: participants often noted that the use of a SS was enhancing but also distracting and/or fatiguing. For example, Schirra et al. (2014) collected interview data from 11 participants who tweeted during the show *Downton Abbey*. The reasons cited for tweeting while watching include some associated with content (or the emotions elicited by content): sadness, humor and character development (directed at both the characters and the producers). Some were associated with personal situations: social inclusion, avoiding loneliness, and affirming their own opinions. The participants also discussed etiquette (e.g., avoiding over-tweeting, avoiding spoilers). Using focus groups with 25 participants, Cha, (2016) explored the motives for Social TV (the use of social networks on a second screen). He found motives within three categories: interpersonal communication-driven (sense of community, social bonding with existing networks, and information sharing), self-presentation driven (entertainment, self-documentation, expression of attachment to TV shows, and reinforcement of online persona), and benefit-driven (incentives, and supporting social movements). These would all seem to be positive benefits. Nielsen (2019) in their *Tops of 2019: Social TV report* stated that the convergence of TV and social media creates new experiences for viewers. In the same report, they added that some shows such as the final season of *Games of Thrones* dominated Twitter conversations. This is a form of information exchange. In a survey about Twitter use related to particular shows (*American Idol*, *Project Runway*, and *Glee*), McBride (2015) had one item that asked 49 female participants to rate the statement “I like TV programs better when I can actively participate in them via twitter.” from strongly agree (1) to strongly disagree (5). The result was a normal distribution with a mean of 3.27. That is, for some tweeting enhanced the experience and for others tweeting did not, but for most (39%) the degree of the enhancement was neutral. Note that for this study, all participants did tweet at least some of the time during the show (it was a selection criterion).

Other studies have collected feedback from participants that was related to enhancement, but did not directly ask about enhancement per se. For example, participants in Bulterman, (2014), Cesar et al. (2008), and Cesar et al. (2007) rated the experience as “pro-social”. A 24-hour period surrounding the season finale of the talent show *The Voice* was used by Laursen and Sandvik (2020) to assess the type of feedback that occurs before, during, and after the airing of a show. This show is a bit unique in that it encourages participation before the show that are

“invitations” to consume more media. They analyzed social media data from viewers at different times and noted that such interactions followed “the norms of face-to-face conversation” (p. 18), leading one to infer that the SS interaction was equal to that of a conversation with another in the same room. The pattern of eye movements as a measure of attention was studied and then related attention to subjective cognitive load (more screens implies more load), subjective comfort (more screens implies less comfort) and comprehension of content (more screens did not affect comprehension) (Vatavu & Mancas, 2014). Though they did not ask if multiple screens enhanced the viewing experience, one could assume that “less comfort” implies less enhancement. Results were ambiguous in that more screens were less comfortable some of the time. The feedback collected by D’heer et al., (2012) in 26 interviews about SS Use was even more ambiguous: participants thought that the use of a SS allowed people to physically share space, to watch or partially watch the same show, but also to pursue separate personal interests on second screens. Finally, when probing the use of smartphones with TV watching, Dias (2016) reported that participants did *not* use branded applications³ to interact with TV content because participants “didn’t find them enriching and perceived them as an attempt of forcing them to engage with advertising they wish to avoid” (p. 685).

Other studies (e.g., Geerts et al., 2014; Herdem, 2014; Hu et al., 2014; Shamma et al., 2008; Soskic et al., 2014; Vatavu, 2013; D. Williams et al., 2009) simply assumed the use of SS would enhance the TV experience. For example, Harrington et al. (2012) simply stated that the “increased uses of Twitter alongside television, may add a new dimension (and new pleasures) to the experience of being ‘an audience’ for television” (p. 407). They go on to state that:

the importance of synchronous co-presence in Twitter based social media discussions, [sic] could well re-entrench synchronicity in television viewings, and make viewers less likely to use time shifting technologies (PVRs etc.). Twitter enhanced television viewing, privileges the live event because it requires the gathering of a social media community on the same platform and at the same time (p 407).

Distraction

While the SSE may enhance TV viewing, the basic problem is that the use of a SS may also be distracting or tiring. For example, Blake (2017, p.3) commented that media applications on the SS are compelling TV viewers to “look down” at their SS instead of “looking up” at the

³ Applications that are specifically designed for a show (i.e., *So You Think You Can Dance* voting app)

TV. Focus group participants in Almeida et al. (2012) specifically commented that the SS use could be distracting. D’heer et al. noted “Routine television content ... is said not to require full attention. ... viewers pay just enough attention to keep up with the program.” (2012, p. 196). Nonetheless, anytime a TV viewer focuses attention on the SS screen, they are probably missing the TV show itself. As discussed previously, participants in a study by Schirra et al. (2014) mentioned that the live tweeting (during the show *Downton Abbey*) could be a distraction that caused them to miss important moments in the show. Strategies they employed to avoid this included waiting for a slow part of the show (commercials would be an option), pausing the show, and turning off the SS. Turning off the SS implies that the SS interferes with the TV and thus is not enhancing.

It is clear that there must be a trade-off between enhancement and distraction, but it is difficult to assess the actual contributions of each to the SSE. The fact that people continue to use the SS while watching TV implies that the enhancement outweighs the distraction – at least for those who continue to use a SS (it is possible that some may discontinue, or never partake of, SS use because it is too distracting).

To try to assess balance, a survey by Sruoginis et al. (2017) for IAB asked participants who used a SS while watching TV, “When you are watching traditional live TV programming on a TV screen and using another device, how would you describe your level of attention to the TV screen and/or the device?: Only/Mostly on the TV, Half on the TV & half on the device, or Only/Mostly on the device”. Results were categorized by the type of TV (digital streaming TV vs traditional TV) and the type of SS device (smartphone, computer, tablet). Results show that only 40 - 50% of the participants attended to both devices. Meaning, the majority attended one or the other. About 10% of the time is exclusively of the SS, which could detract from the TV viewing experience. It may also be fatiguing because moving attention between two streams of information (from SS to TV or vice versa) or dividing one’s attention between two streams of information (i.e., attending both) is more work (see Sweller et al., 2011; Gleitman et al., 2011, p 8-14, 208-212, 231-249, 435-436; Kahneman, 1973). Note that divided attention is also called split attention and is closely related to the topic of dual-tasking.

Other studies were more technical and examined movement and gazing durations to better understand visual attention. Visual attention was examined by Holmes et al. (2012)

through monitoring eye-movement patterns with a group of participants who used a SS while watching TV. The findings indicated that 30% of the viewer's time (assessed by gaze direction) is spent on the second screen, which was similar to, but higher than findings by Sruoginis et al. (2017). Results further suggested that synchronized content (both screens referring to the same concepts, objects, events) between the TV and the SS distributed the visual attention more equally between the two screens. Note that using the SS to talk about the TV show while watching that TV show would usually have some degree of synchronicity (if people are discussing what is happening at the moment). They also noted that advertising on the main TV screen did elicit more SS gazing.

A similar eye-monitoring study examined the factors that determined attention to TV while using a second screen by Valuch et al., (2014). Results suggested that including visual elements on the SS that repeat what is happening on the TV can minimize shifting attention between both screens.

All of these suggest that the SS is “distracting” and interfering with the viewing of the primary TV screen. However, they also suggest that the type of SS might have an effect. Some SS setups are more distracting. It also suggests that the content of the SS has an impact on the amount of distraction. When the SS is focused on the same basic content as the first screen (as when using the SS to talk about the TV show while simultaneously watching that show), SS use is likely “less” distracting.

This research related to distraction suggests two considerations. Firstly, it implies an important qualifier for the original question: “What motivates TV viewers to use a SS to talk about TV while watching that TV *if it is fundamentally distracting and more effortful?* Said another way, what motivates TV viewers to engage in an activity that seems counterproductive to watching TV? What aspects of SS Use enhances the experience of TV viewing and what aspects of the SS Use is distracting? Secondly, consideration of this trade-off between the enhancing and distracting component of SS Use brings the question back to discussion of the type of SS Device (e.g., two or one device; dual-screens or sequential-screens) and SS Use (social media outlets and content). Some modes of operation might be more facilitating and some might be more distracting. Some content might be more facilitating and other content might be more distracting. By virtue of interface design, some applications may be less distracting. This

may be why participants in a study by Schirra et al. (2014) preferred Twitter to Facebook, even though both could be (and were) used.

In summary, the SSE is expected to be a positive experience – one that enhances the TV viewing. Nonetheless, there are disadvantages (distraction, fatigue). The motivations for, and the benefits derived from, the use of a SS seem to outweigh the disadvantages. The literature implies that the SSE depends on the SS Device (type and mode of use) and on the SS Use (social media outlets and content). At this point, the details are not clear. Therefore, it would seem that in any exploration of the motivation for the SSE, it would be necessary to control for, or at least assess, the impact of these components.

2.1.4 Other Factors Affecting the SSE

Before considering the motivations in detail, it is important to consider a few more factors that might have a bearing on the SSE. At this time, it is not known if the SSE is actually affected by these factors – it is only reasonable to assume that the SSE *might* be affected by these factors because these factors have been implicit within prior studies. These are listed by category and not by any sense of importance.

Demographics

There are various Demographic factors that affect the use of SS. This include age, education, and socioeconomic status (SES). There is a well-known relationship between decreasing age and the use of newer technologies (e.g., see Morris & Venkatesh, 2006). It is also noted by Aguilar et al., (2015) that the use of social media to talk about TV shows is more prevalent in the younger generations. Social media itself is by no means a mature technology or social phenomenon. It too, is largely confined to the younger demographic: Pew Research found that 90% of young US adults compared to 35% of those who are 65 or over used social media (Andrew, 2015). Educational level is positively associated with the level and rate of technology adoption (e.g., Rogers et al., 2017). SES provides more resources and therefore more opportunity to engage in the SSE, or at least, to do so with better equipment and a faster connection (Dimaggio et al., 2004). Nielsen (2019) found that significant differences in the age and gender profiles of Tweeters across genres of TV which of was particular relevance to advertising. All of these variables are correlated. In other words, education and age are associated at least until

about age 25. SES and education are associated, parental SES and child education are related, and SES and age are also related. Hence, disentangling age, education, and SES effects can be difficult, particularly if the sample is younger.

TV Factors that Could Affect the SSE

The SSE is fundamentally related to TV viewing. As such, it is likely related to TV Viewing Habits (TV content, TV mode and time of consumption). There are many different modes of TV viewing that have emerged from digital convergence (Bury & Li, 2015). Technological advances have enabled viewers to watch TV on devices other than the classic television, screen such as computers, or mobile devices including smartphones and notepads (Bury & Li, 2015; Simons, 2009). Technological advances also shifted the place of viewing TV; according to Ofcom (2017) 51% of adults in the UK watch TV in their bedroom, and 16% watch TV while commuting or travelling. The TV consumption, itself, may be “live” or “on-demand”.

Live TV

In the current research “Live TV” refers to the broadcast when a TV show airs live for the first time on a standard network broadcast. It is the classic model of TV programming that was the only option for TV viewing before the invention of the consumer VCR (VHS, Beta) in the 1980s. According to Van Es (2016) it is precisely this ‘liveness’ that enriches discussions about TV shows on social media: the novelty is that the TV show is viewed by many at the same time (Van Es, 2016). Live TV can boast a degree of novelty and can generate large audiences all viewing the same product at the same time (Schirra et al., 2014). That might encourage the use of the SS because many people would be watching simultaneously. A study by Mukherjee & Jansen (2014) compared the behavior of those interacting with second screens during live and non-Live TV programs. Results show that there were more interactions amongst tweeters when the show is live vs. a non-live show, since viewers know there are others watching at the same time. A study by Nielsen confirms this finding, as it indicated that audience who live-tweet while watching are consuming more TV, thus creating a new cycle of tweeting while watching, and in turn creating a larger audience for the TV show and inviting more to tune-in (Midha, 2014). Live TV is often accompanied by a great deal of pre-release fanfare to promote viewing at the time of broadcast. Those who fail to watch at the time of broadcast may feel left out, or may find that their eventual experience of the show to be ruined by the discussions of others.

Video on Demand

Video on Demand (VoD) refers to programs released for consumption as pre-recorded physical media (DVDs, DVRs, or VHS) or through VoD digital media services such as Netflix, Google Plus, Amazon Prime, HBO GO (Hess et al., 2011). Streaming VoD is taking over from DVDs as the primary form of VoD (i.e., almost all DVD rental stores have been closed; see Unglesbee, 2019). DVRs (and VHS) allowed the consumption of Live TV to be disconnected from the time of broadcast (time-shifted viewing). Streaming online VoD offers even more convenience because it frees the viewer from the shackles of particular hardware – any internet – enabled device can be used as a TV. Herein, VoD tacitly includes streaming media and pre-recorded media, but the emphasis is on streaming media which is expected to be the dominant mode of the future. Hence, TV shows are now available for consumption at any time in any place regardless of the time of initial broadcast. There is usually a release date which may generate substantial viewer interest. However, a key component of VoD is that such releases are often “en masse”. For example, Netflix will often post an entire season of a show at once. DVDs will provide a season or several once released. The convenience of VoD may encourage spending more time watching TV because the TV content can be consumed when the TV viewer is ready to consume. VoD may also encourage the use of a SS because one can control the pace of the broadcast. Meaning, one could stop the show to seek additional information (e.g., information channels), or possibly, to interact with others via social media. Then again, the lack of synchronicity between viewers may discourage social interactions via a SS. That is, even if a group of people were motivated to do so, it would be difficult to synchronize the presentation of the same show in different locations. As such, Live TV probably has more impact on the timing of the viewing by the audience than does VoD (Mukherjee & Jansen, 2014).

Binge Watching

The ability to access TV show “en masse” has led to the rise of a phenomenon called “binge watching”. While there is no specific definition of binge watching, the term is used broadly and is embraced by scholars and the press (Jenner, 2014; Perks, 2014; Pittman & Sheehan, 2015). It generally refers to the practice of watching many episodes of a series in one setting. Although the word “binge” suggests shameful indulgence, the term binge watching is used to describe those who watch multiple pre-recorded shows consecutively. Some scholars

refer to binge watching as “marathoning” or “marathon watching” to give it a more positive connotation (Perks, 2014; Pittman & Sheehan, 2015). Binge watching is a particular feature of streaming VoD, and older pre-recorded media (Jenner, 2014), but it has been seen on broadcast TV when the broadcaster devotes a large segment of consecutive time to a single show (typically called a marathon). Even still, when the broadcaster provides a marathon, the TV viewer has little choice over the particular content (i.e., the episodes, or even the series to be viewed) or the time of that content. Streaming VoD makes bingeing even more convenient than pre-recorded media: The VoD is instantly available on any device whereas pre-recorded material required some degree of pre-planning and the appropriate device. Hence, the convenience of streaming VoD may encourage more second screening. Binge watching may have an impact on the willingness to use a SS. That is, the time constraints may be discouraging to some (e.g., those who have to work in the morning are less likely to binge watch). In addition, as with any VoD, there is the difficulty of synchronizing viewing over different physical locations (there is no need for a SS if all viewers are in the same location). In contrast, a recent interview study by Steiner & Xu (2018) indicated that few viewers do binge watch together from separate locations and communicate with each other using second screens. Although the study by Steiner & Xu (2018) was conducted on a small group and results might not be generalizable.

TV Intensity

The intensity with which a TV viewer watches TV might be a factor for the SSE. Stated simply, a person who watches more TV – in hours, or in number of shows – has more opportunity for the use of a SS, and more opportunity to use a SS for different types of interactions, with different online communities. Similarly, a person who watches a greater number of shows – or a greater variety of shows – has more opportunity for connection with different online communities that may be related to those particular shows. Hence, the intensity of TV viewing might be a factor for the SSE.

Timing of Use

There is some evidence to suggest that the SSE may be affected by the timing of use. For example, participants in a study by Schirra et al., (2014) stated that they would time the use of the SS to a slow part of the show (some lamented the lack of commercials) or pause the show to use the SS so to avoid missing the TV show. This is more of an issue for Live TV because one

can always pause the show when watching VoD. However, as noted, the SSE may be more prevalent when watching Live TV, so it is important to control for, or assess this effect.

TV Genres

How genre plays a role in the use of SS was looked at by Geerts, Cesar, & Bulterman (2008). They discovered that certain genres influence viewers to talk about TV or not, they also discovered that the kind of interactions among viewers (synchronous or asynchronous) is affected by the kind of genre watched. Viewers' live-tweeting behavior while watching two different TV shows was studied by Doughty et al. (2012); results indicated that different show genres result in social networks that behaved differently. Many of the cited studies in the previous literature review have focused on a small number of specific TV shows (e.g., *The Voice* in Laursen & Sandvik, 2014; *American Idol*, *Project Runway*, and *Glee* in McBride, 2015; *Dancing with the Stars*, *Mad Men*, and *True Blood* in Mukherjee & Jansen, 2014; *Downton Abbey* in Schirra, Sun & Bentley, 2014) and thus may not generalize to all genres. A study by Nielsen indicated that it was easier for viewers to join the online Twitter conversations for some genres than for others (Midha, 2014). Further, Nielsen (2014) demonstrated differences in live-tweeting habits that were associated with differences in genres (reality TV, drama, comedy and, sports), as well as age and gender.

Social Situation

TV viewing is often a social activity (Miller, 1995; Oliveira & Marquioni, 2017). TV used to be form of social or familial bonding (Harrison & Amento, 2007). The social context of SS Use as also raised as a factor in a few studies related to the SSE. For example, participants in a study by Schirra et al. (2014) cited the avoidance of loneliness as a factor in the use of SS. Participants in a study by D'heer et al. (2012) stated that the use of a SS also people to "partially" watch the same show while pursuing separate personal interests on a SS. Thus, SS use not only allows users to seek company when alone, but also to mentally isolate themselves from current company. The social interactions among family members who use second screens while watching TV (Vanattenhoven & Geerts, 2017). To date, no research has examined whether viewers use a SS specifically to avoid bothersome company while watching TV (the work of D'heer et al. does not specifically suggest "bothersome", but only discusses mental isolation using second screens). Some viewers may use a SS because their friends or co-workers are using

a SS in the same room (Auverset, 2017). A report by Ofcom (2017) showed that 45% of viewers watch TV alone. They also reported that 31% of viewers sit together in the same room but all watch different shows. Thus, at this point, one can only say that the social situation for TV viewing (or of SS use) may be an important factor. This is particularly true in the case of Live TV, because viewers expect that there are others watching the same show at the same time (Schirra et al., 2014). Therefore, any assessment of the SSE must consider the social situation of watching TV.

2.2 Motivations for the Second Screen Experience

As previously discussed, this thesis is focused on the Second Screen Experience (the SSE). The experience is defined as the motivations for, and the benefits received from, the use of a SS to talk about TV while watching that TV. The definition of “talking about” was expanded to include the seeking information about the show and other online activities related to the show (e.g., shopping for paraphernalia related to the show).

In part one of the literature review, it was noted that the use of a SS to talk about TV while watching TV should enhance that TV viewing. Overall, the SSE should be a positive one, even though it may be distracting or fatiguing. It was also acknowledged that the SSE may only be a positive experience for some, but that those who find it a negative experience would simply not partake. It was also noted that, for the moment, it can be assumed that the motivations and benefits for the use of the SS are aligned. That is, by and large, the benefits fulfill the motivations. It is not argued that the motivations and benefits are perfectly aligned nor that the benefits and motivation always maintain the same degree of alignment.

It is also not argued that the motivations and benefits are the same for all TV viewers. However, it is assumed that for the population as a whole, there are common motivations for the use of a SS. Similarly, it is not argued that the motivations and benefits are the same for all TV shows.

What are the motivations and benefits for the SSE – motivations that can outweigh the negative aspects? This is a complex question because it is focused on a secondary activity. It is not focused on the motivations to *watch* a TV show per se (i.e., the content of the show). It is focused on talking about and discussing the TV show. What might encourage people to talk

about a TV show online while watching that TV show? The motivations for the SSE must be related to the content of the TV show (at least initially), but those motivations may diverge from that content.

It was initially assumed that the motivations to talk about a TV show online while simultaneously watching that show should be similar to, but not *necessarily* identical with, the motivations to talk about TV more generally (e.g., not online, not simultaneous).

To assess the motives for the use of a SS while watching TV, one must have a tool or framework that is capable of assessing those motivations. This assumes that one has some notion of what those motivations might be. The selected tool defines or limits the information that can be obtained. The wrong tool will automatically provide the wrong answers, be that randomly invalid or totally misleading information.

There are several conceptual frameworks that have been developed that assess motivations for behavior similar to that of the SSE. These include the social media engagement model (McCay-Peet & Quan-Haase, 2016), the Theory of Flow (Csikszentmihalyi, 1993), the User Engagement Scale (O'Brien, 2012; O'Brien & Lebow, 2013; O'Brien & Toms, 2008; O'Brien & Toms, 2010a), the Social Determination Theory (Ryan & Deci, 2000), the Task-Technology-Fit Theory (Goodhue & Thompson, 1995) and the Uses and Gratifications framework (Katz, Haas, et al., 1973). After some consideration of each (details in Section 2.4), the Uses and Gratification framework (U & G) was selected as the most appropriate. This work developed a questionnaire to assess motivations for the use of a SS to talk about TV while watching TV (the SSE) within the U & G framework.

2.3 The Uses and Gratifications Framework

The U & G framework was selected for this study because it seemed the most appropriate given the potential effects of the SSE (i.e., talking about TV while watching TV). The U & G framework was selected because it has a long history of extensive use within media research (e.g., TV and internet), and has been used successfully for the study of social media and SS use.

The U & G framework captures motivations for such behavior within Cognitive, Personal Identity, Social Integration, and Diversion dimensions. Specifically, the U & G framework assumes people use various media to gratify Cognitive, Personal Identity, Social Integration,

and/or Diversion needs. The following sections discuss the U & G framework in greater detail, providing a basic historical review. It explains how these dimensions are related to the motivations to use a SS while watching TV. This review does not include every study that has used the U & G framework due to the huge number of studies that used the U & G framework. Rather, the review aims to provide a representative sample of the various applications of the U & G framework within domains most relevant to the current SSE (watching TV, using social media, and using the internet).

2.3.1 Overview of the U & G Framework

The U & G framework provides a well-established structure for assessment of motivations for the use of media in general (see Ruggiero, 2000 for a historical review; see also, Case (2012), Lin (1996) and Shao (2009) for summaries of the structure that is currently used). The framework for the U & G was first articulated in its current form in 1973 by Katz et al. (1973) in *The Uses of Mass Communication*. Since then, the U & G framework has been used extensively in media studies because, according to Shao (2009), it provides one of the most appropriate perspectives to explain why people choose different media channels. The perspective is also amenable to survey research, which is a considerable benefit for (mass) media studies.

For example, for TV consumption, people have tremendous choice of content (i.e., TV shows), and multiple modes of consumption (e.g., Live TV, Video on Demand, standard cable; prescription vs. free services; over TVs, computers, smartphones). For the SS use that might be associated with TV viewing, there are just as many, if not more, options. Social networking is the primary activity of relevance to the SSE associated with TV viewing (e.g., Facebook or Instagram, microblogs like Twitter, blogs, or forums) but there are other online activities that might be considered as competition for social media (information channels such as Wikipedia, Rotten Tomatoes, IMDb; online shopping; online gaming as a spectator or participant).

Each of these SS activities represents a consumption of media. The U & G framework provides a structure for understanding the motivations for the consumption of these resources (on the SS) by reference to the needs or gratifications that those resources fulfill (Chen, 2011). The U & G framework focuses on:

(1) the social and psychological origins of (2) needs, which generate (3) expectations of (4) mass media or other sources, which lead to (5) different patterns of media exposure (or engagement in other activities), resulting in (6) need gratifications, and (7) other consequences, perhaps mostly unintended ones (Katz et al., 1973 p. 510; see also Case, 2012 p. 178).

This quote clearly shows that the U & G framework considers media consumers as “active agents” who control their access to media in orders to satisfy psychological and social needs. The psychological needs include the need for release of tension (also called stress relief, diversion, escape, or distraction), the need for entertainment (sometimes considered part of tension release), and the need to acquire information about relevant aspects of the world (called information or surveillance). The social needs include the need for social contact, and the related need for status or acceptance within a community. Katz, Blumler, et al. (1973) suggested that individuals are aware of their needs and are able to judge for themselves which media can satisfy those needs. The U & G framework was, in part, a counter to the then prevailing notions that “most mass media experiences represent a pastime rather than a purposeful activity, very often [reflecting] chance circumstances with the range of availabilities rather than the expression of motivation or need” (attributed to Bogart & Orenstein, 1965 and Katz, Blumler, et al., 1973, p. 511). That is, the U & G assumed that media consumption served a purpose for each individual, whereas prior studies assumed that media consumption was more similar to a basic function like breathing – people consumed media without forethought. Another important component of the U & G framework is the notion that the various media compete with other resources as sources of need satisfaction. That is, the person (the media consumer) does make choices from the available options. A final consideration is that the value of media content can only be judged by the individuals viewing the media. Media selection is individualistic.

Despite the acknowledgement of individualistic preferences, the broad categories of needs apply to all people. Katz et al. (1973) wrote: “These needs, typically, take the form of (1) strengthening or weakening, (2) a connection—cognitive, affective, integrative (3) with some referent—self, friends, family and tradition, social and political institutions, others” (p. 61).

Using a literature search, Katz, Haas, et al. (1973) compiled a list of 35 needs commonly associated with media. These 35 needs were then rated by 1500 participants using an interview format (e.g., there were 35 questions with follow-on prompts, and sub-items based on responses). Responses were coded, and the analysis revealed five primary dimensions as shown in Table 1.

Table 1 Needs as Defined by Klatz, Blumler and Hass (1973)

Need	Description
Cognitive	strengthening information, knowledge, and understanding
Affective	strengthening aesthetic, pleasurable, and emotional experience
Integrative 1 ¹	strengthening credibility, confidence, stability, and status
Integrative 2 ¹	strengthening contact with family, friends, and the world
Tension-Release	escape or tension-release – the weakening of contact with self and one's social roles

Notes: ¹These are the terms used in the original paper.

Katz, Gurevitch and Hass (1973) explicitly noted that two integrative needs combined elements of cognitive and affective needs (i.e., they are correlated). They also divided the 35 needs into “self” and “integration with others”, and found different media fulfilled those categories to different degrees, noting that “Books cultivate the inner self; films and television give pleasure; and newspapers, more than any other medium, give self-confidence and stability” (p. 169). The implication is that not all categories necessarily apply at the time of every media selection. Media selection meets some particular need.

All of these needs might apply to the use of a SS while watching TV. The use of the SS might fulfill the need for social contact (the most obvious use), or the need for entertainment (for some, TV is improved when shared). The use of a SS might also have relevance to personal status and standing (by virtue of one’s contributions to the dialogue). The use of a SS may allow one to understand what the rest of the world thinks about the show. All of these are part of the SSE – which is why people use a SS and what they (expect to) obtain from that use.

At the time of its development (early 1970s), the primary focus of the U & G framework⁴ was print (e.g., newspapers, magazines, and books), radio, and television media. The U & G framework has been successfully applied to the study of the motivations for the consumption of TV (e.g., Barton, 2009; Cooper & Tang, 2009; Hanson & Haridakis, 2008; Harwood, 1999; Papacharissi & Mendelson, 2007; Rubin, 1983; Weaver et al., 1980), news watching on TV (e.g., Palmgreen & Rayburn (1982)), print media (e.g., Pietila, 1974), and radio (e.g., Towers, 1987). More broadly, it has been applied to the impact of advertising (e.g., (O’Donohoe, 1994). It has been used to compare various media choices and the migration between media (e.g., Shade et al., 2015). However, in the early years, different studies often used different labels for the needs that

⁴ Katz, Gurevitch and Hass (1973) preferred the term “framework” in lieu of the term “theory”.

they identified. Furthermore, different studies often found support only for a subset of needs. This is not surprising given the breadth of application and the fact that most theoretical frameworks go through a period of development. Nonetheless, even with the different labels or different categories of needs, all identified needs could be classified within the original conceptualization of Table 1 (i.e., Cognitive, Entertainment, Social, Interpersonal, and Stress Relief).

When the U & G framework was created, the internet did not exist, and TV was *only* consumed at the time of presentation by the media provider. When the theory was created, consumers (TV viewers) had little choice: there were only a few TV stations though the number depended on location (e.g., urban vs rural). The commercial VHS did not appear until the late 1970s (Cusumano et al., 1992), and DVD recorders only appeared in the late 1990s (Geier, 2003). Even then, player/recorders did not provide total freedom of choice for consumers. The only options were to rent/purchase the media or to record material at the time of broadcast for later consumption. The internet did not exist until the late 1980s. Streaming TV over the internet (“live” or “on demand”) did not exist until the mid-1990s and was not common until the mid-2000s (Jenner, 2014). Facebook was not launched until 2003, though there were social media predecessors (e.g. Myspace). Development of a standard for streaming media did not begin until 2007, as it required advances in both hardware and software (Bury & Li, 2015). Now, the internet is ubiquitous, and it is TV production and distribution that has had to adapt to the existence of the internet and social media platforms, and the print media is in a state of slow decline (Rose-Wiles, 2013).

Though the U & G framework was developed for a vastly different media landscape, it is very much still applicable: it has been successfully applied to the study of motivations for the use of the internet broadly defined (e.g., Eighmey & McCord, 1998; Kaye, 1998; Luo & Remus, 2014; S. Roy, 2008), online shopping (Lim et al., 2013), social media⁵ broadly defined (e.g., Dolan et al., 2016; Ahmed et al., 2013; Ifinedo, 2016; Ishii, 2008; Karimi et al., 2014), the use of social networking sites such as Facebook (Bumgarner, 2007; Ishii, 2008; Karimi et al., 2014; N. Park et al., 2009), the use of Twitter (e.g., Ballard, 2011; Chen, 2011; Johnson, 2014), to the use of social TV (e.g., Krämer et al., 2015), video on demand (e.g., Barton, 2009; Hanson &

⁵ The areas of research cite the authors’ terminology (some will be covered in more detail later)

Haridakis, 2008), and to online gaming (e.g., Sherry et al., 2006). It has also been applied to the study of the second screen experience as defined previously (Dias, 2016; Giglietto & Selva, 2014; H. Kim, 2013; Wohn & Na, 2011).

The key point here is the breadth of application: The U & G framework is not limited to only “mass media consumption” (e.g., newspapers, magazines, radio, and TV), but has been used with all types of internet use (e.g., shopping, social media, gaming). Typically, different studies find different support for various needs, but the important point is that even when applied to the online world, the basic conceptualization mentioned in *Appendix A-1* applies.

The current U & G framework usually considers needs within four or five main dimensions. The four-dimensional model encompasses: Cognitive (need for information, knowledge, and understanding), Personal Identity (need for acceptance, credibility, confidence, stability, and status), Social Integration, (need for contact with family, friends, and the world), and Diversion (need for pleasure, entertainment, emotional experience, escape from stress [work] and/or social/family obligations). A five-dimensional model is occasionally used, with Diversion needs being divided into Entertainment needs (e.g., emotional arousal, excitement) and Tension-release needs (emotional abatement, also called relaxation, diversion, habitual consumption).

There have been several comprehensive reviews of the U & G literature (e.g., Lin, 1996; Rubin & Rubin, 1985; Ruggiero, 2000; Valkenburg et al., 2016). These reviews show that the U & G framework has general utility, is valid and reliable, and that it has been successfully applied to numerous empirical investigations. Furthermore, these reviews show that the dimensions of the U & G can be associated with other demographic, personality and situational factors (e.g., work schedules, social constraints and media availability). More critically, they all note that the U & G framework is even more appropriate for the study of internet use (broadly defined) than it was to the prior study of “mass media” use (e.g., newspapers, magazines, radio and TV) because the internet provides so much more choice than TV or radio did in the past. Modern internet use reflects the principles outlined by Katz, Haas, et al. (1973): users are “active”, “goal oriented”, and “in control”. The previously cited research and the reviews show that users select particular media and resources to gratify their particular needs.

2.3.2 Limitations of the U & G Framework

The U & G framework is not without its own limitations. The first is the problem of dimensional definition (Swanson, 1979). Swanson argues that the dimensions (e.g., Table 1) are not operationally defined, and depend on the context (i.e., talking about the motivations to watch TV, use the internet, play online games...). It has been noted that the dimensions do vary. However, Quan-Haase & Young (2014) demonstrate that difficulties with definitions and typologies are not limited to the U & G framework and could be found in other fields of study. Further, this is an issue that would be expected for any framework that is applied very broadly.

All research that uses the U & G framework should operationally define its terms for its study – but these would (likely) fall within the typically defined dimensions. The key point is that the dimensions – at the conceptual level – remain remarkably consistent across very different domains. In fact, the labels for the dimensions change more than the actual content of the dimensions. That consistency of content is more obvious when the dimensions are examined at a more detailed level (i.e., in the individual questions that form part of a survey). Often one of the main dimensions (Cognitive, Personal Identity, Social Integration, & Diversion) is split into two or more specialized dimensions (e.g., Diversion to Entertainment & Tension-release needs): Sometimes dimensions are combined. In addition, the dimensions are closely related to each other (i.e., correlated). For example, Katz, Blumler, et al. (1973) noted that the Cognitive needs seem to be part of the Integrative 1 dimension, and the Affective and Integrative 2 needs are likely related. The dimensions of Integrative 2 and Tension-Release seem to be opposites (strengthening vs weakening social ties) and as such are simply different scaling of the same construct. It is this flexibility that makes the U & G framework useful in the current domain. As a tool, it does not impose strict limitations on what can be considered a motivation or need.

The framework has also been criticized for assuming that the consumers are active, goal oriented, and know what they need to achieve (Elliot, 1999; Palmgreen & Rayburn, 1979; Swanson, 1977). This would imply that TV viewers would, for example, carefully choose to watch a certain TV show for predetermined purposes. The notion of the active consumer is at odds with the idea that some viewers might watch TV “out of habit”. In other words, there was no clear definition of how “active” an active audience is. The degree of selectivity has been a concern. In fact, the Media Dependency Theory of DeFleur & Ball-Rokeach (1982) emerged to

address the degree to which an individual felt compelled to seek out a particular media. More generally, there was a growing understanding of the need to separate ritualistic (habitual) use (more in line with the older view of the passive recipient of media content) and instrumental use (goal seeking, more in line with the views of the U & G framework). Ruggiero (2000) cautioned that the two may coexist in any particular use of media. Those with higher involvement have been shown to alter their own personal schedules to obtain their media gratifications. To allay some concerns, it must be noted that the Diversion dimension specifically includes this habitual component of media consumption. In studies where habit is an important factor, that element has been emphasized or even treated as a separate dimension. In the current work, it would be expected that the SSE and SS Use would be less likely to be habitual behavior because it is not passive (as in, for example, TV viewing). As noted previously, the use of SS is effortful.

The U & G framework was criticized by Ruggiero (2000) and Swanson (1977) for being too individualistic, which limits the ability to generalize beyond the participants of a particular study. The counterargument is that if media use is truly individualistic, then any research that decides to ignore this individuality would be fundamentally flawed. Furthermore, the fact that the same basic dimensions have emerged in study after study argues in favor of the notion that the U & G framework can be generalized at the level of dimensions. The dimensions need to be defined or assessed in a manner that captures all behaviors that are relevant to that dimension. Each dimension must have the appropriate breadth. For example, the Cognitive dimension must be capable of addressing an array of needs (breadth) ranging from searching for particular information through to surveillance or possibly voyeurism. Finally, the application of the U & G must always be open to the possibility of new or distinct dimensions within any new area of research. The current work developed the measures of the needs within the U & G framework so that those needs (dimensions) would capture the appropriate breadth. Again, it was assumed that the dimensions for the current work would be similar to previous work with the U & G in TV viewing, internet use broadly defined and SS Use.

Another concern that was raised early in the development of the U & G framework was that needs sought may not align with gratifications obtained (Elliot, 1999; Lin, 1996). This is related to the idea that media consumers know what they want (self-awareness of needs), are capable of communicating those needs, and have the means to control that access (i.e., “choice”).

For example, if a particular media channel continually fails to meet needs, the consumer will move on to a different media channel. However, historically, there was a limited choice of media and as such, consumers may have had to settle for media that was close to satisfying gratifications. Various studies (e.g., Krämer et al., 2015) and a number of reviews (e.g., Case, 2012; Lin, 1996; Rubin & Rubin, 1985; Ruggiero, 2000; Shao, 2009; Valkenburg et al., 2016) have noted that the needs sought, and the needs obtained generally do align. The alignment may not be perfect because, prior to selection of the media, the consumer may not know what the media can offer, the consumer may not have taken sufficient time to carefully articulate her/his needs (we might see this as channel surfing or now, aimless internet browsing), or the desired media may simply not exist (or be found). In the modern media landscape, as choice expands (i.e., the internet), and the ability to control access increases (i.e., the internet again), this limitation has become less and less tenable.

Finally, as with much social research, a general criticism is that the research is too dependent on “self-reports” such as questionnaires (Elliot, 1999; Lin, 1996; Ruggiero, 2000). This is a practical limitation: though the questionnaire may not provide as much detail as other methods, the information learned from a questionnaire is generally accurate. This idea is in line with the original pronouncements of Katz, Blumler, et al. (1973); people are capable of "objectively" reporting their reasons for doing things.

The conclusion by Ruggiero (2000) is that “[d]espite these perceived theoretical and methodological imperfections ... [the] U & G ... furnishes a benchmark base of data for other studies to further examine media use.” (p. 13). He further states that “[b]y and large, uses and gratifications approach has always provided a cutting-edge theoretical approach in the initial stages of each new mass communications medium: newspapers, radio, television, and now the Internet.” (p. 3, p 27). He ends his review with “if we are able to situate a ‘modernized’ U & G theory within this new media ecology, in an evolving psychological, sociological, and cultural context, we should be able to anticipate a highly serviceable theory for the 21st century” (p 29).

2.3.3 The U & G for the Current Research

The U & G framework was selected to provide the basis for the current research because the motivations identified within the U & G likely extend to the SSE as defined herein (the use of

a second screen to talk about TV shows while watching that show). The U & G framework has been used successfully in studies related to TV viewing, SS use, and social media.

However, as noted, the structure of the U & G framework is not crystallized. Also as noted, the labels applied to the dimensions have changed and this has subtle implications about content. For example, the Cognitive dimension has been labeled as the “need for information seeking”, “learning”, “surveillance/reassurance”, “information/stimulation”, “enlightenment, knowledge”, and “understanding”: these imply slightly different goals (e.g., learning vs monitoring). Personal Identity has been labelled “personal identity seeking”, “personal identity needs”, “interpersonal expression”, and “personal utility”. Again, the implications are slightly different (seeking vs expression). Social Integration has been called “companionship”, “personal relationships”, “family integration-social utility”, “social contact”, “social identity”, “social utility”, and “social interaction”. These cover the need for companionship and the need for social identity. Diversion needs have been labelled with the greatest diversity, and have included “emotional release”, “escapism”, “escape”, “forgetting”, “habit”, “ritualistic”, “passing time”, “relaxation”, “voyeurism” (which may overlap with surveillance), “vicarious participation”, “amusement”, “entertainment”, “arousal”, “hedonistic”, “self-gratification”, and “stimulation needs”. The main groups of the Diversion needs seem to be emotional arousal, emotional abatement, and habitual behaviors, and these labels are commonly applied. Other terms or dimensions have been used (e.g., instrumental contrasted to ritualistic). Nonetheless, the four or five main dimensions tend to be consistent across domains.

What this means for the current thesis is that, although the U & G framework has been adopted, it is still necessary to develop the specific version of the U & G tool (i.e., questionnaire) for this current application (the SSE as defined herein). The current application is in a new area (although there are links to other areas). As such, tools developed in different domains are not necessarily valid. However, it would be assumed that the tool developed in the current domain (the SSE as defined herein) would have considerable overlap with tools developed in other related domains (e.g., the motivations to use the internet, the motivations to use a SS, the motivations to use social media, the motivations to watch TV). Previous literature about the use of the U & G framework in prior domains was used to guide the development of a tool for the current research.

For that reason, in the current thesis, a U & G based tool to assess the motivations for the SSE was developed using an empirical study. That is, a part of the current research was the discovery of the U & G dimensions that applied to SSE associated with TV watching. It was expected that the dimensions would correspond to the four or five main dimensions discovered in prior studies based in the U & G framework because the dimensions have been consistent for TV viewing, internet use broadly defined, and to SS use. It was also expected that the dimensions would be correlated because they have been in the past.

The dimensions define (or “label”) the motivations. It was expected that different dimensions might apply in different contexts – such as within different SS Devices (e.g., dual screens vs sequential screens), with different SS Uses (e.g., social media outlets and content), with different types of shows (e.g., genres), or within different social situations (e.g., alone vs in company). For example, TV viewers can use a social media platform on a SS to interactively vote on shows (e.g., the *Xfactor* voting app), to state their opinions (e.g., using Twitter hashtags or Facebook account), or possibly to change the script of a show (Bury et al., 2013). This might be primarily related to the personal identity and social integration dimensions. One would expect that Cognitive needs would dominate the motivations for using a SS while watching TV documentaries. Conversely, the Diversion (entertainment) needs would likely dominate the motivations to use a SS while watching action films. The fact that some needs might dominate in some domains does not invalidate the theory, but it does mean that one must be mindful of the context of the application.

2.3.4 Summary

The U & G framework was selected for the study of the motivations to use a SS to talk about TV while watching TV. The current review of the literature would suggest that the main motivations would be Cognitive (information seeking, surveillance, learning, stimulation, keeping up with the news), Personal Identity (reference, values, personal growth, social identity, personal identity, status, interpersonal expression, voyeurism), Social Interaction (companionship, personal relationships, camaraderie, social contact, social integration, family integration-social utility, alleviating loneliness) and Diversion (e.g., tension-release, escapism, entertainment, arousal, affective orientation, hedonism, leisure, relaxation, habitual/ritual passing of time, voyeurism). The Diversion motivations might split into two or three separate types of

motives including emotional arousal (i.e., entertainment), emotional abatement (i.e., tension-release, relaxation), and ritualistic or habitual behavior (i.e., passing of time). These motivations are called “dimensions”. The specific or important motivations would depend on the area of application (e.g., the type of TV; the social context). For now, this dimension is labeled “Diversion” rather than “Entertainment” to emphasize it might cover both emotional abatement and habitual use. McQuail (2010) actually summarized reasons for media use into four categories which are in line with the motivations found in the previous literature review. Those categories are: information (Cognitive); personal identity (Personal Identity); integration and social interaction (Social interaction); and entertainment (Diversion). It was also expected that the Personal Identity and Social Integration dimensions would be tightly linked because this is commonly found in prior work (Mazurek & Tkaczyk, 2016). This is not surprising given that much of a person’s identity is tied to their social world. Furthermore, much of personal growth is aimed at, or at least, relevant to social status, which is an important aspect of personal relationships.

2.4 Other Theories Related to the SSE and/or the U & G Framework

Several other frameworks were initially considered for this exploration of the motives to use a second screen. These included the social media engagement model (McCay-Peet & Quan-Haase, 2016), the Theory of Flow (Csikszentmihalyi, 1993), the User Engagement Scale (O’Brien & Toms, 2008; Brien & Toms, 2010a, 2010b), the Social Determination Theory (Ryan & Deci, 2000), the Task-Technology-Fit Theory (Goodhue & Thompson, 1995). Each of these is discussed briefly in the following section. The U & G was considered the most appropriate, but in fact, each of these has some application, and generally, a great deal of overlap with the U & G framework.

2.4.1 Social Media Engagement

A model of social media engagement was proposed by McCay-Peet & Quan-Haase (2016). The model identifies six elements to conceptualize social media engagement. Those elements are: (1) Presentation of self (i.e., create a personal profile), (2) Action and participation (i.e., share comments), (3) Uses and gratifications, (4) Positive experiences, (5) Usage and activity counts (i.e., number of likes on Facebook), and (6) Social context (i.e., nature of social network). The

model first suggests that the social context such as the size and nature of the social media platform has an effect on engagement, but the model also proposes that this process is iterative and dynamic: it unfolds over time, which is similar to O'Brien & Toms' (2008) conclusion. However, for the current research, the theoretical framework is too focused on the social media experience and does not include enough latitude for application to the SSE related to watching TV. That is, it did not seem to extend to the "watching TV" component of the current research. Furthermore, the social media model overlaps with U & G on the Self Element (Personal Identity dimension), Action and Participation (Cognitive and Social Integration dimensions), and the Positive Experience (Diversion dimension).

2.4.2 The Theory of Flow (Flow Theory)

The theory of Flow (known as being in the "zone") has been used to understand why individuals are attracted to and immersed in a certain activity (Csikszentmihalyi, 1993) and has been applied to online research setting in areas like shopping (e.g., Hsu et al., 2015) and gaming (e.g., Fang et al., 2013; Schmierbach et al., 2014). In this theory, the interaction is considered a continuous process: people adjust their actions based on this process (Lopez & Snyder, 2002). There are several factors that characterize the Flow experience: 1) intense concentration, 2) the merging of action and awareness, 3) the loss of awareness of oneself, 4) a sense of control over the activity, 5) distortion of time (passing faster than usual), and 6) the experience of the activity as intrinsically rewarding (Nakamura & Csikszentmihalyi, 2014). Flow theory can inform the study of motivations in that it can help explain why people return to and repeat an activity. O'Brien & Toms (2008) used Flow theory to create a User Engagement Scale (UES).

2.4.3 The User Engagement Scale

The UES was initially based on work in the UES of educational multimedia, particularly a 14-item survey by Jacques (1996) which assessed achievement, difficulty, attention, control, perceived time, motivation, boredom, patience, curiosity, and the desire to use the software again. Based on this and their own data collected using an interview format, O'Brien and Toms (2008, 2010) developed the 31 item User Engagement Scale (UES) with six subscales: Focused Attention, Perceived Usability, Aesthetics, Felt Involvement, Novelty, and Endurability but it has gone through a number of revisions (e.g., O'Brien, 2010; O'Brien & Toms, 2013; O'Brien &

Lebow, 2013) to finally settle on a short form of the UES with four factors: Focused Attention, Perceived Usability, Aesthetic Appeal and a new Reward Factor (O'Brien, Cairns, & Hall, 2018). The UES has been used in a number of internet-related domains (shopping, consumption of online news, webcasts, and web searches). This thesis initially approached the use of a SS to talk about TV while watching that TV from the perspective of the UES, and initially planned to adapt the UES to the exploration of the SSE. However, the dimensions of the UES did not really apply to the SSE. The UES is about focus on a single channel of information (i.e., flow theory), while the use of a SS to talk about TV while watching TV is fundamentally about two streams of information (TV and the SS discussion). Finally, while the UES was used in the online world such as online shopping and news websites (e.g., Banhawi et al., 2011; O'Brien & Lebow, 2013), it has not been used with online streaming-media for TV shows within either the standard broadcast model (e.g., HBO, ATV, CTV) or the video-on-demand model (e.g., Netflix, Amazon Prime).

2.4.4 Social Determination Theory

Another well-known theoretical foundation used to study human motivation is the Social Determination Theory (*SDT*) (Ryan & Deci, 2000). *SDT* studies the optimal functioning and personality of people and focuses on psychological needs that are the bases of people's motivations; the needs for competence (need to be effective), autonomy (need to control course of their lives), and relatedness (need to have a relationship with others). I considered this approach for this thesis but eventually settled on the U & G framework because the U & G framework subsumes the *SDT* within its structure (e.g., competence and autonomy are related to Personal Identity; relatedness is related to Social Integration), because the U & G framework provides additional breadth (i.e. Cognitive, Diversion), and because the U & G framework has had years of use specifically within the realm of media use.

2.4.5 The Task-Technology-Fit Theory

The Task-Technology-Fit Theory (TTF) describes performance impact of an information system including software and hardware (Goodhue & Thompson, 1995). The TTF proposes that information systems positively impact "performance" when an information system is well-suited to the tasks that must be performed (Furneaux, 2012). According to Furneaux (2012) the use of

the TTF in the literature can be divided to three broad categories: 1) application of the theory to better understand information systems, 2) manipulation of the TTF to explore the impact of technology fit, and 3) the collection of conceptual articles, for a full review of the TTF (see Furneaux, 2012). At first glance, this seemed like a potential approach to study SSE motivations. However, the current research is not truly focused on the nature or design of the SS. Rather, this work is focused on the more basic question of the motivations to use a SS to talk about TV. The current study did plan the collection of some data relevant to the question of the type of SS (i.e., the fit of the technology to the goal), but that was secondary, and only intended to provide future research with some initial insights. After briefly discussing other theories related to the SSE and the U & G framework,

Table 2 provides a summary comparison of these alternative theories and the U & G framework. The key point is that they all overlap to some degree.

Table 2 Comparison of the U & G framework and Other Theories or Structures for Conceptualizing the use of Social Media or TV

	U & G Framework			
	Cognitive	Social Integration	Personal Identity	Diversion
SDT		-Relatedness	-Relatedness -Need for competence -Autonomy	
Theory of Flow	-Focus			-Focus
UES	-Novelty -Endurability	-Felt involvement		-Focused attention
Social Media Engagement Model	-Action -Participant uses -Activity counts	-Action -Participation	-Presentation of self	-Positive experiences

2.5 Summary

The current research is focused on understanding the motivations to use a second screen to talk about a TV show while watching the TV show. This is called the Second Screen Experience (SSE). It would be expected that the SSE would enhance the experience associated with watching a TV show, but it was also expected that the use of a second screen would be distraction or fatiguing. It was assumed that “experience” in the SSE was about the motivations

for and the benefits received from, the use of a SS.

The U & G framework was adopted to help provide a structure for understanding those motivations (and benefits). The U & G framework has a long and successful history in media and internet-based studies, but the adoption of the U & G framework does imply that a new tool must be developed (within the U & G framework) that is focused on the specific application with the current research (i.e., SSE as defined herein). It was assumed that the adoption of the U & G framework would lead to the development of an appropriate tool to assess the motivations for the SSE.

It was assumed that the motivations for, and benefits from the SSE would be related to many other factors as displayed in Table 3.

Table 3 Factors that might be related to the SSE motivations

Factors	Description
Type of SS	computer, tablet, smartphone two devices or one device dual screens or sequential screens
Demographics	age gender SES education
Type of SS Use	social media such as Facebook or Twitter
TV Viewing Habits	genres of TV intensity and binge viewing timing and pace within the show
The social situation for both TV viewing and SS use	alone in company with family, and friends with children with colleagues (not family and friends per se)

It was assumed that the SSE (motivations and benefits) might vary by these factors. As such, it was necessary to include all of these in the current thesis, and so these factors were grouped as Demographics, TV Viewing Habits and SS Use. It was acknowledged that these factors were not necessarily independent.

Thus, this thesis was designed to first provide a better understanding of the basic motivations (needs, expected gratification of needs) for the SSE, and, second, to relate these

needs to other factors. Based on the literature of research into other similar or overlapping areas (motivations to watch TV, motivations to use a SS, motivations to use social media) it was expected that the SSE would depend on Demographics, SS Use and TV Viewing Habits. However, at this point, specific directional hypotheses were avoided. The current literature is too disconnected to allow one to develop specific hypotheses, beyond the notion that the cited factors will likely have an effect on the SSE.

The overall approach was correlational, relying on self-reported measures collected in large online surveys. This approach was chosen because it offered the greatest potential breadth of SS users, and thus, the ability to see the broader picture of what motivates people to use a second screen while watching TV.

CHAPTER 3 Research Methodology and Design

A review of literature on motivations of second screening highlights the need to further explore reasons behind engaging in this phenomenon, and the need to explore aspects that may affect motivations such as participants' TV watching habits and second screen use. This chapter is concerned with the general design, methodology and analytical approaches that are used in this thesis to address the research questions. It begins with a discussion of the research goals, considers some aspects of design and methodology, and finishes with a discussion of the selected analytical techniques.

3.1 Epistemological Perspective and Methodological Approach

The first goal of this research was to understand what motivates viewers to use a second screen to talk about a TV show while watching that show on a primary screen. Based on the U & G framework, it was hypothesized that:

The SSE will fulfill cognitive needs related to the TV show.

The SSE will fulfill social integration needs related to the TV show.

The SSE will fulfill personal identity needs related to the TV show.

The SSE will fulfill diversion needs related to the TV show.

The SSE will fulfill all needs related to the TV show.

The second research goal focused on the relationship between motivations to use a SS to talk about a TV show while watching that show and a number of background variables to better understand who, how, and when they engage in such behavior.

Both of these research goals required the development of the Second Screen Experience: Motivations Scale (SSE-MS); the scale will attribute scores to motivations that cannot be measured directly.

Throughout this thesis, the term *questionnaire* is used to refer to a single questionnaire within the survey package (the SSE-MS questionnaire). The term *item* is used to refer to one single question from one single questionnaire. The term *subscale* is used to refer to a specific collection of items from one questionnaire. Finally, the term *survey package* is used to refer to the collection of all questionnaires (Demographics, SS Use, TV Watching Habits, SSE-MS, and pre-existing questionnaires).

The background variables were organized into three categories (See Table 4). The three categories were **Demographics**, **TV Viewing Habits** and **SS Use**. Each category had one or more components. Each component had one or more variables, and each variable would eventually be represented by one or more items in the final survey package. The unit of analysis is the variable – not the items.

Table 4 The Primary Background Variables by Category and Component.

Category	Component	Variable
Demographics	Demographics	Gender
		Age
		Education
		Income
		Occupation
		Residential Location
		Living Arrangements
TV Viewing Habits	TV Genres	TV: Genres
	Mode of Access	TV: Mode of Access
	Intensity of TV viewing	TV Intensity: By Mode of Access
		TV Intensity: By Hours / Day
	Timing of TV viewing	TV Timing: Control Over When
		TV Timing: Binge Watching
	Emotional Connection to TV	TV Emotion: Number of Shows Followed
TV Emotion: Affect		
Social Context	TV: Social Context	
SS Use	Types	SS: Types
	Processes	SS: Processes
	Social media outlets	SS: Social Media Outlets
	Activities	SS: Activities
	Timing	SS: Timing When During the Show
	Social Context	SS: Social Situation

These variables overlap to some degree. For example, all categories included the ‘social context’ (called “living arrangements” in Demographics). In addition, one might argue for a somewhat different classification under components. For example, ‘binge watching’ might be conceived as Emotional Connection to TV or as the Timing of TV viewing because one might binge watch because they are very interested in the story or to pass time. The variable TV Emotion: Number of Shows Followed is related to intensity, but also included an item that captured the number of shows followed on social media, which is more related to the emotional connection. Many of these considerations are not separable in principle because real life constrains the options TV

viewers have (e.g., if one does not have access to a DVD or VHS recorder, one must watch broadcasts at the time broadcast, wait for ‘reruns,’ or rely on friends or other streaming services after the original airdate. Some components could be combined (e.g., Types and Processes are related) but, such issues are minor. The main point was a structure that could serve as a framework for organizing the presentation and discussion of the large number of variables to be used. Each of these variables was represented by a number of different items (a few variables such as Age had a single item). Discussion of the individual items is left to later in this chapter.

For the background variables, it is hypothesized that:

The level of the SSE will be related to Demographic variables.

The level of the SSE will be related to TV Viewing Habits.

The level of the SSE will be related to SS Use.

For example, age or income (two of the Demographic variables) are potential factors because these are related to the use of new technology and to the simple access to technology (e.g., computer, internet). Social isolation is identified as a factor since the use of the SSE might be related to elements of the living situation (including the residential location). In TV Viewing Habits, some genres might relate to different needs. For example, people who view documentaries might use the SS to fulfill cognitive needs. However, there is no literature to confirm this. The use of the SSE might also be related to the manner in which TV is viewed (e.g., over cable or through the use of streaming media) because different modes of access allow for different mechanisms to use a SS (e.g., cable might encourage the SSE during commercials, whereas streaming media might allow the TV viewer to stop the show to use a SS). The SSE might be of more relevance to watching Live TV broadcast, because many viewers would be watching the show at the same time and talking about the show together online. Conversely, the SSE would likely be less relevant when watching on-demand streaming media (e.g., Netflix) or DVDs simply because the timing would not be as conducive to online shared discussions. The SSE might also be related to the intensity of TV viewing simply because those who watch more TV might be more involved in their TV, and thus more prone to discuss it. The use of the SSE might be related to the type of social media outlet used on the second screen. Some social media outlets are more amenable to use while watching TV because they do not demand constant attention (e.g., asynchronous apps, or apps that simply broadcast comments). As noted, the SSE

requires splitting attention between the online conversation and the TV show. Similarly, the SSE might not be related to the physical properties of the system (e.g., one split screen vs dual screens) because one might be easier to manage. That is, the SSE requires greater cognitive effort, so a simpler app or a simpler setup might be more useful. All of these are reasonable suppositions and are not based on definitive results in prior literature.

This thesis was deliberately broad in the conceptualization of SSE, and in the factors that might affect it. This thesis tried to capture, in the background questions, a number of factors that might be related to the SSE. These factors were usually suggested by the literature (see *Chapter 2*) but they were considered as possible factors rather than as strict hypotheses. This study was deliberately generic: it was not focused on any particular age groups or socio-economic strata. It was not tied to any one medium such as Live TV (TV only available from broadcasters at the time of the broadcast), Video on Demand (e.g., Netflix, Amazon Prime), or cable television viewers. It was not tied to any particular social networks (e.g., Twitter, Facebook) or any particular mechanism for the use of a SS (e.g., dual screens vs. split screens).

These two goals required an appropriate tool to assess the SSE. There did not appear to be any appropriate tools available at the time the study began. Hence, a secondary goal was the creation and evaluation of the Second Screen Experience: Motivation Scale (SSE-MS).

3.2 Methodology

The current thesis uses survey research. Based on the literature review, the U & G framework was selected as the most appropriate.

For the first research goal (understanding what motivates viewers to use a second screen to talk about a TV show while watching that show on a primary screen), people were surveyed about why they use a SS to talk about TV while watching TV.

The first goal required the development of a new Second Screen Experience: Motivation Scale (SSE-MS). This secondary goal was achieved through the use of questionnaire development procedures. Four stages were included (see *Chapter 4* for details):

stage 1.1) **Item Generation**: created a pool of items for the questionnaire,

stage 1.2) **Item Selection**: asked a group of subject matter experts to review the pool of items so that the best could be selected for further development,

stage 1.3) **Item Testing and Refinement**: focused on the empirical qualities (e.g., descriptive statistics) of the individual items and,
stage 1.4) **Initial Analysis of the SSE-MS**: provided an initial analysis of the SSE-MS questionnaire.

The assessments of both research goals depended critically on the quality of this questionnaire, so considerable effort was devoted to its development.

The second research goal was addressed through a second survey that included the SSE-MS, along with other questionnaires that assessed Demographics, TV Viewing Habits, and SS Use.

3.3 Measuring the SSE While Watching TV

A questionnaire design was selected to collect data for this research, but before settling on this method of data collection, it was important to examine all possible options.

This thesis investigates the motivations to use a SS to talk about TV while watching that TV. How does one assess motivations? The assessment of motivations of watching TV shows has been ongoing since the 1940s. Much of this research has utilized the U & G framework (see *Chapter 2*), using a survey design although some studies used interviews, and a few have use experimental (behavioral) designs. However, while these studies have measured motivations, they have not considered the effect of using second screens while watching TV.

Hence, what was needed is some way to assess motivations of using second screens. There are several possible options for data collection, such as observational research, content analysis of archival data, surveys, and interviews. Those data collection methods are discussed in the following section to showcase their strengths and weaknesses and the suitability (or not) of those methods for this thesis.

Observational research collects information by listening to, recording or watching interactions or phenomena in a systematic and selective way (Kumar, 2014 p. 173). Although observational research can help identify the actions or events that are a consequence of motivations of using a second screen, observations do not provide insights about why viewers are motivated to do so. For example, O'Brien & Cairns (2016) commented that: "objective measures do not capture the subjective experiential aspects of information interaction, such as people's motivations to use a system, or their emotional response to that usage. Indeed, the

relationship between subjective and objective measures is not always clear" (p. 414). The lack of knowledge about why individuals engage in certain behaviors (and not others) can lead to the lack of generalizability. Similarly, the lack of knowledge about what viewers want prevents stakeholders from designing an experience to meet those needs. Observational research is intensely time consuming and, as such, is usually done with small samples. Therefore, observational methods rarely provide breadth – particularly when the phenomenon is complex or varied. Hence, for pragmatic reasons, this method was not suitable for this study.

Content analysis can also assess motivations through analysis of public comments by viewers. For the current thesis, the most likely source of such comments would be SNS (e.g., Facebook, Twitter, blogs). This method has been used by many researchers to better understand the SSE (see Giglietto & Selva, 2014; Lochrie & Coulton, 2011; McPherson et al., 2012; Wohn & Na, 2011). Understanding the content of Tweets can help with the assessment of the cognitive and emotional connections. Advances in content analysis approaches provide the ability to make large datasets more manageable and results more trustworthy (see for example, Renz, Carrington, & Badger, 2018). Despite these improvements, studies are still limited by the material analyzed (i.e., Tweets) as it is biased to those who are willing to publicly post on social media. Though content analysis can provide insight to actions of viewers (e.g., Tweet their opinion about a show), this method does not explain *why* people use second screens while watching TV. This approach also fails to consider those who only consume such content (i.e., those who read but do not post comments). Social media outlets that are not public (i.e., WhatsApp) or information channels (i.e., Wikipedia) are not easily accessed (though they can be if permission is secured from all users). As such, a content analysis of public material was determined not to be a reliable source of information for the purpose of this thesis.

The other method to collect data is the interview in any of its many forms (open or unstructured interview, structured interview, open-ended questionnaire, close-ended questionnaire) (Kumar, 2014, p.176). Interviews have been used on occasion in this type of work. For example, Shim, Shin, & Lim (2017) used interviews to understand the effects of motivations of using second screens on social interactions. Interviews are also time consuming, and for this reason the sample is usually small. For the current research, the small sample was a major concern because such a sample might not be able to capture the full breadth of the main

research goals. As such, interviews were determined not to be reliable sources of information for the purpose of this study.

In contrast to interviews, questionnaires do not allow for a leisurely in-depth exploration of a topic, but they do provide answers to specific questions, are faster, easier to use, and have fewer issues with interpretation. By studying a sample, questionnaires can provide quantitative description of trends, attitudes, or opinions of that population (Creswell, 2008).

All questionnaires contain a number of questions called items. Items come in two basic forms: open-ended and closed-ended. Open-ended questions are similar to a structured interview in that they allow free reign in the response. What is lacking is the dialogue between the interviewer and the interviewee, which prevents the ability to seek clarification or probe more deeply. Such items are difficult to analyze because they require the same qualitative analysis as interviews. In fact, they can be more difficult to analyze because the interviewer was *not* present seeking clarification. Closed-ended items require the respondent to select from a limited number of options; thus, they are easy to administer and analyze. The interpretation is usually straightforward because the question and answer are obvious. Sometimes, items will mix both response styles by providing a number of options and further space for “comments.”

However, questionnaires do have limitations. The intent of the items may not be clear to respondents and the range of responses (closed-ended) may not match the desires of respondents. This creates a degree of bias or error in the interpretation. The main issue, however, is that questionnaires can only collect information that is within the design of the items. There is no opportunity to probe more deeply, or to pursue novel or interesting tangents. If key areas of knowledge acquisition have been missed, there is no way to rectify that except through the design of a new questionnaire. More critically, such gaps may not be apparent until after the analysis is completed. All of these emphasize the importance of careful design of survey instruments. For a questionnaire, all the work is “up front” during design.

Once data has been collected through survey questionnaires, it is necessary to test them for reliability and validity before being put into general use so that meaningful and consistent inferences can be drawn by the use of this tool (Creswell, 2008).

Questionnaires are the most common research design in areas of relevance to the research goals (motivations to discuss TV shows through a SS while watching that TV show). Using a questionnaire makes it possible to collect a large amount of data from a very large sample, in a

short time (Fowler, 2009). The analysis is free of bias (i.e., the analysis does not add bias that did not exist in the design of items or options), and the processes for generalizing from the sample to a population are documented and straightforward (Creswell, 2008; Kelley, Clark, Brown, & Sitzia, 2003). In addition, a questionnaire has the advantages of being portable. Participants can complete a questionnaire on their own time, in the location of their choice. Though it is of relatively minor importance for the current research, questionnaires are easily rendered anonymous and confidential because no identifying information need be collected, and participants are not seen by researchers. A questionnaire was selected for this thesis because of the aforementioned reasons.

As seen in the literature review, the core topics such as watching TV, using the internet, or using social media involved been researched extensively for years even if the current combination of watching TV and using the internet (i.e., the SSE) have not. In addition to the previous demonstration of the pragmatic uses of a questionnaire, this choice was also based on the following criteria (adapted from Kumar, 2014 , p.181):

The nature of the study: This study was interested in assessing motivations of participants in relation to the use of second screens while watching TV. There are many different applications, devices, TV shows, TV watching habits, and lifestyle choices that may affect motivations of second screening. The use of a questionnaire allows one to reach a higher number of participants so to capture breadth.

The geographical distribution of the study population: In this case, potential participants are any individuals who watch TV while using a second screen. This is a very widely dispersed population, and the questionnaire design makes it possible to reach such a geographically dispersed population efficiently.

3.4 Questionnaire Design

There were no survey tools that were suitable that could fulfill the data collection requirements of this thesis at the time of study. Therefore, it was necessary to develop a questionnaire that could measure SSE motivations.

As noted previously, questionnaire design should be approached carefully and methodically. Hence, a secondary goal was the design of a questionnaire capable of assessing “the motivations for the use of a SS to talk about a TV show while watching that TV show”.

Stages of Research: The current research had three main stages. Each stage had sub-stages.

Stage 1: Scale creation (Questionnaire Development for the SSE-MS)

Stage 1.1: Item Generation

Stage 1.2 Item Selection

Stage 1.3: Item Testing and Refinement

Stage 1.4: Initial Analysis of the SSE-MS

Stage 2: Scale Evaluation (Questionnaire Reliability and Validity Assessment)

Stage 2.1: Methods

Stage 2.2: Reliability Assessment

Stage 2.3: Validity Assessment

Stage 3: Assessment of the First and Second Research Goals

Stage 3.1: Methods

Stage 3.2: Assessment of the First Research Goal

Stage 3.3: Assessment of the Second Research Goal

Each of these stages is discussed in the following segments. The following discussion provides the overview of the methods within each stage. Details are provided within the discussion of each separate stage (*Chapters 4, 5 and 6 for Stages 1, 2, and 3 respectively*). This approach was chosen because there are many small but important details for each stage, and the inclusion of all the details could cloud the presentation of the general plan.

The development of a questionnaire involves several steps, though not all researchers describe them in the same way or include all of them in their research (e.g., Bradburn et al., 2004; R. J. Cohen et al., 1996; R. J. Cohen & Swerdlik, 1999; R. M. Lee, 2000; Mehrens & Lehmann, 1984), regardless of their expertise or experience with questionnaire design. In fact, O'Brien & Cairns (2015) commented that many questionnaires are developed ad hoc (p. 413) and suffer from questionable validity and/or reliability. Sigerson & Cheng (2018) performed a systematic review of psychometric properties in scales that measure using social media and discovered that not all scales were validated, and the development processes were different.

Figure 2 demonstrates the common steps of questionnaire design (see *Appendix A-2: Stages of Questionnaire Design* for variations on this theme). The development typically follows a linear sequence, but there may be times when it is necessary to revisit prior stages as shown in Figure 2. Throughout the process, it must be remembered that the ultimate goal is a questionnaire that is valid (the degree to which a measure accurately represents the concepts that it claims to

measure) and reliable (the ability of the measurement to provide the same results whenever the person being measured is in the same state regardless of the time, place, context, or researcher doing the measurement) (Hinkin et al., 1997). Thus, understanding what leads to validity and reliability is necessary from the start.

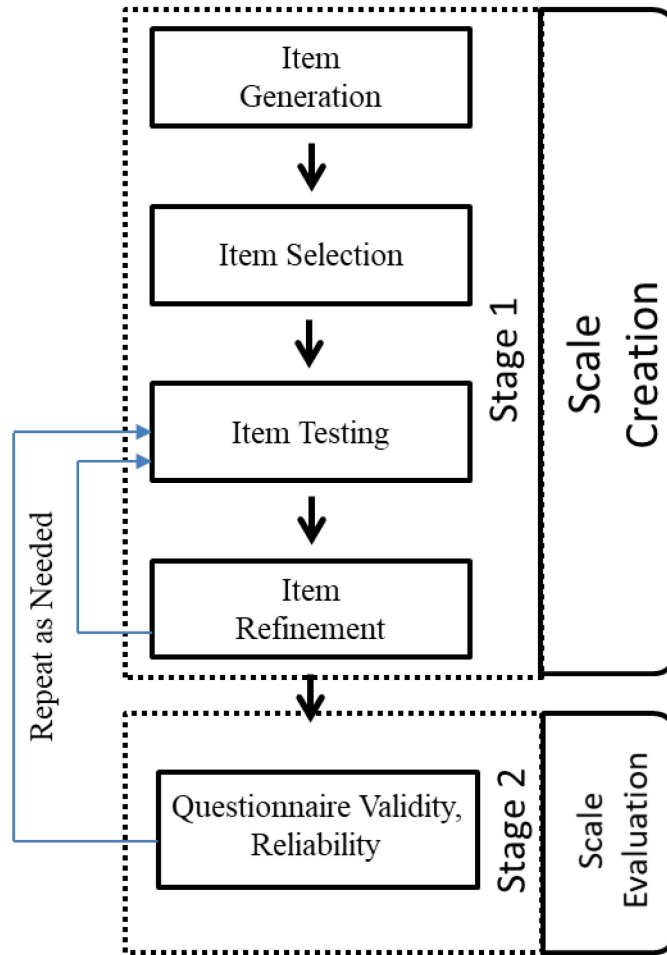


Figure 2: Stages of Questionnaire Design, (adapted from many sources: O’Brien & Toms, 2010a; Malhotra & Grover, 1998; Forza, 2002; Fogg et al., 2001; Hinkin et al. 1997; Saunders & Munro, 2000; DeVellis, 2016 – a consensus settled on for the current research).

3.5 Stage 1: Scale Creation

The planning of the layout and design of a questionnaire is an important first step in questionnaire development. It is argued by DeVellis (2016, p 157) that there are contextual factors that need to be considered in advance of any item design. These include motivations to answer, fatigue from completing a questionnaire, or response styles, all of which might affect the

responses to the questionnaire. Several other guidelines cited in Mehrens & Lehmann's (1984, p. 277, Bradburn et al. (2004), Cohen, Swerdlik, & Phillips (1996), Kerlinger & Lee (2000), Malhotra & Grover (1998), and Shultz & Whitney (2005) were kept in mind when creating the list of items (*Appendix A-3: Guidelines of Creating Items for a Questionnaire*).

For layout and general item design, a common stem was used (e.g., "While watching TV, I use a second screen...") for collections of related items (i.e., the items of one subscale) to make responding easier and faster. The stem was followed by a more specific "completion" (e.g., "to have a shared experience with family or friends.") The response consisted of the same five-point ordinal scale (from "strongly agree", "agree", "neutral", "disagree" to "strongly disagree") for all items. The neutral was considered essential because the content expressed by a single item would not necessarily apply to all people: the respondent might not have an opinion, or the item might not apply. For example, an item like "While watching TV, I use a second screen to talk about the show to discuss the morality of the characters." only applies to people who talk about the morality of characters and to people who have thought about talking about the morality of characters: it does not apply to people who have never thought about the possibility. Bradburn et al., (2004) recommend no more than five levels, since this provides a range of answers, but is also easy to use. Using five ordinal response options also reduces frustration, which in turn helps to increase the number of participants (Buttle, 1996). Mehrens & Lehmann (1984, p. 277) cite the advantages of this format as: flexibility, simplicity of scoring (analysis), efficiency (time for respondent to complete), and control over complexity or difficulty. Initially, all these considerations were only considered as a starting point. However, this structure was retained through all iterations.

3.5.1 Stage 1.1: Item Generation

The point of item generation is the creation of a large pool of potential items that can address the research questions (See *Appendix A-4*). The large number of items is to ensure content validity (i.e., breadth). In this thesis, items relevant to the variables were generated using three tools: a relevant pilot study that I previously completed about SSE, my insights and those of my colleagues, and a literature review including a review of prior questionnaires.

Insights from a completed relevant pilot study on the SSE were used to introduce some items that seemed necessary. For example, during the pilot study of examining viewers behaviors

while watching TV and using second screens, it was discovered that a Twitter response from a TV channel (Fox), encouraged the study participant to tweet again. Hence, communicating with celebrities and producers on social media outlets was considered as a factor that can encourage using second screens to communicate about the TV show while watching that show.

A literature review on relevant U & G questionnaires was an important tool for generating items for the study. To find related items, questionnaires addressing motivations for second screen use, online social network use, internet use, and TV and VoD viewing were sourced and used. This review was restricted to publications that provided the actual items for the cited questionnaire. Sources that were cited by these studies (in the U & G framework or not) were also sourced because they had been a part of the inspiration of the cited study. The aim of this review was to determine:

- The dimensions of U & G that are most commonly used
- The way items have been framed (design and layout)
- The statistical methods used
- The item content that worked and that has not worked

The consensus seemed to focus on four main dimensions (motivations): Cognitive, Personal Identity, Social Interaction and Diversion (including Emotional Arousal and Emotional Abatement which are sometimes treated as separate dimensions). These formed the main dimensions for categorizing items during the item creation stage.

The U & G framework that was adopted for the current research has four categories of needs (Table 5).

Table 5 Dimensions of the U & G for the Current Study

Need	Description
Cognitive	information seeking, learning and seeking guidance or advice
Social Integration	belonging, sense of community (group identification, in-group/out-group identity), connectedness, maintaining old and creating new relationships
Personal Identity	personal growth, identity formation, social identity formation (social learning), self-confidence, self-esteem, personal validation
Diversion	tension release (stress release, escape, or reality escape), relaxation, avoidance of boredom (passing time or habit), entertainment (excitement, emotional involvement, sensation seeking, shared emotion)

These dimensions represent the core of the U & G framework and are consistent with the original conceptualization of the U & G (see Table 1). I relabelled the original Integrative 1 and Integrative 2 categories from Table 1 as Personal Identity and Social Integration, respectively, for clarity. The category of Affective Needs was dropped, because it is unclear how it is distinct from Diversion (or from Personal Identity Needs, Social Integration Needs) and because it is rarely cited in the literature. The fourth dimension, Tension Release, was relabelled as Diversion because it included elements of both emotional arousal (e.g., entertainment) and abatement (e.g., relaxation, stress release). The four dimensions are further elaborated below.

Cognitive needs are described as information seeking, learning and seeking guidance or advice within the U & G framework. They are often called “information” or “surveillance”. It seems clear that these would be related to second screen use and the SSE. For example, cognitive needs (information seeking) were found to be a strong motivator when using Twitter while watching TV (Krämer et al., 2015). It is interesting that different platforms were found to serve different needs: while Twitter was used to find information, those who were seeking social integration tended to use WhatsApp (Krämer et al., 2015).

Social Integration needs relate to a sense of belonging to a community, social connectedness and cohesiveness, as well as the need to maintain old and create new relationships (Gruzd et al., 2011). According to Shin (2013), sociability and the ability to be connected with others while watching is a primary reason behind using second screens. The sense of connectedness with others and the feeling of belonging is what drives viewers to join this experience. This was supported by Schirra et al. (2014) in a study of Twitter and *Downton Abbey*. Findings indicated that individuals were motivated to live-tweet by the desire to connect with a larger community and by the need to strengthen face-to-face relationships. Para-social relationships with actors/producers/crew according to Blake (2017), is one of the needs that viewers are looking for. Krämer et al. (2015), Ainasoja et al. (2014), and Giglietto and Selva (2014) provide the same conclusion.

Personal Identity needs are described as personal growth, identity formation, social identity formation (social learning), self-confidence, self-esteem, and personal validation. Personal identity is about one’s status and power within a group. One’s status within one group does not necessarily transfer to status within another group. With respect to the use of a SS to talk about TV shows while watching those shows, the ability to speak knowledgeably and authoritatively

about the TV show might enable an individual to enhance their social position. For example, in their commentary on the impact of social media on fandom, (Bury et al., 2013, p 313) noted that “even before the internet there were fans who assumed some sort of ‘privileged status’ in terms of access to producers.”

Diversion needs are described as tension release (e.g., stress release, or escape), relaxation, avoidance of boredom (e.g., passing time or habit), or entertainment (e.g., excitement, emotional involvement, sensation seeking, shared emotion). In a study of relationships between social TV and enjoyment, Auverset & Billings (2016) analyzed conversations posted on Twitter about *The Walking Dead*. They found that enjoyment while watching TV is not only isolated immediate reactions to what is happening on TV but there were more broadly defined cognitive and behavioral connections. That is, diversion needs are not only served by the experience of watching the show, but also from the social experiences that are enabled by having watched the same show as others.

The initial goal was to create approximately the same number of potential items per dimension. This was not rigidly set because the number would depend on the conceptual breadth of the dimension (i.e., they “seem” to all have about the same amount of breadth in the literature). The U & G framework has been used extensively to create questionnaires related to the SSE. Studies that used questionnaires related to the SSE (e.g., Kim, 2013), social media (e.g., Phua et al., 2017), internet use (e.g., Roy, 2008), and TV (e.g., Barton, 2009) and VoD watching (e.g., Hanson & Haridakis, 2008) were used as an initial source of items. These items were then classified (by need) and adapted to the current purpose. When evaluating the related questionnaires, the content, as well as the composition – including length and structure – were examined. Additional items were generated based on insight gained from on the literature review.

Initially 162 items were generated, which were then reduced to 43 Cognitive, 48 Personal Identity, 53 Social Integration, and 18 Diversion items for review. There is no rule on the number of items that need to be generated. For example, O’Brien & Toms (2010a) generated an initial pool of 459 items. Fogg et al. (2001) generated an initial pool of 300 items. However, Saunders & Munro (2000) generated only 62 items. After the items were generated, all items were converted to the common stem-and-completion format, in a manner suited to the use of a five-point ordinal response scale (from “Strongly Agree”, through “Neutral” to “Strongly

Disagree”). Items were formatted using the guidelines (see *Appendix A-5*) adapted from Mehrens & Lehmann’s (1984, p. 277), with additional consideration from the comments of Bradburn et al. (2004), Cohen, Swerdlik, and Phillips (1996), Kerlinger & Lee (2000), Malhotra & Grover (1998), and Shultz & Whitney (2005).

The dimensions of the U & G framework are typically correlated. The Social Integration and Personal Identity are typically the most strongly related (i.e., personal identity is tied to one’s social group). Cognitive Needs may, intentionally or incidentally, serve Personal Identity and/or Social Integration Needs. For example, one might learn a particular behavior or dress code—fulfilling cognitive needs—and then adopt that behavior or code in order to gain acceptance within a group—fulfilling personal identity needs. An exploration of alternative cultures may not only satisfy curiosity but may also help to build in-group/out-group identification and support personal identity. Sharing material on social media may simultaneously enhance social bonds, raise status, provide information and act as a diversion. At the level of *behavior*, a particular behavior may serve multiple needs; different needs are likely to overlap.

3.5.2 Stage 1.2: Item Selection

The goal of item selection was to reduce the items that resulted from the previous item generation step to a more manageable number, while retaining the *best items*. At this point, *best items* were judged primarily based on face validity (representativeness of the item to the goals).

After item generation, all items were presented to a research team of subject matter experts for evaluation. There are no standardized guidelines to inform the selection of subject matter expert evaluators. O’Brien and Toms (2010) as well as Saunders and Munro (2000) only relied on one unaffiliated expert, while Fogg et al. (2001) and Hinkin et al. (1997) used multiple external reviewers for their studies. For this thesis, three subject matter experts in social media research or survey design were recruited (see *Appendix A-6 Ethics Approval*, *Appendix A-7 Letter to Moderators*, *Appendix A-8 Recruitment Material Stage 1*, and *Appendix A-9 Consent Form*). Instructions to rate the items were provided to the subject matter experts (see *Appendix A-10 Instructions to Experts*). These instructions were developed after carefully reviewing similar methods by O’Brien and Toms (2010), Saunders and Munro (2000), and Fogg et al. (2001).

In this thesis, the subject matter experts rated each item for importance, potential validity, and potential reliability, and on 11 language attributes (see *Appendix A-11*). Because of the number of items to be rated, a simple five-point scale was used for importance, potential validity, and potential reliability. The ratings of the first three attributes (importance, potential validity, and potential reliability) helped me determine which items to include in the survey, while the language evaluation helped me determine which items should be rewritten if they were not removed because they were not important, valid or reliable.

For the language attribute, subject matter experts were asked to assess whether or not it displayed one of eleven linguistic shortcomings by providing a “check mark” in that specific language attribute if there was a *problem* with an item (e.g., “unclear”, “wordy”, “complicated”). Subject matter experts were explicitly told to not to overthink the language attribute – a simple initial reaction was sufficient and likely more representative of the general population who might respond to the final version. This action saved time and simplified the work. Nonetheless, it was an onerous task for the subject matter experts.

Additional **TV Viewing Habits** items (see *Appendix A-12*) that addressed the TV access device, genres watched, TV modes of access, the number of TV shows watched, the hours of TV viewing per day, the schedule for TV Viewing, binge watching, schedule planning, and social situation items were also provided to the subject matter experts. Further, items related to the use of the second screen while watching TV named **SS Use** (see *Appendix A-12*) that addressed the type of SS, the mode of SS Use, the social media outlets used, the content of SS, the social situation, and the pace of the TV show were provided to the subject matter experts. The viewing habits and the SS Use items are not considered part of the SSE-MS scale, but are important in answering the second research goal. Subject matter experts provided the same type of feedback as on the SSE-MS items. These items were only needed in the final Stage 3 analysis of the second research goal. They were not analyzed in detail until that final stage (though they did provide some information that was useful for contextualizing the sample).

Once all ratings were completed, the mean ratings (across participants) for importance, validity and reliability were computed. The best items were selected based on Importance, Validity, and Reliability. The language variables were used to determine if an item had to be rephrased.

Based on these criteria, the set of items was reduced to 110 (see *Appendix A-13*). These 110 items consisted of the four pre-defined dimensions of the U & G framework: 30 items in the Cognitive dimension, 30 items in the Personal Identity dimension, 30 items in the Social Integration dimension, and 20 items in the Diversion dimension.

3.5.3 Stage 1.3: Item Testing and Refinement

The items selected in the previous step were presented to a sample of TV viewers who used second screens while watching TV. The goal was to use the responses of participant to reduce the number of items from 110 to about 30 by selecting those with the best psychometric properties based on the univariate distributions (e.g., approximately normal or unimodal) and statistics for items (e.g., an item mean near the center of the response range). Essentially, distributions of items were checked. There were only five response categories per item (“strongly agree”, “agree”, “neutral”, “disagree” and “strongly disagree”) so the distributions had a limited range of shapes. The ideal would be an approximately normal distribution (i.e., unimodal or peaking at 2, 3, or 4). Skewed distributions were expected (peaking at 2 or 4) and are perfectly reasonable (Veaux et al., 2017). As noted previously, most items would only have relevance to a subset of participants: therefore, distributions would be skewed. Skewed items are not a problem for the final form of the questionnaire according to the central limit theorem (CLT) (see Veaux et al. (2017) pp. 468–477 for more about CLT).

The selection is also done by examining bivariate relationships between items. The collection of all items should balance breadth and depth within a minimal number of items. To assess this, the bivariate correlations between items were considered. Bivariate analysis was done by examining correlations between items following Hinkle et al. (2002) guidelines. If all items do share the one concept, then the items will be correlated. Hence, the correlations between each item and all the rest were checked. Commonly used “rules of thumb” for interpreting correlation coefficient according to Hinkle et al. (2002) are:

Very high positive (negative) correlation	.90 to 1.00 (–.90 to –1.00)
High positive (negative) correlation	.70 to .90 (–.70 to –.90)
Moderate positive (negative) correlation	.50 to .70 (–.50 to –.70)
Low positive (negative) correlation	.30 to .50 (–.30 to –.50)
Negligible correlation	.00 to .30 (.00 to –.30)

As previously explained, to reduce the number of items, correlations were independently examined within the subscales. Within a subscale the correlations should be in the $r = .3$ to $r = .7$ range approximately (it depends on the final number of items). Below $r = .3$, the items are not sufficiently related. Above $r = .7$, the items have excessive overlap and one could be replaced to gain more breadth through less overlap (DeVellis, 2016; Hinkle et al., 2002). Then, two related analyses were used: visual examination of the correlation matrix and then, Exploratory Factor Analysis (EFA) was used to help sort through the correlation matrices, see (Williams et al., 2010). In this analysis, attention was focused on the relationships between items within each of the four pre-defined subscales: the 30 items in the Cognitive subscale, the 30 items in the Personal Identity subscale, the 30 items in the Social Integration subscale, and the 20 items in the Diversion subscale.

Items that were judged to be the most representative of the subscale (based on the analysis of the correlations and the principle investigators' insights) with good psychometric properties (based on the univariate analyses) were retained. Following selection, items were refined for precision and brevity. This included simplifying some items to capture the breadth that had been contained in similar items (e.g., an item about "future episodes" was combined with an item about "past episodes" to create "other episodes"). The other items were not discarded but kept in reserve in case further testing and analysis should indicate a need to replace one. The Item Selection and Refinement step resulted in 30 items.

Thirty items were chosen as an initial value to balance the need for brevity (an online survey requiring no more than 15 minutes to complete) and breadth (the U & G framework). The final set (*Appendix A-14*) was intended to be about 30 items because this would lead to a questionnaire that would take about 15 minutes to complete in the final form (Hoerger, 2010). Fifteen minutes was considered a target because as mentioned previously it would then enable the new SSE-MS to be included as a part of other experimental or survey research designs. Dropout rates increase after 30 minutes of starting a survey (Hoerger, 2010; Guin, Baker, Mechling, & Ruyle, 2012). For example, the SSE-MS could be included in a future study with questionnaires that tapped personality, or mood, or any of a number of potentially interesting factors (see *Chapter 8: Future Work and Limitations* for more discussion). The total number of minutes spent on the combined survey would be less than 30 minutes which would help maintain participants from dropping out as per Hoerger (2010) study.

Stage 1.3 Procedure After obtaining ethics approval from the Social Sciences and Humanities Research Ethics Board (*Appendix A-15*), items were presented to participants using Opinio online survey software (ObjectPlanet, 2018). The survey was anonymous but collected some background information in addition to the items for the SSE-MS. This background information was used to assess generalizability. The background information consisted of three sections: Demographics, TV Viewing Habits and SS Use. The Demographic information included age (in groups), education (in ranges), occupation (in general categories), The **TV Viewing Habits** and **SS Use** as shown in *Appendix A-12*.

Participants were recruited from Dalhousie University, Halifax, NS, Canada, and internationally. The target participant was anyone who had used a second screen while watching TV. Recruitment was through posted notices on listservs and other appropriate sites, as well as by word of mouth. The target number of participants was between 50-100 participants; Fogg et al. (2001), had 30 participants; O'Brien & Toms (2010a), had 440 participants; Saunders & Munro (2000), had 137 participants. Useable data was obtained from 98 participants for this stage of the thesis.

3.5.4 Stage 1.4: Initial Analysis of the Final Questionnaire

As a reminder, the goal of Item Selection and Refinement step was to reduce the number of items while maintaining breadth. The Item Selection and Refinement step resulted in 30 items. A simple principal component factor analysis (PCA) was used to help understand how those 30 items related to each other (i.e., which were most related, which were least related). The factor analysis was not used to generate factors (see DeVellis, 2003. pp 102-137, for a detailed explanation on Factor Analysis). The factor analysis was only used to find groups of related items, so that the most representative items of each group could be identified. The factorability of the data was substantiated by running the Kaiser-Meyer-Olkin Measure of sampling Adequacy (KMO) and the Bartlett's Test of Sphericity. Field (2009, pp. 647) stated that KMO that values that are:

- less than 0.5 are not acceptable,
- between 0.5 and 0.7 are mediocre,
- between 0.7 and 0.8 are good,
- between 0.8 and 0.9 are great, and
- above 0.9 are superb.

The Bartlett test of Sphericity tests the hypothesis that the correlation matrix is significantly different from an "identity matrix"⁶. For factor analysis to work, there must be relationships between variables. The Bartlett test must be significant (less than 0.05) to indicate that a factor analysis may be useful in the data (Field, 2009).

Details of this analysis and results are discussed in *Chapter 4*. At the end of this stage, the final questionnaire consisted of 30 items with 8 Cognitive, 8 Personal Identity, 8 Social Integration and 6 Diversion items as seen in *Appendix A-14*.

3.6 Stage 2: Scale Evaluation

Stage 2 evaluated the reliability and validity of the final 30-item SSE-MS questionnaire. Reliability and validity are focused on the overall questionnaire – not the individual items. It is vital that the scale is valid and reliable to ensure adequate measurement of the constructs of the scale. The following sections describe the evaluation of the reliability and validity. Reliability and validity are separate concepts, but they are often discussed and tested in tandem because they are the two key components that define the quality of a questionnaire.

3.6.1 Stage 2.1: Methods

After obtaining ethics approval from the Research Ethics Board (see *Appendix A-15 Ethics Approval*, *Appendix A-7 Letter to Moderators*, *Appendix A-16 Recruitment Material Stage 2*, and *Appendix A-17 Consent Form*), items were presented to participants using an online survey Qualtrics (Qualtrics, Provo, UT, 2018). The survey was anonymous but collected some background information.

This background information was used to assess generalizability, these items are the same items used in Stage 1.3 *Appendix A-12*. The background information consisted of three sections:

The Demographic information included

- age (in 7 age ranges),
- education (8 levels),

⁶ An identity matrix is a matrix that has ones along the diagonal and 0's everywhere else which would indicate that all variables are independent and therefore unsuitable for structure detection.

occupation (12 general categories),
relative income (3 levels),
the living situation (7 categories),
and the degree of urbanization (3 levels).

The TV Viewing Habits included

genres of TV viewed (16 categories),
mode of TV access (7 items),
intensity of TV viewing (4 items),
hours of TV viewing (3 items),
time of TV viewing (2 items),
binge watching (3 items),
intensity of following particular TV shows (4 items),
emotional connection to TV shows (2 items),
and the social context of TV viewing (8 items).

The SS Use included

type of SS (4 items),
devices for accessing the SS (4 items),
social media outlets used on the SS (18 items),
content on the SS (6 items),
time of SS Use relative to the TV content (5 items),
and the social context (7 items).

Participants were recruited from an undergraduate subject pool at Ryerson University, Toronto, Ont, Canada). The target number of participants was between 300-500 participants. A total number of 395 participants in the study however, usable data was obtained from 348 participants.

Validity and Reliability were assessed concurrently. Reliability analysis only required the items of the SSE-MS. Validity analysis required the inclusion of six other questionnaires selected from the literature: the Interpersonal Communications Motives (Rubin et al., 1988), the Motivations for Watching TV (Rubin, 1983), the Use of Social Media (Leung, 2001), the User Engagement Scale-Short Form (O'Brien, Cairns & Hall, 2017), the Motivations for Using the Internet (Roy, 2008), and the Hedonic and Eudaimonic Scales (Oliver & Raney, 2011).

3.6.2 Stage 2.2: Reliability Assessment

Reliability is the ability of the measurement to provide the same results whenever the person being measured is in the same state – regardless of the time, place, context, or researcher doing the measurement (Sigerson & Cheng, 2018). Different people who are in the same state should provide the same measurement.

I used Cronbach’s alpha (α) (Cohen & Swerdlik, 1999, p. 150-159, see also Cortina, 1993) to assess the reliability and internal consistency of the subscales. During the design of any questionnaire, it is necessary to balance the average correlation and the number of items to achieve a reasonable α per subscale (DeVellis, 2016). Because some of the subscales have different ranges (for example, one item has a 1-7 answer range, and another item is a 1-10 range), adjusted alpha ($\text{adj-}\alpha$) was also calculated to standardize items within each subscale (Falk & Savalei, 2011; Field, 2009). If adjusted alpha is equal or better than alpha, then there are no issues with the item ranges (items have equal variance) and the scale reliability is stable. However, if the adjusted alpha is smaller than the alpha, then this might indicate that the items have un-equal variance and unstable reliability.

Cronbach’s alpha is only valid if the questionnaire is unidimensional – if it conceptually overlaps (DeVellis, 2016). The new SSE-MS was designed to measure four separate but related motivations (i.e., Cognitive, Personal Identity, Social Integration, and Diversion). Therefore, to examine reliability, it was first necessary to assess the internal structure of the questionnaire using exploratory factor analysis before reliability could be assessed. This process ensured that the conceptual structure consisted of four domains in the data. This was achieved in Stage 1.4.

Once the factor structure of the questionnaire was defined, it was possible to test the reliability of each subscale. Reliabilities were checked using Cronbach’s alpha (a primary measure of reliability), which is the average correlation weighted by the number of items, such that to obtain a reasonable alpha (DeVellis, 2016). The criteria used throughout this thesis for Cronbach’s alpha are (DeVellis, 2016; Field, 2009; Tavakol & Dennick, 2011):

“excellent”	if α is greater than .9,
“good”	if α is between .8 and .9
“acceptable”	if α is between .7 and .8
“questionable”	if α is between .6 and .7
“poor”	if α is between .5, and .6
“unacceptable”	if α is less than .5

More details about the reliability assessment are provided at the time of use in *Chapter 5*.

3.6.3 Stage 2.3: Validity Assessment

Validity is the degree to which a measure accurately represents the concepts that it claims to measure (Furr & Bacharach, 2007; Thompson & Daniel, 1996). There are different ways of assessing validity, and they are designed to meet particular goals (e.g., criterion validity is about whether or not the measure works for a particular purpose; content validity is about breadth; face validity is a quick assessment) (DeVellis, 2016). Construct validity is the most thorough assessment as it places the new questionnaire within a theoretical framework of related concepts (convergent construct validity) and unrelated concepts (discriminant construct validity).

For this step, construct validity was assessed by comparing the new SSE-MS questionnaire to six pre-existing questionnaires that share similar or related constructs (DeVellis, 2016; Cook & Beckman, 2006). These constructs included motivations of watching TV shows, social media usage, the use of SS, and the use of the internet. Three were explicitly based on the U & G framework.

Each of these pre-existing questionnaires was selected because it was an established questionnaire with defined reliability (α above .7) and validity. All the questionnaires had subscales which had different reliabilities. Hence, the goal was to find related questionnaires that have subscales with a value in excess of $\alpha = .7$ for each subscale. There was only one exception (The Motivations for Using the Internet questionnaire). Each had some degree of use in other research so that its reliability and validity had been replicated more than once.

Those six questionnaires are:

1. **The Interpersonal Communications Motives Questionnaire** (ICM: Rubin et al., 1988): This questionnaire is based on the U & G framework and consists of 28 items divided unequally across six subscales and reliabilities per subscale (Cronbach's alpha) ranged from $\alpha = .75$ to .89.
2. **The Use of Social Media Questionnaire** (USM: Leung, 2001): This questionnaire is based on the U & G framework and consists of 26 items divided

unequally across seven subscales and reliabilities (Cronbach's alpha) ranged from .67 to .88.

3. **The Motivations for Watching TV Questionnaire** (Rubin, 1983): This questionnaire is based on the U & G framework and has 18 items in five subscales with reliabilities (Cronbach's alpha) that ranged from $\alpha = .71$ to $.75$ in the original work (see Rubin).
4. **The User Engagement Scale Questionnaire -Short Form** (UES-SF: O'Brien, Cairns, & Hall, 2017): This questionnaire is not based on the U & G framework, it consists of 12 items divided equally across four subscales. Reliabilities ranged from $\alpha = .81$ to $.86$.
5. **The Motivations for Using the Internet Questionnaire** (MUIInternet: Roy, 2008): This questionnaire is not created within the U & G framework, but it explicitly acknowledged the U & G framework during its development. It consists of 23 items divided unequally across six subscales and reliabilities ranged from $\alpha = .62$ to $.82$.
6. **The Hedonic and Eudaimonic Scale** (HandE: Oliver & Rany, 2011): This scale is not based on the U & G framework, it consists of 12 items divided equally across two subscales with reliabilities of $\alpha = .86$ and $.81$.

Validity was assessed by the examination of the correlation between the subscales of the new SSE-MS and the subscales of the aforementioned six pre-existing questionnaires (DeVilles, 2003). Each subscale of the new SSE-MS should have a high correlation with the other subscales that it should be related to, and no correlations with other subscales that it should not be related to (see Hinkin et al., 1997). For example, the MUIInternet contains a subscale about diversion needs; this subscale must have a high correlation with the diversion subscale from the SSE-MS to prove that the SSE-MS is valid. Further, this subscale must not be correlated with other unrelated subscales to further confirm validity. Hence, the analysis of validity was reduced to the examination of the correlation matrix between the subscales of the new SSE-MS and the subscales of those six pre-existing questionnaires. More details about the validity assessment are provided at the time of use in *Chapter 5*.

3.6.4 Stage 2: Analysis

At all stages of questionnaire development, the analysis used the common techniques for questionnaire design and analysis. All have been presented in numerous textbooks (Cohen & Swerdlik, 1999; Heeringa et al., 2017; Mehrens & Lehmann, 1984; Shultz & Whitney, 2005) and online resources for questionnaire design and analysis or for general statistics (e.g., Howell, 2002, Shultz & Whitney, 2005, Cohen & Cohen 1983, Heeringa, West, & Berglund, 2017).

For the analysis of individual items descriptive statistics, including the mean, median, mode, standard deviation (*SD*), minimums and maximums, examination occurred item-by-item. In addition, the distribution of each item was examined manually by hand.

For the reliability analysis, the focus shifted to a factor analysis in order to check the internal structure of the questionnaire (Jolliffe, 2002). The goal was to ensure that conceptual grouping of items actually worked in reality. There are two main techniques commonly used to explore the structure of a questionnaire: Confirmatory Factor Analysis (CFA, a form of structural equation modeling) and Exploratory Factor Analysis (EFA). CFA is used to test whether or not the items of a question adhere to (i.e., “confirm”) a particular theoretical structure, whereas EFA is used to explore the structure of a questionnaire. The use of CFA requires a theory that can specify the underlying factors, the correlations between those factors, and the correlations between each individual item and those factors (Prudon, 2015). It was intended that the SSE-MS would have the four defined factors (Cognitive, Personal Identity, Social Integration, and Diversion), but during the development of the SSE-MS this was not guaranteed. The U & G framework has often resulted in more than four factors, and in different factors. The dimensions of the U & G tend to be correlated, but the size of the correlations can vary. Finally, given that the items are new, the loadings of those items on factors was not known. Hence, CFA was not appropriate.

EFA does not impose constraints on the analysis of the structure. EFA simply identifies whatever factors may exist within a questionnaire, and the analysis is largely unaffected by the concepts (e.g., hypotheses) of the researcher (Jolliffe, 2002). EFA is recommended before CFA during questionnaire development (Worthington & Whittaker, 2006; Tinsley & Brown, 2000, Chapter 10). Within EFA, there are several variants (see Williams et al., 2010), and most

researchers include Principal Components Analysis (PCA) within any discussion of EFA⁷. The main alternative to PCA is Principal Axis Factoring (PAF, see Williams, et al., 2010). In this thesis, both PCA and PAF were assessed, but only the PCA was presented because the two analyses produced the same results. The basic process was consistent with the simple five-step recommendation of Williams, et al. (2010), and all indices of fit were considered. The goal of the EFA was to see if the items formed factors in accordance with the designed subscales (i.e., Cognitive, Personal Identity, Social Integration, and Diversion).

Once the factor structure had been confirmed, reliability was assessed within each subscale using Cronbach's alpha. For the assessment of validity, the primary statistical tool was, again, the correlation. A correlation matrix was used to compare each subscale of the SSE-MS to the subscales of other questionnaires. The important point included significance and direction. For the SSE-MS to be validated, the expected relationship had to be significant and in the right direction. Note that if no relationship was expected, then the correlation had to be near zero (i.e., non-significant). In this thesis, higher levels of each motivation were coded as 0 because it is the starting point, meaning that a lower number (0) implied a greater use of the SSE to obtain gratification than a (5).

Finally, as is common practice in the literature, the reliability of the pre-existing questionnaires were computed (Cronbach's alpha) (Hinkin et al., 1997). This is done merely to ensure that the pre-existing questionnaires worked in the new (current) sample in the same way that they worked in previous samples. This analysis of the pre-existing questionnaires did not include any analyses of the individual items and did not include a factor analysis (i.e., PCA) because they have been previously validated and used in other work. It is not within the purview of the current research to critique those existing questionnaires (Heeringa et al., 2017).

3.7 Stage 3: The Assessment of the First and Second Research Goals

The first goal sought to understand motivations of people who use second screens (SS) to talk about TV while watching that TV on a first screen. This assessment depended on the prior development and evaluation of the SSE-MS.

⁷ PCA is the most commonly used form of EFA and it is the default option in many statistical packages (e.g., SPSS®).

The second goal was assessing the who, where, when, why, and how of the SSE while watching TV. This was related to the previously discussed background questions (Demographics, TV Viewing Habits and SS Use). This assessment depended on the prior development and evaluation of the SSE-MS. It also depended on the prior development of those background questions.

3.7.1 Stage 3.1: Methods

The methods for Stage 3 combined 2 samples, one through Dalhousie University (Halifax, Nova Scotia, Canada) (see *Appendix A-14*) and the other from Ryerson University (Toronto, Ontario, Canada) (See *Appendix A-15*). After obtaining ethics approval from the relevant Research Ethics Boards (*Appendix A-16* and *A-17*), items were presented to participants using two services deploying online surveys: Qualtrics for participants at Ryerson University (See *Appendix A-18* for informed consent) and Opinio for participants at Dalhousie University (See *Appendix A-13* for informed consent). The survey was anonymous but collected the background information previously cited in Stage 2. As noted previously, participants were recruited from an undergraduate subject pool at Ryerson University. Participants at Dalhousie were recruited more broadly using a number of means such as through list serves and social media outlets. The target number of participants was between 300-500 participants, and useable data was obtained from 450 participants.

This background information was used in Stage 3.3. The background information consisted of three sections: Demographics, TV Viewing Habits and SS Use. The Demographic information included age (in 7 age ranges), education (8 levels), occupation (12 general categories), relative income (3 levels), the living situation (7 categories) and the degree of urbanization (3 levels). The TV Viewing Habits included the genres of TV viewed (16 categories), mode of TV access (7 items), the intensity of TV viewing (4 items), the hours of TV viewing (3 items), the time of TV viewing (2 items), frequency of binge watching (3 items), the intensity of following particular TV shows (4 items), the emotional connection to TV shows (2 items), and the social context of TV viewing (8 items). The SS Use included the type of SS (4 items), the process for accessing the SS (4 items), the social media outlets used on the SS (18 items), the content on the SS (6 items), the time of SS Use relative to the TV content (5 items)

and the social context (7 items). These items represented a refinement and elaboration of the similar items used in Stage 1.3.

The first and second research goals were assessed concurrently. The first research goal only required the analysis of the subscales of the SSE-MS. The second research goal related the subscales of the SSE-MS to the various background variables. This analysis was complicated simply because there were so many background variables and because the background variables were related to each other.

3.7.2 Stage 3.2: Testing the First Goal

Once the SSE-MS was developed, the answer to the first research goal is simply the mean of each subscale of the SSE-MS. These statistics associated with the subscales were explored in some detail.

In addition, because Stage 2.2 combined two samples, there was additional analysis to test the legitimacy of that combination, and to test the reliability of the final combination. The point of the use of the two samples was to increase the breadth of participants on the various background variables – particularly the Demographics. The original sample from the undergraduate participant pool had limited range on a number of Demographic measures (e.g., age, education).

3.7.3 Stage 3.3: Testing the Second Goal

This is the point where all the previous background data comes into play. The background variables were used to identify different groups of people with different profiles of SS Use. The background variables were organized into three categories. Each category had one or more components. Each component had one or more variables, and each variable was represented by one or more items.

The background variables had three sets: The first was the Demographics (gender, age, education, income, urbanization, living arrangements). The second was concerned with TV Viewing Habits, including TV genres, modes of access, intensity of viewing, timing of TV viewing, the emotional connection to TV shows, and the social context of TV viewing. Each of these (except genres) had several measures, and some items were categorical while others were continuous (ordinal, interval or ratio). The third was concerned with the use of SS while

watching TV. These included the type & process for SS access, the content & social media outlets for SS Use, the timing of SS Use, other functions for SS Use (i.e., use that was not related to the TV show), and the social context of SS Use. Again, each component had more than one item, and some items were categorical while others were ordinal, interval or ratio.

To examine the relationships, each subscale of the SSE-MS was correlated against each background variable. Thereafter, the background variables were ultimately combined to create one equation to predict each subscale from all the background variables. This final equation was built slowly in stages, using hierarchical multiple regression and correlation. The combined analysis considered the most promising or theoretically interesting variables from the prior analysis. In these analyses, each subscale of the SSE-MS was predicted from the combination of all background variables. It was expected that a combination of variables would predict who, what, when and where viewers' second screen.

At each stage of the analysis, there were four separate analyses – one per subscale. The four subscales represent conceptually distinct dimensions, and the four subscales were expected to conceptually share different aspects of the SSE. Analyzing each in isolation is statistically viable and provides interpretational clarity.

3.7.4 Stage 3.4: Analysis

Both the first and second research goals used the subscales of the SSE-MS. These subscales were each reduced to the average of the component items. The average was used in place of the total because the different subscales had different numbers of items (Cognitive, Personal Identity and Social Integration had 8 items each; Diversion had just 6). Use of the mean makes the scale directly comparable.

For Stage 3.3, all the background variables were coded in preparation for analysis. These variables were organized in groups to simplify subsequent discussion.

A variable could consist of one or more items in the questionnaire. The different items were used to capture the breadth of the variable, or to code for variables that were categorical in nature (e.g., there were 7 different mutually exclusive living arrangements).

Within the Demographics component there were seven variables: gender, age, education, income, occupation, residential location (as degree of urbanization), and living arrangements. Gender was categorical and included categories for “other” and “prefer not to say”. Participants could select one category. Age, education, income and residential area were ordinal using defined levels: participants could select a single level. Income was relative income as “below”, “at” or “above” the average: participants could select a single level. Residential area was “urban”, “suburban” or “rural” (degree of urbanization): participants could select a single level. Occupations consisted of a list of 12 occupations, and each occupation was a binary choice (see Table 6): participants could select as many as desired. The occupational variables were derived from the occupational variables of Statistics Canada (Government of Canada, 2016). Living arrangements was a list of six categories: participants could select only one category. The friends, family, and roommates were delineated because they imply different social relationships (see Table 6).

Table 6 The Demographic Variables and Items.

Component	Variable	Items			
		#	Coding	Categories or Levels	
Background	Gender	1	categorical	male, female, other*	
	Age	1	ordinal	18 to 20 21 to 24 25 to 29 30 to 39	40 to 49 50 to 59 60 or greater
	Education	1	ordinal	some HS HS some university BSc or BA or college	MSc or MA PhD, PSYD Professional (MD,etc) PhD and Professional
	Income	1	ordinal	below average income average income above average income	
	Occupation	12	binary	-professional -tech / research -education -administration -service -entertainment	-skilled labor -unskilled labor -student -home maker -not employed -other
	Residential Location	1	ordinal	rural suburban city	

Component	Variable	Items		
		#	Coding	Categories or Levels
	Living Arrangements	1	categorical	married with children at home married with no children at home alone with friends with roommates with parents/family other

Note: * Prefer not to say was considered the same as missing.

Within TV Viewing Habits there were six components: TV Genres, Type of Access, Intensity of TV viewing, Timing of TV viewing, the Emotional Connection to TV shows, and the Social Context of TV viewing. All the variables and items are summarized in Table 7.

Table 7 The TV Viewing Habits Variables and Items.

Component	Variable	Items			
		#	Coding	Categories or Levels	
TV Genres	TV: Genres	16	binary	action anime children family classics comedy documentaries drama spirituality	horror independent music SF or fantasy sports & fitness thrillers reality other
Mode of Access	TV: Modes of access	6	binary	a cable or antenna connection DVDs streaming TV to a TV streaming TV to a computer streaming TV to a smartphone other	
Intensity of TV Viewing	TV Intensity: Mode of access	4	ordinal (freq. levels)	cable from TV stations streaming media broadcast by TV stations streaming media from on-demand service DVDs or pre-recorded media	
	TV Intensity: Hours / day	3	ordinal (hr levels)	hours on Weekdays (Monday to Friday) hours on Saturday hours on Sunday	
Timing of TV viewing	TV Timing: Control over when	2	ordinal (freq. levels)	at the time of broadcast at the time of my choosing	

Component	Variable	Items			
		#	Coding	Categories or Levels	
	TV Timing: Binge watching	3	ordinal (freq. levels)	an entire season in one sitting several episodes in one sitting a few episodes in one sitting	
Emotional Connection to TV	TV Emotion: Number of shows	4	ordinal (freq. levels)	# watched per week # followed per week # “made time for” per week # followed on social media per week	
	TV Emotion: Scheduling for shows	2	ordinal (freq. levels)	plan the day around the show upset if missed	
Social Context	TV: Social Context	8	ordinal (freq. levels)	no one my children my partner my family	my friends roommates colleagues others

There were eight components within the category SS Use (while watching TV): Types, Processes for SS access, Social media outlets, Activities on the SS, the Timing of SS Use relative to the TV show, and the Social context of SS Use. All of the eight components had one variable with multiple items. All the variables and items are summarized in Table 8.

Table 8 The SS Use Variables and Items.

Component	Variable	Items			
		#	Coding	Categories or Levels	
Types	SS: Types	4	Binary	Split screen Different screen Smartphone Some other device	
Processes	SS: Processes	4	Binary	During breaks By pausing the tv By watching both By missing tv	
Social media outlets	SS: SMO	8	Ordinal (freq levels)	Social media Microblogs Email Forums	Information channels Blogs Chat
Activities	SS: Activities	6	Ordinal (freq levels)	To work To shop To talk about the tv show To socialize, but not about the show To browse To do other things not about the show	

Component	Variable	Items		
		#	Coding	Categories or Levels
Timing	SS: Timing	5	Ordinal (freq levels)	When the show is slow When the show is fast When the show is boring When the show is exciting To fill in free time
Social Context	SS: Social Context	10	Ordinal (freq levels)	Alone Because others are Even though others are around Others are annoying Others are ignoring No one wants to watch tv with me Need a change of company Want particular company Do not want (physical) company Do not want to leave the house

In summary, there were 3 categories, 13 components, 22 variables and a total of 102 items. Note that these items and variables overlap to some degree, particularly within a category. This is unavoidable because of real world constraints. For example, Live TV (generally, new TV shows or episodes presented only at the time of broadcast) is related to TV: Modes (e.g., cable), TV Intensity: Modes (because one mode was online streaming from broadcasters), TV Timing: Control (watching at the time of broadcast), TV Timing: Binge (because binge watching is not possible in that format, though broadcasters will offer marathons from time to time), and TV Emotion: Scheduling (because one should not be upset if a show is missed if that show is available on-demand at any time⁸). Some of this overlap was useful for data integrity checks. The set of 102 items was the initial set. The analysis could reduce that number (e.g., some items might not be endorsed at all; some items referred to an “other” category which might be recoded to fit existing). The analysis could also add to that number (e.g., at times a variable could be created to count the number of categories used, such as the number of genres cited by participants).

⁸ It should be noted that some people reserve a part of their day for particular activities. Hence, one might be upset if the routine is disrupted even if the TV show is available on-demand.

3.8 General Analyses

The first analysis was a simple correlation between each of the background variables and each of the four subscales of the SSE-MS. This indicated whether or not the subscale had any relation to that particular variable. Predictors (independent variables, or IV's) that were continuous (ordinal, interval ratio) were retained as such unless this analysis demonstrated otherwise. A plot of each bivariate relationship was made and checked. Predictors that were categorical used a binary code (yes vs no) for each category, and then each category was treated as a variable. The same analysis was conducted for each category. At this point, significance was less important than the magnitude of the relationship (Ferguson, 2009).

The basic analysis was the simple bivariate correlations, but the main analysis was multiple regression and correlation (MRC) (Tabachnick & Fidell, 2013). MRC can assess the relationship between one dependent variable (hereafter, DV – this is often called a criterion variable) and several independent variables (hereafter, IV – this is often called a Predictor). The DV was the subscale of the SSE-MS. The IVs were the background variables. Hence, there was one analysis per subscale.

For the second research goal, MRC was used to understand the more complex relationships between background variables and the four subscales of the SSE-MS. There was one analysis per subscale, and each was done separately. However, each analysis proceeded in several steps – starting with simpler, smaller groups of items, and gradually building to the set of all items. This allowed one to see how the relationships worked in combination. One benefit of the current thesis was that the different background variables turned out to be independent of each other (explanation in *Chapter 6*) (i.e., Demographics were not strongly related to TV Viewing Habits or SS Use, and TV Viewing Habits were not strongly related to SS Use).

3.9 Summary

This chapter described the questionnaire development process, and the use of the questionnaire to answer the first and second research goals. The chapter includes an overview of the sampling and data collection for each stage and basic information about the analysis for each stage. Detailed reporting and analysis of the findings are presented in subsequent chapters. Table 9 presents a detailed overview of this chapter.

Table 9 Detailed Overview of the Thesis Stages

	Stage	Data collection tool	Data Analysis
(Chapter 4) Stage 1: Scale Creation	Stage 1.1: Item Generation	Reviewed questionnaires from similar prior studies. My insights.	Created a large number of potential items (218 items =162 SSE items and 56 Background items)
	Stage 1.2: Item Selection	Online - Excel sheets	Calculated means and looked at standard deviations of 4 primary scales: importance, face validity, face reliability, and language.
	Outcome: The creation and selection of items related to motivations. Created 162 items that were reduced to 110 SSE-MS items by the team of the subject matter experts.		
	Stage 1.3: Item Testing and Refinement	Online Questionnaires: - Demographics - SS Use -TV Viewing Habits - List of 110 SSE items	Descriptive statistics Univariate and Bivariate Analysis Correlations Exploratory Factor Analysis
	Stage 1.4: Initial analysis of the SSE-MS	Testing of the 30 items that resulted from stage 1.3	Descriptive statistics Correlations Chronbach’s Alpha Principal Component Factor Analysis
	Outcome: The 110 items, Demographics, SS Use, and TV Viewing Habits questionnaires were tested on a sample of 97 participants. The 110 SSE items were reduced to 30 items (new SSE questionnaire), other questionnaires were refined.		
(Chapter 5) Stage 2: Scale Evaluation	Stages 2.1 & 2.2: Reliability Assessment	Online Questionnaires: - Demographics - SS Use -TV Viewing Habits - List of 30 SSE-MS items	Descriptive statistics Correlations Principal Component Factor Analysis Regression analysis
	Stage 2.3: Validity Assessment	- Six pre-existing related questionnaires	Compare the SSE-MS with six pre-existing related questionnaires that share some of the same subscales ($n=348$)
	Outcome of Stage 2: The new SSE questionnaire, in addition to Demographics, SS Use, TV Viewing Habits and 6 questionnaires that share related constructs of the SSE-MS were tested on 348 participants		
(Chapter 6) Stage 3: Assessment	Stage 3.1 & 3.2: Combining the samples and assessment of the First Research Goal	Data from the Online Questionnaire from the previous Stage 2.	Descriptive statistics Correlations Principal Component Factor Analysis Reliabilities for subscales Hierarchal Cluster Analysis
	Stage 3.3: The Assessment of the Second Research Goal		Correlations Hierarchal Multiple Regression

CHAPTER 4 Stage 1: Scale Creation

This chapter discusses the creation of a questionnaire that is capable of capturing the motivations for participating in the SSE. Because there are many social media platforms with different affordances, and with new social media platforms emerging, the goal is to create a questionnaire that assesses SSE without being tied to any one particular social media platform. The questionnaire must capture the use as a function of the properties of the social media platform, rather than as a function of the type of social media platform. It must capture dialogues (discussions and information exchange), as well as online databases such as Wikis that result from the SSE (i.e., when someone posts on Wikipedia while watching TV). It must also capture the primary participants within that second screen (i.e., contacts such as other viewers, actors, producers, directors, writer, and support personnel).

The SSE-MS questionnaire was intended to capture the motivations for the use of a second screen to talk about TV while watching TV. However, a number of additional items were included in this developmental work to capture Demographics (e.g., age, gender, living arrangements), TV Viewing Habits (e.g., TV access modes, the intensity of TV viewing, the social context of TV viewing), and SS Use (e.g., type of SS, content and use of SS, and social context of the SS use). These secondary items were not the focus of the current research, but they were necessary to contextualize the development of the SSE-MS and to assess the generalizability of the current sample. Furthermore, these secondary items would be of primary use in the final stages of this thesis, so it was considered prudent to use this stage to help refine them.

The following sections examine the creation of SSE-MS in detail, which is outlined in *Chapter 3* (Questionnaire Development for the SS-MS). This initial stage of the study includes four stages:

Stage 1.1) Item Generation

Stage 1.2) Item Selection

Stage 1.3) Item Testing and Refinement

Stage 1.4) Initial Analysis of the SSE-MS.

This chapter explains the methods, materials, analysis and results associated with those steps. For each step, there is a brief introduction, methods, and summary of results, with interpretation/discussion.

4.1 Stage 1.1: Item Generation

The goal of this step was to generate items that would eventually be included in a questionnaire to assess the motivations for the use of a SS to talk about TV while watching TV.

Stage 1.1 began with the creation of a pool of items that could be presented to subject matter experts for review. The results of the review would produce a reduced set of more refined items that would be presented to participants (people who use a SS to talk about TV while watching TV) in Stage 1.3 for further assessment and refinement.

To generate items, questionnaires that used the U & G framework in the following areas were examined:

- 1) use of online social networks,
- 2) use of the internet (broadly defined),
- 3) use of a second screen (the second screen experience, or SSE), and
- 4) watching of TV.

Table 10 provides a list of the questionnaires that were reviewed in detail to determine the U & G dimensions, designs and layouts, quantities of items and subscales, and statistical methods that are most commonly used by researchers.

Table 10 The Main Questionnaires Used to Source Items.

Reference	N	Scale	Analysis	# of Items	Topic(s)	Dimensions
Kim, 2013	253	5-pt Likert scale	PCA	17	Sporting events	Social interactivity Fan identity Diversion/entertainment Personal utility information seeking
Krämer et al., 2015	101	5-pt Likert scale	PCA	7	Social viewing of TV: Twitter, YouTube, Facebook, WhatsApp,	Communication Entertainment Information Peer pressure Self-enhancement Increased enjoyment Connectedness

Reference	N	Scale	Analysis	# of Items	Topic(s)	Dimensions
Ballard, (2011)	216	5-point Likert scale	PCA	25+12	Comparison: gratifications sought vs. gratifications obtained	Relationship maintenance Passing time Entertainment Coolness Information seeking, Expression
Bumgarner, 2007	1049	5-point Likert scale	PCA	37+50	social utility, with Diversion and information being somewhat less important	Diversion Personal Expression Collection and Connection Directory Initiating Relationships Voyeurism Social Herd Instinct
Johnson, 2014	242	5-point Likert scale	Multi-variate analysis	30	use of U & G dimensions as predictors	Social gratification Information gratification
Ishii, 2008	455	4-point Likert scale	PCA	21		Self-disclosure Socializing Information seeking Entertainment
Karimi, et al., 2014	320	5-point Likert scale	PCA	11+27		Social Pass time Interpersonal utility Entertainment
Tanta et al., 2014	431	5-point Likert scale	Categorize motivations		motivations & gratifications of adolescents	Social School related activities Habit Sharing content Integration needs
Valentine, 2011	350	5- point Likert scale	PCA	40	motivations & gratifications of older adults	Interpersonal Habitual entertainment Virtual companionship Escape Information seeking Self-expression Passing time
Karnik et al., 2013	20	7-point Likert scale	PCA	34	motivations & gratifications of a small Facebook group	Discovery Social interaction content Nostalgia

Reference	N	Scale	Analysis	# of Items	Topic(s)	Dimensions
Roy, 2008	4512	5-point Likert scale	PCA, CFA	26		Self-development Wide exposure User friendly Relaxation Career opportunities Global exchange
O'Brien & Toms, 2013	381	5-point Likert scale		28	engagement with internet shopping	Perceived usability Novelty/felt Involvement / endurability Aesthetic appeal Focused attention
Barton, 2009	689	5-point Likert scale	PCA	23		Vicarious participation Perceived reality Pass time Personal utility Social utility
Hanson & Haridakis, 2008	291	5-point Likert scale	PCA	54	motivations & gratifications for viewing traditional news vs. satirical news	Leisure entertainment Interpersonal expression Information seeking Companionship

PCA= Principal Component (Factor) Analysis
CFA= Confirmatory Factor Analysis

Based on the review of the above questionnaires and from insights from a pilot study I conducted on SSE, a pool of 162 initial SSE-MS items was constructed for the current study (see *Appendix A-4*). The 162 items were divided to 43 Cognitive, 48 Personal Identity, 53 Social Integration, and 18 Diversion items.

Items were then organized using the four dimensions of the U & G framework that were discussed extensively in *Chapters 1, 2*, and particularly *3*: Cognitive Needs, Personal Identity Needs, Social Integration Needs and Diversion Needs:

Cognitive Needs⁹ encompass information seeking, and learning and seeking guidance or advice where the information is specific (LaRose & Eastin, 2004). Cognitive Needs also encompass “lurking” or general information acquisition that is not targeted, this would include curiosity and discovery.

⁹ Originally Cognitive Needs 2 (Klatz, Blumler and Hass (1973)

Social Integration Needs¹⁰ focus on the human need to belong to a social group. This dimension encompasses the basic social need for a sense of community and connectedness (group identification) including the maintenance of old ties and the creation of new ones. It also includes in-group/out-group identification (which is not independent of Personal Identity Needs). It may manifest in the bonds formed with characters seen in the media (e.g., characters in shows), with personalities in the media (e.g., actors, commentators). It may also manifest in the bonds formed or strengthened by the discussion of media characters with family, friends and associates.

Personal Identity Needs¹¹ encompass personal growth which might include identity formation, social identity formation (social learning), the development of self-confidence or self-esteem, and personal validation. Personal Identity needs could also include character identification with those depicted in the media (for or against), status enhancement or reputation and credibility enhancement or affirmation, and life-style expressions. Personal identity needs may also reflect para-sociality - the desire to be associated and to communicate with celebrities as a means of seeking status.

Diversion Needs¹² are often cited as “tension release”, “stress release”, “escape”, or “reality escape.” This view of Diversion represents a negative drive away from the real world. A weaker version of Diversion is the need for relaxation, which encompasses the avoidance of boredom, the need to pass time, or even habit. At the other end of the spectrum, there is a need for entertainment, which encompasses excitement, emotional involvement, sensation seeking, and perhaps shared emotion.

Using Mehrens & Lehmann (1984) guidelines for creating questionnaire items as a reference, a list of items was generated (see *Appendix A-3*). Table 10 shows that most sources used a 5-point Likert scale, and that Principal Components Analysis (PCA; sometimes called Principal Components Factor Analysis or PCFA) was the most commonly used analytical framework. The number of items in each questionnaire varied from 7 to 54 depending on the goals and dimensions of the study. Different questionnaires used varying numbers of dimensions and items per dimension. All the dimensions found in the studies in Table 10 fit within the main

¹⁰ Originally Integrative Needs 2 (Klatz, Blumler and Hass (1973))

¹¹ Originally Integrative Needs 1 (Klatz, Blumler and Hass (1973))

¹² Originally Affective Needs and Tensions-release Needs, those needs were merged because Tensions Release Needs were rarely cited (Klatz, Blumler and Hass (1973))

dimensions of the U & G framework: Cognitive, Personal Identity, Social Integration, and Diversion Needs.

As noted previously, the four dimensions (Cognitive, Personal Identity, Social Integration, and Diversion Needs) are not independent. Hence, when developing the SSE-MS (see *Chapter 2* for details), there was no attempt to tie the individual items perfectly and exclusively to a single dimension. For example, items for Social Integration often overlap with items for Personal Identity. Because of the structure of the U & G framework, I expected that individual items represent the same underlying concept. Other structures have been used within the U & G framework (see *Chapter 3* for details), in particular, Affective Needs are sometimes cited as a category that is separated from Diversion Needs (e.g., Katz, Haas, & Gurevitch, 1973a). As such, there was a chance that the current development might result in a structure with more than four dimensions. The development process did not force the SSE-MS to have the four defined dimensions, though these would be the most reasonable place to start because most recent empirical studies using the U & G framework in similar domains have produced four dimensions. A subset of studies have produced five, usually by splitting the Diversion dimension into two sub-dimensions that might be labelled generically as Emotional Abatement and Emotional Arousal. This was only considered a somewhat subjective initial point because there have been a vast number of studies that have used the U & G framework in "similar domains".

These considerations regarding the number of dimensions had to be remembered throughout the development of the SSE-MS. They also have implications for the interpretation of results. The dimensions were expected to be related and each dimension might contain subcomponents.

In the beginning of the questionnaire design, there were an additional 47 background items that were not considered part of the SSE-MS. The TV Viewing Habits and SS Use background items went through the same developmental process as the SSE-MS items (see *Appendix A-4*): they were reviewed by subject matter experts in Stage 1.2, and included in Stage 1.3: Item Test and Refinement. The background categories and their items are:

- **Demographics:** 7 items capturing gender, age (in groups), education (in ranges), relative income (above, below or at the mean), occupation (in general categories), residential location (urban, suburban or rural) and living arrangements.
- **TV Viewing Habits:** 22 items addressing the platform and mode of TV access, the number of

TV shows, the timing to TV viewing, binge watching, and personal commitment.

- **SS Use:** 18 items addressing the type of SS, the applications on the SS, the social context of the SS Use, and the content of TV while using the SS.

The Demographic items were not reviewed by the subject matter experts (in Stage 1.2) because they were straightforward, and because there was a desire to minimize the workload imposed on the subject matter experts. The TV Viewing Habits and the SS Use items were subject to review because it was necessary to know if the samples used in various stages of development were reasonable representations of the correct population (i.e., all people who could use the SS to talk about TV while watching TV), and it was felt that subject matter experts could help to ensure that they had sufficient depth and breadth.

All the items were considered introductory and were expected to change as items are refined in the following stages.

4.2 Stage 1.2: Item Selection

In Stage 1.2, a group of subject matter experts were asked to review all the items and to then provide ratings of each item. Items were rated based on specific criteria (importance, potential validity, and potential reliability, and on 11 language attributes – see *Chapter 3* for details). After rating, the most applicable items were selected for further testing in Stage 1.3: Item Testing and Refinement.

4.2.1 Stage 1.2: Methods

The goal of the item selection stage was to reduce the large pool of the items (162 SSE-MS items) generated in the previous item generation stage to a manageable number. These items were grouped into the four main dimensions of Cognitive Needs (43 items), Personal Identity Needs (48 items), Social Integration Needs (53 items) and Diversion Needs (18 items). In addition, there were 18 TV Viewing Habit items and 22 Second Screen Use items. Thus, there were 202 items to be considered (see *Appendix A-4*). The items were sent to a number of experts to help determine the best items to use. Note that the Demographic items were not sent to the subject matter experts to save their time and allow them to focus on the other items.

4.2.2 Stage 1.2: Materials

The materials consisted of the 162 items for the SSE-MS and the additional 40 background items. All items of the SSE-MS used a stem and completion format, with a common stem (“While watching TV, I use a SS to:”) because the plan was to make the structure of the final SSE-MS as simple as possible. The background items also used a stem and completion format.

All items of the SSE-MS used a 5-point Likert scale (SA = “strongly agree”, A = “agree”, N = “neutral”, D = “disagree”, SD = “strongly disagree”). The background items used different response scales depending on the item. For example, the number of shows per week was planned as a simple numeric response. Other items used a relative ranking of frequency: A = “Always: about 100%” U = “Usually: about 75%”, F = “Frequently: about 50%” R = “Rarely: about 25%”, and N = “Never: about 0%”. Frequency rankings were used in cases where it was unlikely for a participant to remember a precise number (e.g., “I use a SS when the show is slow”). As an aside, the Demographic items used a similar structure to the other Background items.

Each potential item was rated by four subject matter experts on 15 different criteria: Importance, Potential Validity, Potential Reliability and 12 Language Attribute Scales. Feedback from experts was used to refine and reduce the number SSE-MS items, and also to consider and refine the necessary background items.

4.2.3 Stage 1.2: Participants

Four subject matter experts, including the principal researcher, were recruited from Dalhousie University for the purpose of reviewing the SSE-MS items. The requirements for participation included experience conducting studies related to social media and/or the development and use of online questionnaires.

A general invitation was sent using Dalhousie listserv and through word of mouth and three individuals showed interest in participating in the study. The study was explained to them by e-mail, and they were sent the rating package and the consent form by e-mail after they agreed to participate. The rating package was also returned by email. Participants needed about 6 weeks to complete the task. One commented that it took 7 hours to complete the actual ratings over several days.

4.2.4 Stage 1.2: Procedure

A list of all the items were presented to participants in an Excel spreadsheet which was formatted for responses based on the three primary scales (i.e., the columns next to each item were titled importance, potential validity, potential reliability and the 12 language attributes scales) Participants signed a consent form before they reviewed the items, and were also provided with instructions that included definitions and examples.

The participants rated items based on three primary scales (see Table 11): Importance, Potential Validity and Potential Reliability, and 12 Language Attribute Scales.

Table 11 Criteria for Rating Items During Item Selection

Importance	Is the item central or important to the construct?
Potential for Validity	Does the item truly share the construct of interest? Although Importance and Validity are closely related, participants needed to separate items that are well designed and valid from items that are not well designed, but would be valid if redesigned.
Potential for Reliability	Would the item be expected to produce reliable responses over time and between individuals?
Language Attributes Scale	Participants assessed whether items were: <ol style="list-style-type: none"> 1. Too long 2. Too short 3. Ambiguous 4. Overly simple 5. Using conditional expressions inappropriately 6. Using double-barreled expressions 7. Unnecessarily negative 8. Using “loaded” or biased words 9. Leading the respondent 10. Built on hidden assumptions 11. Representing the researcher inappropriately 12. Potentially offensive

Participants were asked to rate the importance, validity and reliability of the items using a five-point Likert scale from (1 = bad, 2 = poor, 3 = neutral, 4 = good, 5 = excellent). In addition to the Likert scale, the 12 language attributes were reviewed using a Boolean response so that participants were simply asked to affirm the presence of problems with the language of the items, without providing detailed commentary.

Participants rated the perceived importance of each item. Importance is the notion that the item is “central” to the definition of the construct. This allowed reviewers to separate the issue of

validity from importance. For example, an important item might be “I use social media to talk about the actions of the characters in the show I am watching.” On the other hand, an item like “I use social media to learn about the toys associated with the show” might be less important. The second might imply greater commitment to the show, but not all shows offer toys (e.g., TV shows for children have copious marketing, but documentaries have very little). Even though both items are valid, the first example is more important and is more general and is not as precise as the second one.

Participants rated the potential validity of the item. This was their judgment of whether or not they thought the item truly fits the constructs of interest and represents the corresponding dimensions of the questionnaire. The assessment was based on their expertise and experience within their field.

Participants rated the potential reliability of the item, which concerns an item’s ability to generate stable responses over time whereas others may not. For example, “I talk to my friends about TV shows over social media because they are in a different city” would be unreliable because the situation is too variable (friends move, friends change). A more reliable version might be “I talk to my friends about TV shows over social media if they are in a different city.” However, the first version is more concrete and the second is more hypothetical. Subject matter experts can provide some help when deciding which is likely to be more reliable.

Participants rated the language of the item. Each item must be precisely worded, because any ambiguity in the phrasing of items could produce inconsistent response. The language of the item also includes the stem that was common to all items (“While watching TV, I use a second screen to:”). The completion-to-the-stem (“completion”) must follow the stem in a smooth and logically consistent fashion. Before items were sent for review, there was an attempt to meet both these criteria, but it must be acknowledged that having multiple perspectives on the clarity of the writing provides more confidence in it than the perspective of the writer alone. Participants were encouraged to add comments about individual items and were encouraged to suggest new items. Participants were asked to respond to four general questions. asking their input about the 5-point scale we used, if they think it was necessary to ask separately about each social media platform (e.g, Facebook vs Twitter), or the type of platform (e.g, social media such as Facebook vs information channels and forums), and if they thought that the term SSE can be used in a general sense (e.g., I use a second screen to find information.”) without loss of information.

4.2.5 Stage 1.2: Analysis

As previously explained, each main dimension used a five-point scale (bad, poor, neutral, good, & excellent). In the analysis, these were retained as individual components. Participant ratings were combined to create a mean for each of Importance, Potential Validity and Potential Reliability. Any items with a mean less than four (4.0) on Importance or Potential Validity or Potential Reliability were highlighted but not rejected immediately.

The 12 language attributes used a “checkmark” (a Boolean response) as a response. In the analysis, an item was flagged (for editing rather than removal) if any of the language attributes were marked by the participant. That is, if the item seems to be important, valid and reliable, but suffers from poor language (e.g., double barreled), it is usually a relatively simple matter to fix the language. Conversely, an item that is not important, valid, or reliable will be a candidate for rejection.

Items that were retained but with language issues were then checked to correct the associated problems. Most of these fell into the “too long” category and were re-written to be shorter and more concise. Responses to the four general questions by the participants were used to provide additional insight.

4.2.6 Stage 1.2: Results

Collectively, participants noted that it was difficult to separate the four dimensions (Cognitive, Personal Identity, Social Integration and Diversion), and in particular the Personal Identity and Social Integration dimensions. However, this was expected because as mentioned, some dimensions of the U & G framework tend to be correlated. Nonetheless, the participants’ comments helped improve the separation. For example, the Personal Identity dimension was expanded to include more items about morality and social comparison.

In addition, the background items about SS Use tended to overlap with four dimensions, and with the Cognitive Dimension in particular. The Cognitive Dimension was refined to focus on information-seeking; in particular, why is a SS used to talk about TV and what information about the show is gathered by the use of the SS – “why” is a SS used while watching TV?). Therefore, some items that had been initially classified as SS Use were re-classified as Cognitive Needs. However, the items that answered the question of “when” the SS was used were considered SS Use. For example, “While watching TV, I use a second screen when the show

moves too quickly.” was considered SS Use, while “While watching TV, I use a second screen when the plot is confusing” was considered a Cognitive Need (“why”). These items do overlap, because a show may be confusing because it moves too quickly, but they also separate the effect (confusion) from the cause (speed of presentation). Those who create TV media already know that they need to set the pace to maintain the attention of the viewer (Bryant & Zillmann, 2013). However, separating causes and effects provides a more granular picture of the complex interactions of viewers, media, and SS Use (e.g., slowing the presentation vs providing a website to provide the backstory, character development).

The goal was to select the items that can help reach the research goal, with approximately 30 in each dimension (Cognitive, Personal Identity, Social Integration, and Diversion). The selection had to attain breadth within each dimension without having excessive overlap between dimensions. All items within each dimension were ranked from best to worst based on their Importance, Validity and Reliability scores. Then the best items were selected subject to the constraint to obtain breadth (i.e., a lower ranked item would be selected if it added breadth) and/or language (i.e., the item with the better language would be selected if they had similar rankings and content/breadth). More general items were preferred compared to the more specific items (e.g., “I use a SS to learn about the show” was preferred to “I use a SS to learn about opinions of producers of the show”) to encompass all SSE styles. The language attributes scale issues were used to identify items for refinement, not rejection, because the language because the language can be addressed if the item was considered important, reliable and valid.

4.2.7 Stage 1.2: Final Set of SSE-MS Items

The final set of 110 items included 30 items for each of Cognitive, Personal Identity, and Social Integration needs, with 20 items devoted to Diversion Needs (*Appendix A-13*). These items were used to create the questionnaire that was used in Stage 1.3. Some of the items within each dimension were general (e.g., “I use a second screen to look up information about the show”) and some were specific (e.g., “I use a second screen to look up actors”, or “I use a second screen to look up the design of sets”, or “I use a second screen to look the backstory of the show”, or “I use a second screen to look up prior episodes of a show.”). It was expected that in Stage 2 (The Scale Evaluation), the more specific items would correlate with the more general items, and that some of the more specific items would not be included for the final questionnaire (i.e., would not be

endorsed by a sufficiently large proportion of the sample/population to warrant retention in the final version).

The Cognitive items were subcategorized as: Knowledge Seeking, Knowledge Providing, Opinion Seeking, Opinion Providing, Information Exchange, and Socially Relevant Information Exchange. These items were not expected to be clearly defined categories (e.g., many people do not distinguish “knowledge” and “opinion”) but were only used to ensure that items captured the breadth of the concept. The initial 30 Cognitive items are presented in *Appendix A-13*. Ultimately the SSE-MS was reduced to just 8 Cognitive items (see Stage 1.3). The SSE-MS was reduced to just 8 Cognitive items, which were narrowed down from 30 following a comparison between the various ideas captured within the dimension.

The Personal Identity items were grouped in four different sections: Identity Formation / Life-style Expression, Character Identification, Status, and Seeking or Enhancing Status.

The Social Integration items were grouped to four different sections: Maintain old ties, Create new ties, Social Norms and Connections.

The Diversion items were grouped into two sections: Arousal and Abatement.

Based on feedback and additional insights, the background items (for TV Viewing Habits and SS Use) were modified and extended. Because these items were not part of the SSE-MS, they are not discussed in detail. Hence, later versions of the Background items (e.g., *Chapter 6*) are not quite the same as the initial versions presented in Item Generation stage.

4.2.8 Stage 1.2: Summary

The initial pool of SSE-MS items was reduced to 110 SSE-MS items with 30 Cognitive Needs, 30 Personal Identity needs, 30 Social Integration Needs and 20 Diversion needs. The background items for TV Viewing Habits and SS Use were also refined.

In the following step (Stage 1.3), the 110 SSE-MS items in conjunction with the secondary set of items were presented to a number of participants to further refine SSE-MS items and the background items.

4.3 Stage 1.3: Item Testing and Refinement

The goal of this stage was to further reduce the number of items in the SSE-MS from 110 items retained after Stage 1.2 to about 30. This reduction was done through the selection of the items with the best psychometric properties and that would maximize breadth.

4.3.1 Stage 1.3: Methods

Ethics approval was obtained from the Social Sciences and Humanities Research Ethics Board, Dalhousie University. The survey was presented to participants using Opinio (an online survey software). The survey contained the 110 items of the SSE-MS plus 47 Background items. The background items were sorted into three categories: Demographic (7), TV Viewing Habits (22) and SS Use (18). The survey was anonymous, but some Demographic information was collected (i.e., age, gender, living arrangements). This Background information was necessary to assess the generalizability of the sample (e.g., gender ratio, income, educational levels, involvement with TV, use of a SS). These items were also included because the process helped to refine those items for later inclusion in the later stages of this work, particularly *Chapter 6* which was focused on the relationships between the Background items and the SSE-MS.

4.3.2 Stage 1.3: Materials

The 110 items presented to participants in stage 1.3 are included in *Appendix A-13*. The Background items in *Appendix A-12*. The survey consisted of 6 sections as follows:

- (1) Informed consent and introduction
- (2) Demographics
- (3) TV Viewing Habits
- (4) SS Use
- (5) The SSE-MS
- (6) Conclusion

The order of presentation of items was not randomized (i.e., all participants saw all items in the same order). The items associated with Sections 2 and 5 are discussed below. Sections 1, 3, 4, and 6 are restricted to discussion within Appendices.

As in the previous Stage 1.1, all items of the SSE-MS used a five-point response scale ranging from SA (strongly agree) through A (agree), N (neutral), D (disagree) to *SD* (strongly disagree). The items were later converted to a range from 1 to 5 for analysis.

The Demographic items used a mix of response scales. Genders was coded female or male (coded as 1 and 2). Age groups were coded in 7 mutually exclusive groups (see Table 12): participants could only select one option. Education was coded within 8 mutually exclusive groups (see Table 13). Residential Location (Urbanization) was coded in a mutually exclusive three-level ordinal scale (see Table 14). Living Arrangements were coded in 8 mutually exclusive groups (see Table 15). Relative income was coded in mutually exclusive three-level ordinal scale (see Table 16). Occupations were coded in 11 different groups (see Table 17). Occupations were not mutually exclusive. All Demographic variables provided only a minimal amount of guidance. Participants were left to decide how to rate themselves.

4.3.3 Stage 1.3: Participants

Participants were recruited from the local Dalhousie community. There were 98 participants in total, with 67 females (68.4%) and 31 males (31.6%). There was sufficient representation by both genders to compare differences between males and females on other measures.

Participants were asked to select from one of seven age groups with a minimum age group of 18-20. The scale was ordinal. Table 12 includes the age groups and the codes that were assigned to each age group.

Table 12 Sample Size as a Function of Age Groups

Age Group	N	%	Code
18 to 20	3	4.29	1
21 to 24	17	17.3	2
25 to 29	26	26.5	3
30 to 39	33	33.7	4
40 to 49	6	6.1	5
50 to 59	6	6.1	6
60 or greater	7	7.1	7

The focus of the participants was those who are in the age group with the heaviest viewing activity and SS Use. This was reflected in the age range, which was concentrated in the 25 to 39 age groups.

Table 13 provides the education groups, along with the coding used in subsequent analysis. Again, the coding is ordinal. Doctorate and Professional degrees were both coded in the same category.

Table 13 Sample Size as a Function of Education Groups.

Education	N	%	Code
No schooling completed	0	0.00	0
Some high school	1	1.0	1
High school diploma /GED	2	2.0	2
Some University or College	9	9.2	3
Undergraduate Degree (e.g. BSc BA) or College Diploma	40	40.8	4
Master's Degree (e.g. MSc, MA)	29	29.6	5
Doctorate Degree (e.g. PhD, PsyD)	6	6.1	6
Professional Degree (e.g. J.D, M.D., M.J., M.F.A., LLB)	9	9.2	6
Doctorate and Professional Degrees (both)	2	2	7

The majority had a college or university degree, and that there were no participants from the lowest education groups. This is not perfectly representative of the population, but does provide sufficient range for the development of the SSE-MS.

Table 14 provides the general home location as city, suburban, or rural. The coding represents an ordinal scale capturing population density or degree of Urbanization.

Table 14 Sample Size as a Function of Residential Location (Urbanization)

Urbanization	N	%	Code
City	78	79.6	3
Suburban	14	14.3	2
Rural	6	6.1	1

Again, the results are reasonable because about 78% of the population was confined to cities. This is close to the rate of urbanization in Canada (18.9% was rural in 2011 according to Statistics Canada).

Table 15 presents more detail about the living arrangements. The response options are truly categorical, and hence, no ordinal code is applied.

Table 15 Sample Size as a Function of Living Arrangements.

Living Arrangements	N	%	Code
In a relationship (married or co-habiting) with children at home	39	39.8	0
In a relationship (married or co-habiting) with no children at home	20	20.4	1
Living alone (house or apartment)	14	14.3	2
Living with friends (house or apartment)	5	5.1	3
Living with roommates (house or apartment)	7	7.1	4
With Parents	6	6.1	5
Single Parent	3	3.1	6
Other	4	4.1	7

Ten participants indicated “other” and of those 10, 6 indicated that they were living with parent(s). One other participant stated “Nephew boards with me” and two other participants left the field blank. Hence the “other” category was retained, and a new category for “living with parents” was created because it is a reasonable possibility for younger participants (particularly those in university).

Table 16 presents the relative income level of participants, and the coding assigned for subsequent analyses.

Table 16 Sample Size as a Function of Relative Income Group

Relative Income	N	%	Code
Higher than average	29	29.6	1
Average	53	54.1	0
Lower than average	15	15.3	-1
NA	1	1.0	missing

It is interesting to note that the distribution actually mimics a normal distribution. It is approximately symmetric and there is 53% within the center average income score (corresponding z-scores would be $z = \pm 0.72$). This shows a remarkable degree of honesty. The conceptualization of "average" was left to the participant. As such, it is a measure of whether or not the participants felt wealthier than others. It can also be assumed that the comparison would have likely been more reflective of their perceptions than the reality

Finally, Table 17 presents the number of participants who indicated each occupational category. Participants could select more than one occupation, so the percentages do not add to 100 (the sample sizes do not add to 98).

Table 17 Sample Size as a Function of Occupations Selected

Occupations	N	Percentage
Professional (e.g., doctor, lawyer, dentist, physiotherapist)	24	24.5
Technology and Research (e.g., engineer, scientist)	16	16.3
Education (e.g., teacher, instructor, professor)	22	22.4
Administrative (e.g., management, secretarial)	18	18.4
Service (e.g., retail)	6	6.1
Entertainment (e.g., performer, sports)	0	0.0
Skilled trades	2	2.0
Unskilled labor	0	0.0
Student	11	11.2
Parent	2	2.0
Other	1	1.0

Under “other,” 6 indicated that they were students, and one indicated that she was a mother. Because these represent reasonable categories, they were added. Thus, the 1 still classified as other represents an individual who did not indicate any specific occupation (other than “other”). In fact, 10 people indicated two categories of occupation, and 1 indicated three categories. The main issue with this data is the lack of participants from the Entertainment, Skilled and Unskilled categories. I suspect that the lack of Skilled and Unskilled is reflective of the university-based sampling.

4.3.4 Stage 1.3: Procedure

The survey package (Demographics, SS Use, TV watching habits, SSE-MS, and pre-existing questionnaires) was formatted for presentation to participants using the Opinio online survey package (1998-2018 ObjectPlanet, Inc). There was an attempt to format the questionnaire for legibility on a smartphone, but given the diversity of smartphone formats, this was not guaranteed for any one phone.

Recruitment was as broad as possible. Anyone who used or uses a second screen while watching TV was invited to participate. To encourage participation, two gift cards from Amazon.ca in the amount of CAD \$ 25 were offered to participants based on a random draw. Participants were recruited through online advertising, a listserv associated with the department of Computer Science, and by word-of-mouth. The survey was posted from October 6, 2017 to December 27, 2017, and recruitment was ongoing during this

Stage 1.3 participants were required to be above the age of 18. Because the survey was

anonymous and online, it was not possible to actually verify compliance with the age restriction. Other than the information presented within the informed consent, there was no particular requirement to use a second screen (or even to watch TV). Participants were provided with a URL and accessed that URL using whatever device they desired (e.g., computer, tablet, smartphone).

Then participants completed the questionnaire at a time and place of their own choosing. The questionnaire did not request any sensitive or identifying information so there was no *priori* need for privacy. Participants indicated consent by clicking on a continue button. Participants had to complete the entire questionnaire in one sitting: because Demographic information was not collected it was not possible to link participants across sessions.

All data was collected by and stored by Opinio. The data was downloaded on the principal researcher's secured computer for subsequent analysis in Statistical Package for Social Sciences (SPSS).

4.3.5 Stage 1.3: Analysis and Results

The results contain two main parts. The first is an examination of the viability of the current sample for the continued development of the SSE-MS. The second is the development of SSE-MS.

The data was cleaned and prepared prior to analysis. Out of the 167 stored responses only 98 were retained. Most of the discarded (N=53) represented surveys that had no responses (i.e., not started). Opinio creates a participant record as soon as a survey is opened. This is not a "response rate" (e.g., it is not similar to the return rate for questionnaires mailed to participants). The remaining 16 participants aborted the process before completion by closing the browser (as noted in the informed consent): participants had engaged with the survey and provided responses up to a certain point, where they opted to terminate the survey without completing the remaining items.

The items were coded to make analysis easier. Frequencies for valid responses were calculated including means, modes, and standard deviations. This step helped to better understand the data and to create a general picture before starting the main analysis.

Because there are so many variables to consider, the following results are presented as an annotated results section. Observations and some discussion regarding each item are presented for

the convenience of the reader to avoid having to be aware of small details about many items.

Background Items

The Background data (Demographics, TV Watching Habits, and SS Use) was collected in order to characterize the sample and to understand the Demographics represented within the study. The background items were also included at this stage so that they could be refined for later stages (i.e., *Chapter 6, Stage 3*). The relationships between the SSE-MS and the Background items were not explored at this stage. That analysis was reserved for *Chapter 6, Stage 3*, after the development of the SSE-MS was complete.

To summarize, the descriptive analysis of the Background items indicated that the sample was acceptable for continued development of the SSE-MS.

Demographics

The Demographics implied that the sample was slanted to participants who were urban, with higher education and average incomes. Most (60%) were in a relationship, some with children at home (40%), the rest were in a mixture of different living arrangements. In terms of Gender, 68% of the participants were female, 32% were male. On these measures the sample was sufficient. There was a reasonable representation of occupations, though some categories were underrepresented (i.e., Entertainment, Skilled and Unskilled categories). In general, the Demographics implied that the sample was sufficient for the intended goals (SSE-MS development).

TV Viewing Habits

The TV Viewing Habits variables also demonstrated sufficient range (see *Appendix A-23*). Each item was selected by at least one participant.

Every genre was selected by some participants and the general pattern was consistent with the researcher's assumptions (e.g., the most selected were action, drama and comedies). Most participants indicated that they watched a number of different genres with a mean 4.75 (*SD*: 2.69) with a range from 1 to 13. The mode was 3, and only 7 participants (7.1%) viewed a single genre.

Most participants used streaming media rather than cable TV or DVDs. Most watched 0 to 3 hours of TV per day at the time of their choice (i.e., not at the time of the broadcast, which was consistent with the use of streaming media).

Very few participants planned their day around TV. Similarly, binge watching was not common.

The most interesting item was the company that participants kept when watching TV. There was a large mix of options: alone, with children, with a partner, with family (distinct from children or partner), with friends, with roommates, with colleagues, and with “others”. Most participants indicated that they watched TV in a variety of social situations.

The measure of viewing companionship provides a reasonable range of responses. Based on these results, the items were refined for the next stages. The primary objective of refinement was the inclusion of additional options and the simplifying of response options. For example, the number of genres were expanded to reflect that which participants indicated under “other” (e.g., “Reality TV”). No items were added to the TV Viewing Habits.

SS Use

The SS Use variables also demonstrated sufficient range (see *Appendix A-23*). Every item had some participants in every response option. Most used a smartphone as a second screen (nearly 84% of participants). However, the other categories (split screen and second screen) were still common. Under the “other” category, two participants indicated that they used a tablet. These were recoded as a “different computer” (as per instructions to participants). The mean number of devices used as a second screen was 1.66 (*SD*: 0.68) with a range from 1 to 3. The mode was 2 (indicated by 45 participants): 41 had two choices.

Most participants (67%) tried to attend to both the TV and a SS. Under “other”, one participant indicated that they “listen [to the TV while using the second screen]”. The mean number of methods used to access the second screen was 1.44 (*SD*: 0.67) with a range from 1 to 4. The mode was 1 (indicated by 65 participants): 26 used two modes of access. That is, most participants only used one mode of access, as would be expected.

The social media outlets used on the SS were defined in a generic fashion, and the results represented the expected mix: social media, chat, and email conversations were the most common.

All participants were recruited because they used the SS to talk about TV shows (i.e., it was a recruitment criterion). However, participants were also asked about the other content that they had on the SS while watching TV. In addition to its use for talking about TV shows, the SS was used for work, shopping, browsing, and general socializing. The other category was also selected but it was not clear what this represented (it might have been computer games).

As with the TV Viewing Habits, participants were asked about the social situation

surrounding the use of a second screen. These were not the same as those used in the previous TV Viewing Habits. Rather, these focused on the actions of the other people (e.g., “others are using a SS”, “others are annoying”, “others are ignoring”, etc.). The majority of participants indicated that they watch TV alone. However, all the other social situations had significant second screen use (i.e., “frequently” or about 50% of the time). The SS was not generally used to avoid inviting company to the home, or to avoid leaving the home, or because people in the room were annoying.

The final SS Use item pertained to the causes of use (“when the show was too slow”, “when the show was too fast”, when the show was boring”, “when the show was exciting”). The category “too slow” was endorsed to the highest degree, but all options were cited.

Based on these results, the items were refined for the next stages. As with the previous groups of Background items, the main refinement was the inclusion of additional options and the simplifying of response options. No items were added to the SS Use.

The SSE-MS Items

At the beginning of Stage 1.3, the SSE-MS consisted of 110 items, divided into 30 Cognitive Needs, 30 Personal Identity needs, 30 Social Integration Needs and 20 Diversion needs. The point of this analysis was the examination of the statistical (psychometric) properties of the individual items so to reduce the set of 110 items down to approximately 30. It is important that the final SSE-MS would need some items from each group in order to capture breadth. The point was to select the best – with best being related to both statistics and information content. The goal was about 30 items, but that number was not rigidly enforced. The focus was placed on the ability of the items to robustly represent the dimensions rather than keeping the number of items at exactly 30.

All items of the SSE-MS collected responses on a five-point scale ranging from SA (“strongly agree”) through A (“agree”), N (“neutral”), D (“disagree”) to SD (“strongly disagree”). The answers were later converted to a range from 1 to 5 for analysis. The scale was ordinal. All items specifically used a phrase like “While watching TV, I use a SS to:” as the stem (see *Appendix A-23*).

The analysis had three main stages: (1) consideration of the univariate distributions per item, (2) consideration of the bivariate relationships between items, and (3) final item selection.

The first analysis considered the distribution of responses for each item. The goal was to separate those with superior psychometric properties based on the univariate distributions (e.g., approximately normal or unimodal) and statistics for items (e.g., an item mean near the center of the response range), and the bivariate relationships between items (e.g., correlations in the range of .3 - .5 with other items; shared variance with other items from those with inferior properties (Heeringa et al., 2017).

1. Univariate Distributions per Item

The distributions for the individual items were examined. Items were flagged if they did not have a unimodal distribution. Skewed responses to some items could be acceptable, but items that had a peak response rate (response option selected most often) that was at a value of 1 ("Strongly Agree") or 5 ("Strongly Disagree") rather than at a value of 2, 3, or 4 ("Agree", "Neutral" or "Disagree") were flagged. That is, the maximum response rate could not fall within the response category of 1 or 5.

Similarly, items were flagged if the distribution was wedge-shaped – if the number of participants who selected each option simply decreases from options 5 to 1 or from 1 to 5, meaning that participants did not use the full range of the response scale (from SA to SD).

Items were flagged if more than 30% of all responses ($n > 30$) ended up in one response category (this is too peaked). Items that were flagged were not immediately discarded. They were deemed as items to keep notice of in other analyses. Relevant information on univariate descriptive analysis is included in *Appendix A-24*.

Appendix A-23 presents the distributions, and descriptive statistics for each item. The items that were flagged because of their inferior properties are noted. The appendix also presents the items in their subscale groups.

Cognitive Needs

The Cognitive Needs were further subdivided into six groups: Knowledge Seeking, Knowledge Providing, Opinion Seeking, Opinion Providing, Information Exchange and Socially Relevant Information Exchange. These groups were intended as an organization aid, but also served to help define breadth by covering all subdivisions of the subscale. That is, the final Cognitive Needs subscale, the initial goal was to retain at least one item from each of the groups so to ensure breadth. The Cognitive Needs items are provided in *Appendix A-13* along with a code used to identify the item in subsequent analyses and discussions, the descriptive Statistics

for the SSE-MS Items are provided in *Appendix A-25*.

Some Cognitive Needs items were flagged because of inferior psychometric properties but there was also a preference to retain the most general exemplars. These criteria could conflict. For example, C01 (“While watching TV, I use a second screen to look up information (e.g., Wikipedia) about the show”) was flagged because it had a high count (36) in one response option (“Agree”). However, this item was the most general of all the knowledge seeking items and would be the most logical to retain. The same was true for C16 (“While watching TV, I use a second screen to read reviews (e.g., IMDb, Rotten Tomatoes) of the show.”). Of the 30 items, 16 were flagged for one reason or another. All of the groups of Cognitive Needs items had at least one item that was not flagged, except the opinion providing group.

Personal Identity Needs

The Personal Identity Needs items were further subdivided into four groups: Identity Formation & Life-style Expression, Character Identification, Status, and Status Enhancement. It was expected that some items would be needed from each of these groups. Status and Status Enhancement were considered separate though related groups. Status includes simply monitoring status and comparing as well as improving status and protecting status from attacks, while Enhancement is part of Status generally defined, but specifically focuses on the use of the SS to make one look better or more important (perhaps by name-dropping or being a know-it-all¹³). I expected that the endorsement of Status Enhancement would be low, if for no other reason than social desirability bias (a type of response bias that shows that people who answer questionnaires do so in a manner that is socially acceptable – so to create a positive impression). The Personal Identity Needs items along with a code used to identify the item in subsequent analyses and discussions, and descriptive statistics are provided in *Appendix A-13* and *A-25*. The latter appendix also presents the distributions, and descriptive statistics for each item. As previously with the Cognitive Needs items, those items that were deemed questionable have been flagged: 22 of the 30 items had flags, primarily because most were skewed.

Social Integration Needs

The Social Integration Needs were further subdivided into four groups: Maintenance of Old Ties, Creation of New Ties, Social Norms, and Connections. It was expected that some

¹³ A person who behaves as if they know everything.

items from each group would be needed. The items are provided along with a code used to identify the item in subsequent analyses and discussions, and descriptive statistics are provided in *Appendix A-13* and *A-25*. The latter appendix also presents the distributions, and descriptive statistics for each item. Items that were deemed questionable have been flagged: 20 of 30 items were flagged.

Diversion Needs

The last category of Needs was classified as Diversion Needs though it properly includes arousal, abatement (or abeyance), diversion and escape. The Diversion items were further subdivided into two groups: Emotional Arousal and Emotional Abatement. It was expected that some items would be needed from each group. There were only 20 items in this group. These are provided in items along with a code used to identify the item in subsequent analyses and discussions, and descriptive statistics are provided in *Appendix A-13* and *A-25*. The latter appendix presents the distributions, and descriptive statistics for each item. Items that were deemed questionable have been flagged: 11 of the 20 had a flag.

General Comments on the Descriptive Statistics: The Cognitive and Diversion items were endorsed to a greater extent (chose the agree side of the Likert scale) than the Personal Identity and Social Integration items. The Cognitive items tended to have unimodal distributions (i.e., distribution that peaked at values 2, 3, or 4 and tapered off to both sides of the peak). Many of the Personal Identity and Social Integration items had wedge shaped or highly skewed distributions. This was not surprising because it was expected that most participants would not strongly endorse most items (i.e., only some items applied to each participant). For example, not every TV viewer wants the actors to join the conversation (P27), and not every TV viewer joins an online conversation to meet new friends (S08). Hence, the response categories of “Disagree” or “Strongly Disagree” would have the highest levels of endorsement. There was a hint of bimodality in some of the Diversion items (strong agreement or disagreement) because they describe specific behaviors that many SS users do not engage in. That is, the content of some items represents behavior that is used by all participants to some degree, but the content of other items represents behavior that is used only by a few participants and not at all by the rest.

Nonetheless, when considering that the content of these items was more likely to produce strong endorsements, as discussed above, these distributions are acceptable. The fact that these particular items did produce stronger endorsements shows that participants are actively reading

and responding to the questions rather than rushing through the survey (since they do not produce these strong responses on the questions that are less polarizing).

2. Bivariate Relationships between Items

The second analysis focused on the relationships between the items. The primary goal was to use this information to help reduce the number of items from 110 to about 30. The most representative items would be retained. In the previous section, the items within each dimension were organized into groups. This structure was used to highlight the breadth of the dimension. Each group captured a somewhat distinct aspect of the dimension (e.g., the information seeking, opinion seeking, information providing, opinion providing, information exchange & socially relevant information exchange groups of the Cognitive Dimension). Herein, the goal was to reduce the number of items while maintaining the breadth of the subscale.

A questionnaire consists of a collection of items that are all related to the same underlying construct (Heeringa et al., 2017). Thus, the items are all related to each other. To achieve breadth within a single conceptual subscale, it is necessary to examine the correlations between the items. Within a subscale of a questionnaire, items should demonstrate low to moderate correlations in the range of .2 to .5 (about .3) (DeVellis, 2016). Such values imply that the items share a construct, without being too redundant. A correlation in excess of .7 implies redundancy (more than 50% overlap) and as such, implies that one could be eliminated or replaced to gain additional breadth. At the other end of the spectrum, a correlation near 0 implies no overlap. As such, the two items do not share the same construct. Thus, one, or possibly both items, are invalid.

With 110 items, there are a lot of potential bivariate correlations ($((110^2 - 110)/2 = 5995)$). This is too many to examine one-by-one. Hence, two simplifications were used. Firstly, because items were organized in Cognitive (30), Personal Identity (30), Social Integration (30) and Diversion (20) subscales, the correlations were independently examined within those within those subscales. This reduced the number to be contemplated to just $((30^2 - 30)/2 = 435)$, or $((20^2 - 20)/2 = 190)$ at a time. Secondly, two related analyses were used: The first was the visual examination of the correlation matrix (with the conceptual structure of the groups as a guide) and the second was an exploratory factor analysis (EFA) (Suhr, 2006). The EFA was only used to help sort through the correlation matrices, see (Williams et al., 2010). The EFA was used to determine which items were most strongly related to each other. The EFA was not used to develop create latent variables. Details for all Bivariate statistics are available in *Appendix A-26*.

Cognitive Needs

As noted, there were 30 Cognitive items, organized into 6 groups. For the complete set of 435 correlations, the mean correlation was $r = .46$ ($SD: .21$), with a minimum of $r = .05$ (all were positive) and a maximum of $r = .96$. The average was as expected, and the highest values implied considerable overlap between items. In fact, 64 of the correlations exceeded a value of $r = .71$, implying more than 50% overlap. When a correlation exceeds this value, the two items are essentially redundant and only one of the two items needs to be retained. The correlations tended to be higher within the designated groupings. A simple approach to reduce the set of items from 30 to 8 would be to pick one or two items from each group. However, this approach is simple because it ignores the correlation between the items of different groups. So, an Exploratory Factor Analysis (EFA) was used to help sort the correlation matrix (B. Williams et al., 2010). At this stage, EFA is not being used to create subscales. It was only used to understand the relationships between items. EFA was simply used as a convenient tool to sort a large (30x30) correlation matrix – to find the groups of items that were most similar so that the best could be selected.

The aim was to reduce the number of Cognitive Needs items to 7 or 8 so that the final questionnaire would contain about 30 items for all subscales. Therefore, an eight-factor solution was examined. These eight factors implied eight distinct groups of items. To maintain breadth in the final set, one item from each of the eight factors was selected. The factors supported the conceptual structure of the six groups of Cognitive items. After selection and some refinement, the final set of items was reduced to those shown in Table 18.

Table 18 Final Set of Cognitive Items.

Item Code	While watching TV, I use a second screen...
C01	to look up information (e.g., Wikipedia) about the show.
C06	to look up information about the production (e.g., staff, set, effects).
C07	to see if the show is honest in its presentation of the facts or opinions.
C08	to help others understand the show.
C11	to learn the opinions of others about the show.
C15	to learn the opinions of production staff (e.g., actors, directors, producers)
C16	to read reviews (e.g., IMDb, Rotten Tomatoes) of the show.
C17	to give my opinion of the show.

Item C06 was rewritten to incorporate elements of the eliminated items C04 and C05, for the purpose of gaining breadth. Item C15 was somewhat simplified to encompass the information

of its nearest neighbors (breadth), and C15 was expanded to include actors in the list of exemplars. In general, this subscale contains information seeking, information providing, opinion seeking, opinion providing and fact verification.

Personal Identity Needs

As noted, there were 30 Personal Identity Needs items, organized into four groups. For the complete set of 435 correlations, the mean correlation was $r = .71$ ($SD: .11$), with a minimum of $r = .11$ (all were positive) and a maximum of $r = .97$. The average was a bit higher than expected, and in fact, 210 of the correlations exceeded a value of $r = .71$ implying more than 50% overlap. The correlations tended to be higher within the designated groupings. The same approach was used (i.e., EFA). Since the aim was to reduce the number of Personal Identity items to 7 or 8, an eight-factor solution was obtained. These eight factors implied eight distinct groups of items, and one item from each of the eight factors was selected. The eight factors of the EFA were reasonably aligned with the four conceptual groups of Personal Identity items. Details for all Bivariate statistics are available in *Appendix A-26*. After selection and some refinement, the final set of items was reduced to those of Table 19.

Table 19 Final Set of Personal Identity Items.

Item Code	While watching TV, I use a second screen...
P04	to discuss the motivations of the characters.
P05	to discuss the characters who are like me.
P06	to discuss the characters who are different from me.
P09	as a way to share problems.
P20	because I like to try to figure out weird characters.
P23	because others value my opinion.
P28	because the production staff (e.g., actors, directors) may join the discussion.
P29	because there are people I want to meet.

Item P06 was slightly modified (“different” in place of “opposite”) to make the item more general.

Social Integration Needs

There were 30 Social Integration Needs items, organized into four groups. For the complete set of 435 correlations, the mean correlation was $r = .65$ ($SD: .11$), with a minimum of $r = .37$ (all were positive – scaled in the same direction) and a maximum of $r = .97$. The average was a bit lower than that of the Personal Identity items, and only 118 of the correlations exceeded a value of $r = .71$, implying more than 50% overlap. Again, the correlations tended to be higher

within the designated groupings. The same approach was used (i.e., EFA). Since the aim was to reduce the number of Social Integration items down to 7 or 8, an eight-factor solution was created. These eight factors implied eight distinct groups of items, and one item from each of the eight factors was selected. The eight factors of the EFA were reasonably aligned with the four conceptual groups of Social Integration items. Details for all Bivariate statistics are available in *Appendix A-26*. After selecting and refining items, the final set of items was reduced to those of Table 20.

Table 20 Final Set of Social Integration Items.

Item Code	While watching TV, I use a second screen
S01	as a way to keep in touch with family and friends.
S03	because my family or friends expect me to.
S08	to find new friends with similar interests.
S15	with strangers because we focus on the show
S18	to start discussions.
S22	as a way to learn about life and society.
S27	so I can be a part of a group.
S29	because it is like having people in the room with me.

Note that Items S01, S08, S15, and S18 were simplified.

Diversion Needs

As noted, there were 20 Diversion Needs items, organized into two groups. For the complete set of 190 correlations, the mean correlation was $r = .61$ ($SD: .13$), with a minimum of $r = .28$ (all were positive) and a maximum of $r = .94$. The average was comparable to the Social Integration items, and only 34 of the correlations exceeded a value of $r = .71$ implying more than 50% overlap. Again, the correlations tended to be higher within the designated groupings. The EFA approach was used. Since the aim was to reduce the number of Diversion items down to 6 (the dimension did not have the same amount of breadth as the others), a six-factor solution was created. These eight factors implied eight distinct groups of items, and one item from each of the eight factors was selected. The six factors of the EFA were reasonably aligned with the two conceptual groups of Diversion items. Details for all Bivariate statistics are available in *Appendix A-26*. After selection and some refinement, the final set of items was reduced to those of Table 21.

Table 21 Final Set of Diversion Items.

Item Code	While watching TV, I use a second screen ...
D01	to add to the fun.
D05	when the show is exciting or interesting.
D11	to help me relax.
D12	out of habit.
D19	when I have to say something about the show.
D20	because I am alone.

Item D05 was simplified. Item D20 may overlap with the Social Integration dimension because some viewers use a second screen to socialize with others to avoid being alone (Social Integration), while others use second screens to escape the reality of being alone (Diversion Need).

4.3.6 Stage 1.3: The Final Questionnaire

The final set of items is shown in Table 22. In order to make the total number of items manageable for respondents to the survey, judicious cuts were necessary. At each stage it was felt that more items, or other items that could have been used. Some items were modified slightly to enhance generalizability, or to simplify wording. Table 22 also includes the distributions in percentage as an insight into the expected proportions for the population.

Table 22 Final item set of items with distributions as percentages.

Item Code	While watching TV, I use a second screen	1	2	3	4	5
		SA	A	N	D	SD
C01	to look up information (e.g., Wikipedia) about the show.	29.6	36.7	15.3	12.2	6.1
C06	to look up information about the production (e.g., staff, set, effects).	10.2	23.5	21.4	17.3	27.6
C07	to see if the show is honest in its presentation of the facts or opinions.	10.2	25.5	27.6	17.3	19.4
C08	to help others understand the show.	5.1	20.4	21.4	26.5	26.5
C11	to learn the opinions of others about the show.	9.2	31.6	19.4	20.4	19.4
C15	to learn the opinions of production staff (e.g., actors, directors, producers)	4.0	13.0	21.0	26.0	36.0
C16	to read reviews (e.g., IMDb, Rotten Tomatoes) of the show.	2.4	46.3	25.6	13.4	12.2
C17	to give my opinions of the show.	4.1	15.3	19.4	29.6	31.6
P04	to discuss the motivations of the characters.	6.1	25.5	20.4	21.4	26.5
P05	to discuss the characters who are like me.	6.1	14.3	22.4	26.5	30.6
P06	to discuss the characters who are different from me.	4.1	11.2	24.5	29.6	30.6
P09	as a way to share problems.	3.1	8.2	17.3	34.7	36.7
P20	because I like to try to figure out weird characters.	8.2	19.4	20.4	21.4	30.6
P23	because others value my opinion.	1.0	15.3	19.4	28.6	35.7
P28	because the production staff (e.g., actors, directors) may join the discussion.	2.0	6.1	19.4	26.5	45.9
P29	because there are people I want to meet.	2.0	11.2	18.4	23.5	44.9
S01	as a way to keep in touch with family and friends.	9.2	32.7	14.3	19.4	24.5
S03	because my family or friends expect me to.	3.1	8.2	19.4	27.6	41.8
S08	to find new friends with similar interests.	2.0	14.3	20.4	26.5	36.7
S15	with strangers because we focus on the show	7.1	15.3	16.3	22.4	38.8
S18	to start discussions.	3.1	29.6	24.5	18.4	24.5
S22	as a way to learn about life and society.	5.1	23.5	25.5	17.3	28.6
S27	so I can be a part of a group.	4.1	14.3	18.4	29.6	33.7
S29	because it is like having people in the room with me.	2.0	11.2	16.3	32.7	37.8
D01	to add to the fun.	14.3	29.6	12.2	19.4	24.5
D05	when the show is exciting or interesting.	9.2	20.4	21.4	23.5	25.5
D11	to help me relax.	6.1	19.4	20.4	26.5	27.6
D12	out of habit.	11.2	30.6	19.4	17.3	21.4
D19	when I have to say something about the show.	5.1	23.5	18.4	22.4	30.6
D20	because I am alone.	4.1	23.5	20.4	24.5	27.6

4.3.7 Stage 1.4: Initial Analysis of the SSE-MS

These final set of 30 items was subjected to a Principal-Components Analysis (PCA), with the expectation that four factors would be extracted that would reflect the four different dimensions (Cognitive, Personal Identity, Social Integration and Diversion) that were the focus of the design of the items. It was expected that four factors would be found, but the analysis did not force a four-factor solution. It was quite possible that a five-factor solution would be found (e.g., the Diversion dimension often splits into entertainment and habit), or even that some other number of factors would be found. It was also expected that the factors (four or five) would be correlated given the original conception of the dimensions in the literature.

In the analysis, the traditional criterion for factor extraction was used: Only factors with an eigenvalue over 1 were retained (Tabachnick & Fidell, 2013). The solutions near that limit were examined for item integrity (i.e., item factor loadings and item groupings).

The factorability of the data has been substantiated by running the Kaiser-Meyer-Olkin Measure of sampling Adequacy (KMO) and the Bartlett's Test of Sphericity. KMO was .922, exceeding Field's (2009) threshold of .9 for "superb" (p.225) results. Bartlett's Test of Sphericity was $\chi^2(435) 2535.66$ ($p < .0005$). Both tests implied that there was a valid factor solution to be found.

The solution that extracted all factors with eigenvalues greater than 1 had five factors and explained 71.3% of the variance. However, the four factor solution had somewhat more informative item loadings (i.e., items only loading on a single factor) and explained 67.8% of the variance. The four factor solution was selected and is presented in Table 23. Factor loadings in excess of .3 that implies a 10% overlap between the item and the factor bolded (Field, 2009).

This factor analysis should not be considered as a definitive analysis of the structure of the questionnaire. This factor analysis served to help understand the relationships between the items, and as a test to see if questionnaire development as a whole was proceeding along the right path. In fact, this factor solution cannot be trusted as a final analysis because the number of participants was low and because the actual items were sometimes modified.

Table 23 The Factor Analysis for the final 30 Items.

	*MSA	Communalities	Factor			
			1	2	3	4
P28	.93	.79	.96	-.12	-.14	.14
P29	.92	.76	.92	-.04	-.02	.07
S29	.87	.38	.85	.06	.04	.02
S02	.94	.67	.81	-.05	.12	-.06
P23	.95	.70	.75	-.20	.02	-.17
S08	.91	.75	.72	.12	.05	-.16
D11	.94	.58	.71	.13	.12	-.12
P09	.93	.74	.68	-.05	-.28	-.13
S15	.93	.76	.67	.23	.14	-.18
S27	.92	.68	.61	-.06	-.24	-.19
P05	.93	.79	.57	.14	-.06	-.32
C17	.94	.58	.57	.18	.03	-.18
P06	.93	.77	.53	.01	-.16	-.36
C01	.75	.68	.05	.85	-.02	.19
C16	.81	.61	-.21	.71	-.10	-.25
C11	.94	.65	.22	.53	-.14	-.22
C07	.69	.73	-.05	.14	-.83	.02
C08	.84	.62	.04	-.04	-.68	-.29
C06	.79	.53	.09	.45	-.47	.04
C15	.94	.66	.45	.26	-.46	.03
D19	.94	.58	-.06	-.06	-.12	-.86
D01	.94	.58	.18	-.09	-.05	-.76
D05	.94	.58	.17	-.04	-.19	-.73
D12	.94	.58	-.02	.18	.18	-.71
S01	.93	.47	.05	-.12	.01	-.69
P20	.94	.65	.15	.10	-.01	-.66
P04	.96	.80	.23	.14	-.06	-.65
S22	.95	.62	.23	.13	-.12	-.53
S18	.94	.74	.24	.31	-.01	-.52
D20	.94	.58	.26	.23	.27	-.30

Correlations	1	2	3	4
1		.25	-.22	-.68
2			-.21	-.32
3				.16

*MSA Measure of Sampling Adequacy

In Table 23, Factor 1 is a mix of 6 Personal Identity and 4 Social Integration items 1 Cognitive item and 1 Diversion item. Factors 2 and 3 are the 7 remaining the Cognitive items and 1 social integration item. Factor 4 is 5 of the Diversion items plus 3 Social Integration and 2

Personal Identities items. The five-factor solution split the two Social Integration items from Factor 4 to create the fifth factor. This structure is sufficient to continue testing. It demonstrates that the current items do map onto the intended U & G framework. Table 23 also presents the correlations between the factors. Factors 1 and 4 had the greatest overlap.

4.3.8 Additional Analyses

To determine the reliability of the survey, Cronbach's alpha was calculated for each factor (see *Chapter 3* for Cronbach's alpha ranges):

- Factor 1 had a Cronbach's alpha of $\alpha = .931$,
- Factor 2 had a Cronbach's alpha of $\alpha = .730$,
- Factor 3 had a Cronbach's alpha of $\alpha = .765$, and
- Factor 4 had a Cronbach's alpha of $\alpha = .928$.

Lower alphas with the second and third factors are to be expected given that they had only 3 and 4 items. Had Factors 2 and 3 been combined, the reliability would rise to $\alpha = .811$.

The subscales could be constructed along the lines of the U & G framework (Heeringa et al., 2017). In this case, this is reasonable (pending more participants) because the factor analysis does not yet have sufficient sample size to be considered definitive. In this case, the reliabilities would be:

- Cognitive $\alpha = .820$,
- Personal Identity $\alpha = .942$,
- Social Integration with $\alpha = .925$, and
- Diversion with $\alpha = .877$.

Further, the Diversion subscale benefits from the inclusion of more items. Further analyses indicated that none of the subscales would benefit (increase their α) from the exclusion of a single item, with the possible exception of Div20. "Diversion Needs" is the subscale that would benefit from the exclusion of a single item (i.e., dropping Div20 would raise the α from .877 to .880 – does not differ by much).

In summary, the current development of the questionnaire provides an acceptable level of reliability within scales. By design of the items (supported by face validity of the final groupings of items), the structure is consistent with the four main dimensions of the U & G framework. However, at this point, prudence was advocated because this version of the questionnaire is based

on just 1 sample with a total of 98 participants, and some items were modified slightly. More testing with more participants was warranted.

4.4 Summary

This chapter discussed how the SSE-MS was created. It started by explaining how items were generated then selected, then how items were tested and refined. The following chapter discusses scale evaluation, by examining reliability and validity of the scale.

CHAPTER 5 Stage 2: Scale Evaluation

The main goal of this chapter is to assess the reliability and validity of the new SSE-MS. If the SSE-MS is not valid and reliable, then it cannot be used to effectively assess motivations for SSE use. As such, within the context of the current research, these are the most important analyses. Assessing validity and reliability are two separate processes. However, they are often completed in a single study.

This chapter is organized in three main sections:

Stage 2.1: Research Methodology,

Stage 2.2: Reliability Analysis, and

Stage 2.3: Validity Analysis.

The discussion of research methodology applies to both subsequent discussions. Throughout the presentation of the results, there is an attempt to minimize the presentation of detailed analyses so as to focus on the main points for interpretation, which is examined in a following chapter (*Chapter 7 Discussion*). Detailed analyses are presented in subsequent Appendices.

5.1 Stage 2.1: Scale Evaluation Methodology

An anonymous online survey was conducted in which, participants completed the survey at their convenience. The survey includes the SSE-MS questionnaire developed in *Chapter 4*, Background questions (Demographics, TV watching habits, and SS Use), and other pre-existing, reliable, validated questionnaires (see Materials in the following section), all of which have been used to assess subscales similar to that of the SSE-MS such as Cognitive, Personal Identity, Social Integration and Diversion subscales. These additional questionnaires were used to examine the validity of the SSE-MS.

As a reminder, throughout this thesis, the term *questionnaire* is used to refer to a single questionnaire within the survey package (the SSE-MS questionnaire). The term *item* is used to refer to one single question from one single questionnaire. The term *subscale* is used to refer to a specific collection of items from one questionnaire. Finally, the term *survey package* is used to refer to the collection of all questionnaires (Demographics, SS Use, TV watching habits, SSE-MS, and pre-existing questionnaires).

5.1.1 Materials

The survey package consisted of several parts:

1. Background items (Demographics, TV watching habits, and SS Use items – 21 items).
2. New SSE-MS questionnaire (30 items).
3. The following pre-existing questionnaires:

ICM: Interpersonal Communications Motives (Rubin, Perse, & Barbato 1988),
 USM: Use of Social Media (Leung, 2001),
 MWTV: The Motivations for Watching TV (Rubin, 1983),
 UES-SF: The User Engagement Scale-Short Form (O’Brien, Cairns, & Hall, 2017),
 MUInternet: The Motivations for Using the Internet (Roy, 2008), and
 HandE: The Hedonic and Eudaimonic Scales (Oliver & Rany, 2011).

The Background items

Background items are classified into three categories: Demographics, TV Viewing Habits, and SS Use. The seven Demographic items included gender, age, occupation, education, income, and residence location. The variables and their codes are summarized in Table 24. Some are categorical while others are ordinal. The categorical variables could be mutually exclusive or not mutually exclusive, but in either case, they were coded using dummy codes. For education, the three lowest levels were combined, and the two highest levels were combined for subsequent analyses because of the resulting sample sizes.

Table 24 Demographic Variables and Codes

	Type of Scale	Number of Levels	Details
Gender	binary	2 levels	1 = female 2 = male
Age Group	ordinal	7 levels	1 = 18-20 2 = 21-24 3 = 25-29 4 = 30-39 5 = 40-49 6 = 50-59 7 = 60 or greater
Living Status	categorical (mutually exclusive)	7 dummy codes (0 or 1 for each)	in relationship with children in relationship, no children living alone living with friends living with roommates living with parents/family other

	Type of Scale	Number of Levels	Details
Education	ordinal	5 levels	1 = no education 1 = some HS 1 = completed HS 2 = some university 3 = BSc or BA or College 4 = MSc or MA (<i>n</i> =28) 5 = PhD, PsyD, professional 5 = PhD & professional
Relative Income	ordinal	3 levels	-1 = below average income 0 = average income 1 = above average income
Urbanization	ordinal	3 levels	1 = rural 2 = suburban 3 = urban
Occupation	categorical (not mutually exclusive)	12 dummy codes (0 or 1 for each)	professional, technical / research, education, administration, service, entertainment, skilled labor, unskilled labor, student, home maker, not employed, other

The nine TV Viewing Habits items were the assessment the modes of TV access, the preferred genres of TV viewing, the intensity of TV viewing, the hours of TV viewing, the time of TV viewing, binge watching, the intensity of following, the emotional connection to shows, and the social context of TV viewing (summarized in Table 25).

Table 25 The TV Viewing Habits Variables and Codes

	Type of Scale	Number of Levels	Details
Mode of TV Access	categorical (not mutually exclusive)	7 dummy codes (0 or 1 for each)	cable antenna or satellite a DVD player streaming to TV streaming to computer streaming to smartphone other
Genres of TV Viewed	categorical (not mutually exclusive)	16 dummy codes (0 or 1 for each)	Action, Anime, Children and Family Classics, Comedy or Sitcom Documentaries, Drama or Romantic Music, Faith/Spirituality Horror, Independent/International

	Type of Scale	Number of Levels	Details
			SciFi or Fantasy Sports Movies/Fitness Thrillers, Reality TV, Other
Intensity of TV Viewing			
Cable Streaming from broadcasters streaming on-demand TV DVDs	ordinal	4-point scale	1 = everyday 2 = at least once a week 3 = at least once a month 4 = rarely
Hours TV Viewing			
Weekdays Saturdays Sundays	ordinal	5-point scale	1 = less than 1 hr 2 = about 1 - 2 hr 3 = about 2 - 3 hrs 4 = about 3 to 4 hrs 5 = more than 5 hrs
Time of TV Viewing			
when broadcast is Live when I choose	ordinal	5-point scale	1 = Never (about 0%) ¹⁴ 2 = Rarely = (about 25%) 3 = Frequently (about 50%) 4 = Usually (about 75%) 5 = Always (about 100%)
Binge Watching			
entire season 3 or more shows 1 or 2 shows	ordinal	5-point scale	1 = Never (about 0%) 2 = Rarely = (about 25%) 3 = Frequently (about 50%) 4 = Usually (about 75%) 5 = Always (about 100%)
Intensity of Following			
Watch Follow Make Time For Follow on SM	ordinal	5-point scale	1 = 1 or less shows/wk 2 = 2 - 5 shows/wk 3 = 6 -10 shows/wk 4 = 11-20 shows/wk 5= more than 20 shows/wk
Emotional Connection			
Day planned around TV shows Upset if missed	ordinal	5-point scale	1 = Never (about 0%) 2 = Rarely = (about 25%) 3 = Frequently (about 50%) 4 = Usually (about 75%) 5 = Always (about 100%)

¹⁴ Percentages were used to make it easier for participants to estimate the amount of time spent on the activity in question. See Appendix A-27 for the full questionnaire.

	Type of Scale	Number of Levels	Details
Social Context			
with no one with my children with my partner with my family with friends with roommates with colleagues with others	ordinal	5-point scale	1 = Never (about 0%) 2 = Rarely = (about 25%) 3 = Frequently (about 50%) 4 = Usually (about 75%) 5 = Always (about 100%)

The six SS Use items included the type of SS, the process of accessing the SS, the applications used on the SS, the tasks completed on the SS, the timing of the SS Use, and the social context of SS Use (summarized in Table 26).

Table 26 The SS Use Variables and codes

	Type of Scale	Number of Levels	Details
Type of SS	categorical (not mutually exclusive)	4 dummy codes (0 or 1 for each)	split screen different screen smartphone some other device
Accessing SS	categorical (not mutually exclusive)	4 dummy codes (0 or 1 for each)	during breaks by pausing the TV by watching both. by missing TV other
Social media outlets Used on SS			
Social Media Blogs Microblogs Email Forums Chat Information Channels Video Conference	ordinal	5-point scale	1 = Never (about 0%) 2 = Rarely = (about 25%) 3 = Frequently (about 50%) 4 = Usually (about 75%) 5 = Always (about 100%)
Use of SS			
to work to show to talk about the show to social but NOT about the show to browse other NOT about the show	ordinal	5-point scale	1 = Never (about 0%) 2 = Rarely = (about 25%) 3 = Frequently (about 50%) 4 = Usually (about 75%) 5 = Always (about 100%)

	Type of Scale	Number of Levels	Details
Timing of SS Use			
when show is slow when show is fast when show is boring when show is exciting to fill in free time	ordinal	5-point scale	1 = Never (about 0%) 2 = Rarely = (about 25%) 3 = Frequently (about 50%) 4= Usually (about 75%) 5 = Always (about 100%)
Social Context of SS Use			
when alone because others are using it even though others are around when others are annoying when others are ignoring me when no one wants to watch TV with me when I need a change of company	ordinal	5-point scale	1 = Never (about 0%) 2 = Rarely = (about 25%) 3 = Frequently (about 50%) 4= Usually (about 75%) 5 = Always (about 100%)

As mentioned, there were 21 main background questions. Some of those questions had subcomponents. For example, there was one question that addressed Occupation, but that one question listed 12 different selectable occupational categories. The participant could select as many of those that applied. Often this would include "student" and some secondary role such as "service". In a questionnaire, the term "item" is not rigidly defined. Typically, an "item" is construed as a single question – a statement that requires a response by the participant. Each response defines an item. In this section, the term *item* is used as the conceptual level to define a particular question. That is, all 12 occupational categories were considered one single item. This was done because participants only needed to select those occupations that were relevant (i.e., a participant did not need to specifically response to every occupation; occupations not selected were assumed irrelevant), and because the subsequent analysis would need to treat all 12 occupations as a single *categorical* variable.

The same was true for Living Arrangements. There was one question that addressed Living Arrangements, but that one question listed 8 different selectable broadly-defined living arrangements. Participants selected the one living arrangement that was most relevant and the subsequent analysis treated all living arrangements as a single *categorical* variable.

Generally, the various background items used different response options as appropriate

(see Table 24, Table 25 and, Table 26). For example, participants selected just one age group from seven options. Conversely, participants selected as many occupations as desired from the 12 options. In addition, some items, such as occupation, included an open-ended free-text response option. The coding for open-ended responses will be discussed later.

For the purpose of the current chapter, only basic descriptive statistics for the Demographic items are presented so to establish the basic Demographic breakdown of the sample group. Analyses examining the relationships involving Demographics are described in *Chapter 6*. All discussion of the TV Viewing Habits and SS Use items are also described in *Chapter 6*.

The new SSE-MS questionnaire

This is the questionnaire that resulted from *Chapter 4*, Table 22.

The pre-existing questionnaires

Each of the 6 pre-existing questionnaires is discussed in more detail (under *Results: Validity Assessment*, see also *Appendix B - Analysis of Questionnaires for Validity Assessment*). Each questionnaire contained subscales, and reliability was typically assessed within each subscale. All questionnaires except the UES-SF and the HandE used a stem and completion format. Responses were collected using a five-point Likert scale which assessed the degree to which participants agreed with the statement. The UES-SF and HandE had a statement (e.g., a stem) with a similar five-point response scale. To ease the workload for participants, the response scale for all questionnaires were adjusted to use the same wording as the SSE-MS from “Strongly Agree” (1), “Agree” (2), “Neutral” (3), “Disagree” (4) to and “Strongly Disagree” (5). This also facilitated comparisons between questionnaires. The directionality of the response scale was not changed (i.e., items that were reverse coded remained reverse coded). This variance in directionality did not affect the reliability of the scales (see *Results: Validity Assessment*, and *Appendix B - Analysis of Questionnaires for Validity Assessment*).

5.1.2 Recruitment

Ethics approval was obtained from the Social Sciences and Humanities Research Ethics Board at Ryerson University (Toronto, Ontario, Canada). Briefly, the survey package was prepared and formatted for presentation using the online Qualtrics Survey Software, and posted

from March 14th to April 18th, 2018 to the university undergraduate subject pool. Participants were offered a 1% credit point towards a single course for participation.

5.1.3 Participants

A total of 395 participants completed the survey, but only 348 were retained for the final analysis after data cleaning and coding. The data cleaning is described in detail in *Appendix C- Sample Analyses*. The final sample consisted of 94 males and 254 females (N = 348; 73% female). Gender asymmetry was expected since the student research pool was 64% female.

The sample details are available in *Appendix C- Sample Analyses*, and described briefly in the following paragraphs. Ages were coded into 7 groups. Most participants were between 18-20 (63.2%) and none were older than 40. The age groups were converted to an ordinal scale ranging from 1 (18-20) to 7 (60+) and the average age on that scale was 1.39 (SD: 0.55).

Living arrangements were categorized into seven categories: most participants lived with parents/family (57.5%).

Education is categorized into 8 levels. The majority of respondents “completed HS” (49.1%), or “Some University” (39.9%). No one selected the two lowest levels (“no education” or “some HS”). This reflects that participants were university students.

The survey categorized relative income into three categories. The majority of responses were below average income (56.6%), followed by average income (35.5%), and finally above average income (4.6%). These values would be expected given the student sample, but the interpretation of this was difficult because many participants lived at home. As such, it is unclear whether they reported family or personal income.

Place of residence was collected as three mutually-exclusive categories. Almost all participants lived in the city (56.3%) or the suburban (41.7%) areas. Only a few (2%) lived in rural areas. This is not surprising given that the sample was sourced from a university in a large metropolitan center.

Occupations were collected in 12 categories. These were not mutually exclusive and participants could select as many as desired. Most reported their occupations as “student” (85%), or included student with some other category (such as service).

5.1.4 Procedure

The survey package was presented online using Qualtrics through a URL (see *Appendix A-27*). The online questionnaire consisted of five sections: Informed Consent, Debriefing, Background Items, the SSE-MS, and the six pre-existing Questionnaires.

Participants were expected to first read the informed consent and to then indicate consent by clicking on a continue button. The Informed Consent included the purpose of the research (i.e., full informed consent), the approximate amount of time to complete the survey package, the rights of participants (e.g., the ability to discontinue participation at any time by closing the browser; the right skip items) and the stated compensation. It also included contact information for the Social Sciences and Humanities Research Ethics Board and for the principal researcher.

The Debriefing form included a summary of the research project, instructions on how to clear the browser in a number of different web browsers (Mozilla, Internet Explorer, and Safari), a thank you, and contact information. The Debriefing form also allowed participants to submit an email address if they should desire to see the final results once published.

The survey package requested no sensitive or identifying information. As such, the research met the Ryerson University (2017) definition of Anonymous Research, because at “no time did the researcher, or anyone associated with the project know the identity of the participants” (p.3).

The order of presentation of questionnaires and items within questionnaires was not randomized (i.e., all participants saw all items in the same order). Participants completed the questionnaire at a time and place of their own choosing. Participants were provided with a URL and could access the URL using any internet-enabled device (e.g., computer, tablet, smartphone). There was an attempt to format the questionnaire for legibility on a smartphone, but given the diversity of smartphone formats, this was not guaranteed. Participants could complete the survey at their own pace; however, they were not able to stop and restart the survey because no identifying information was collected and therefore responses could not be linked. On the last page there was a “submit” button, which was redundant since Qualtrics save the data as it is generated.

Data Preparation, Cleaning, and Coding

In the completed survey packages, Background item data contained an additional, open-ended, free-text, “other” category to allow participants to provide additional details. In the first step of data preparation, the “other” category was re-coded to fit the existing categories, or used to create new categories, or left as “other”. The *Appendix D –Sample Analyses* provides the details.

In the second step, I evaluated the SSE-MS. All data (survey package) for a particular participant were discarded if a participant did not complete all/any of the items of the SSE-MS (100% completion), to ensure the internal structure of the SSE-MS. This was done because the point of this stage was the development of the SSE-MS. Until this stage is completed, the internal structure is an unknown. Therefore, it was not possible to replace missing values on one or more items in the SSE-MS because missing-value replacement assumes that the structure of the SSE-MS is known. Premature missing value replacement would distort the assessment of the true structure of the SSE-MS. For example, if a participant failed to respond to Item 5, one cannot replace Item 5 with the mean of all responses, or the mean of remaining items for that participant, or the mean of all participants on Item 5, or the mean of the subscale that Item 5 belongs to *unless* one knows that Item 5 is a valid part of that questionnaire or subscale. For more details, refer to *Appendix D: Sample Analyses*. For the pre-existing questionnaires (e.g., ICM, USM), all data was deleted if a participant failed to complete more than half of the questionnaire (50% completion) for any subscales within any questionnaire¹⁵. This criterion reflected established reliability of the pre-existing questions, and the desire to link responses on the SSE-MS to the responses on the other pre-existing questionnaires. Missing values were replaced with the mean of the remaining items for that participant for that subscale. *Appendix D: Sample Analyses* provides additional details.

In the third step, I evaluated the 21 Background items. Participants were tagged if they failed to select an appropriate response for the majority of the Background items (e.g., failed to provide an occupation, failed to select any genres of TV viewing, failed to provide the social context for TV viewing, etc.). However, any text response was considered valid even if that response was ultimately coded as “other”. This analysis was applied at the level of the items, not

¹⁵ For example, participants were allowed, at most, 1 missing of 3 items, 1 missing of 4 items, 2 missing of 5 items, 2 missing of 6 items, et cetera.

to the subcomponents of the item. Any participant who had been tagged in five or more items was deleted.

All the data of a participant was deleted if a participant failed to meet the criterion for the SSE-MS, or the criterion for any of the other Questionnaires, or for the Background data. Hence, in the subsequent analyses, all components were based on the same final set of 348 participants.

The last step examined the internal consistency of the responses. *The Appendix D: Sample Analyses* provides more details. All checks reduced the sample size from 396 to 348.

5.1.5 Stage 2 Results

The data was analyzed within two independent sections: Reliability (Stage 2.2) and Validity (Stage 2.3). All analyses were based on the same 348 participants.

5.2 Stage 2.2: Results for the Reliability Analysis

As mentioned previously in *Chapter 3*, there are several tests of reliability. Herein, reliability was assessed using Cronbach's alpha – a measure of internal consistency. However, before assessing reliability using Cronbach's alpha, it was necessary to evaluate the internal structure of the questionnaire; the SSE-MS was designed to contain four separate subscales: Cognitive, Personal Identity, Social Integration and Diversion. It is necessary to first ensure that the 30 items of the SSE-MS did group into the expected four subscales (i.e., Cognitive, Personal Identity, Social Integration and Diversion). The reliability should be high within each subscale, but not necessarily across the collection of all four subscales. That is, though all four share the one common construct – motivations to use a SS to talk about TV shows while watching TV – this construct is a heterogeneous mix of four subscales, and these subscales might not be tightly related to each other.

As mentioned in *Chapter 3 section 3.6.4*, both PCA and PAF were used for analysis, but only the PCA is presented because the two analyses produced the same results (as is common; see Williams et al. (2010)). I used the five-step recommendation of Williams, et al. (2010), and all indices of fit were considered¹⁶.

¹⁶ The five steps are: 1) Is the data suitable for factor analysis, 2) How will the factors be extracted, 3) What criteria will assist in determining factor extraction? 4) Selection of rational method, 5) Interpretation and labeling.

The SSE-MS was designed with four dimensions: Cognitive (Cog: 8 items), Social Integration (Soc: 8 items), Personal Identity (PI: 8 items), and Diversion (Div: 6 items). Table 27 presents the mean and *SD* for each item, organized by these designed subscales. The minimums were 1 and the maximums were 5, so they are not presented in the table.

Table 27 Descriptive Statistics for the Items of the SSE-MS.

	Item Text	Mean	<i>SD</i>
Cognitive	While watching TV, I use a second screen to ...		
	1 look up information about the show.	2.61	1.30
	2 look up information about the production (e.g., staff, set, effects).	3.14	1.37
	3 see if the show is honest in its presentation of the facts or opinions.	3.36	1.30
	4 help others understand the show.	3.39	1.30
	5 learn the opinions of others about the show.	3.13	1.32
	6 read reviews of the show.	2.94	1.39
	7 learn the opinions of production staff	3.68	1.28
	8 give my opinion of the show.	4.02	1.19
Social Integration	While watching TV, I use a second screen to talk about the show ...		
	1 as a way to keep in touch with family and friends.	3.41	1.32
	2 because my family or friends expect me to.	3.54	1.33
	3 to find new friends with similar interests.	3.77	1.18
	4 to start discussions.	3.72	1.24
	5 as a way to learn about life and society.	3.44	1.34
	6 with strangers because we focus on the show	3.67	1.21
	7 so I can be a part of a group.	4.00	1.11
	8 because it is like having people in the room with me.	4.16	1.08
Personal Identity	While watching TV, I use a second screen to talk about the show ...		
	1 to discuss the motivations of the characters.	3.05	1.28
	2 to discuss the characters who are like me.	3.95	1.09
	3 to discuss the characters who are different from me.	3.89	1.19
	4 as a way to share problems.	3.52	1.30
	5 because I like to try to figure out weird characters.	3.64	1.28
	6 because others value my opinion.	4.10	1.13
	7 because there are people I want to meet.	3.94	1.17
	8 because the production staff may join the discussion.	3.86	1.27
Diversion	While watching TV, I use a second screen to talk about the show ...		
	1 to add to the fun.	3.03	1.31
	2 more often when the show is exciting or interesting.	3.15	1.36
	3 to help me relax.	3.36	1.34
	4 out of habit.	2.86	1.40
	5 when I have to say something about the show.	3.02	1.36
	6 because I am alone.	3.39	1.39

Notes: The text for some items is abbreviated (in particular, the examples were removed) simply to make it fit in this format.

The means are slightly above 3, the middle value in the scale: this is to be expected, as one would expect strong endorsements to be selected by only a few participants (TV viewers). This means that some people would use a SS to satisfy Diversion motivations, while others would use it to satisfy Cognitive, Personal Identity or Social Integration motivations, but few people would use a SS for all motivations. Some might use it for two or three motivations. If, for example, one-quarter of the participants used the SS to gratify Cognitive needs, then one-quarter of the participants would have a low score on the Cognitive subscale, and three-quarters would have a high score on that subscale. This would result in a mean above the midpoint. This logic applies to each item within a subscale. Hence, the observed means are reasonable. The *SD* indicate that there are no problems with the items.

The factor structure was examined using a principal component analysis (PCA) with an oblique rotation. The oblique rotation was used because the subscales were expected to be correlated (Jolliffe, 2002), since subscales of questionnaires based on the U & G framework tend to be correlated. The sample size was 11.6 participants per item. This exceeded the minimum criterion commonly seen as 5 participants per item (e.g., Howell, 2002, Williams et al., 2010). The solution for eigenvalues greater than 1 and the solution for four factors (the desired number of subscales) were examined. The factorability of the data has been substantiated by running the Kaiser-Meyer-Olkin Measure of sampling Adequacy (KMO) and the Bartlett's Test of Sphericity. The Kaiser-Meyer-Olkin (KMO) was .945: according to Field (2009) values above 0.9 are superb. Bartlett's test of Sphericity was 6895.5 ($p < .0005$; $df = 435$) (see *Chapter 3, Stage 1.3: Analysis* for the criteria). Thus, both statistics suggest that factor analysis can be applied on the data, and a reliable factor solution existed. To find those factors, all factors with eigenvalues greater than 1 (the standard criterion (Tabachnick & Fidell, 2013)) were extracted. This produced 5 factors that explained 65.0% of the variance. The content of those factors was reasonable but did not align with the conceptualization of 4 subscales (e.g., Cognitive, Personal Identity, Social Integration, and Diversion needs). The factor solution with just four factors explained 61.5% of the variance (slightly less) but those four factors aligned very well with the conceptual structure. The four-factor solution was retained. The pattern matrix

for the four-factor solution is presented in Table 28. Factor loadings in excess of .3 implies a 10% overlap between the item and the factor bolded (Field, 2009).

Table 28 The Four Factor Solution.

	Factor			
	1	2	3	4
PIId 2	.890	-.008	.016	.000
PIId 3	.853	.048	-.023	-.031
PIId 5	.785	.049	.003	-.021
PIId 1	.773	.106	-.031	-.003
PIId 6	.743	.020	-.119	.034
PIId 4	.677	.008	-.189	.043
Div 5	.603	.040	.067	.276
PIId 7	.540	-.051	-.397	-.028
Cog 3	.067	.788	-.031	-.097
Cog 6	-.030	.787	.113	.088
Cog 1	-.066	.766	.084	.038
Cog 5	.149	.697	.042	.088
Cog 2	-.040	.691	-.114	.028
Cog 7	-.010	.617	-.322	-.064
Cog 4	.202	.561	-.091	-.004
Soc 6	-.043	.024	-.889	-.048
Soc 3	-.002	-.017	-.826	.052
Soc 7	-.046	.016	-.810	.149
Soc 5	.080	.094	-.655	.022
Soc 2	.047	-.036	-.642	.064
Soc 8	.011	-.031	-.607	.278
PIId 8	.285	.026	-.571	-.083
Soc 4	.189	.055	-.564	.018
Cog 8	.105	.275	-.489	-.136
Soc 1	.105	.019	-.397	.232
Div 4	.056	.076	.007	.782
Div 3	-.015	.086	-.164	.737
Div 6	.014	.015	-.148	.657
Div 1	.474	.088	.048	.501
Div 2	.408	-.020	-.057	.425

The first factor is primarily (7 of 8) the Personal Identity items, with one additional Diversion item (Div05). The second factor is 7 of the 8 Cognitive items. The third factor is all 8

Social items plus Cog08 and PId08. The final factor is 5 of the 6 Diversion items. This is a solution that supports the original conceptual structure of the SSE-MS.

Four items loaded on more than one factor (PId07, Cog07, Div01 and Div02), but of those four, only Div01 and Div02 were “ambiguous” (equal loadings on two factors). The factors were correlated as expected, and the highest correlation was $r = -.62$ between the Social Integration and Personal Identity factors, as shown in Table 29.

Table 29 Correlations Between the Factors of the Four-Factor Solution.

Factor	1	2	3	4
1	1.000	.450	-.619	.472
2		1.000	-.377	.225
3			1.000	-.371
4				1.000

The results provided confidence in the conceptual structure of the questionnaire, so four subscales were created that aligned with the initial conceptualization: Cognitive, Personal Identity, Social Integration and Diversion.

The reliability of each subscale within each sample was examined. The Reliability test used Cronbach’s alpha (α), which is the most common assessment of reliability (e.g., see Cohen & Swerdlik, 1999; Mehrens & Lehmann, 1984; Shultz & Whitney, 2005). The interpretation of Cronbach’s alpha values is based on guidelines from DeVellis, (2003, pp. 102-137) as mentioned in *Chapter 3 (Stage 1.3: Analysis)*. Those guidelines were used throughout the thesis to interpret alpha values. Values lower than .2 imply that the items are not related, while values in excess of .7 imply that the items are redundant (i.e., one could be replaced to gain more breadth).

The results are summarized in Table 30. These include Cronbach’s alpha (α), adjusted alpha (adj- α), mean, minimum, and maximum correlations and the variance of the correlation for the items within the subscale.

Table 30 Reliability Statistics for the Subscales of the New SSE-MS

	Cronbach’s		Correlations			
	α	adj-α	mean	min	max	sd
Cognitive	.867	.866	.447	.201	.629	.097
Personal Identity	.931	.932	.630	.464	.851	.083
Social Integration	.897	.898	.525	.372	.724	.097
Diversion	.863	.863	.513	.328	.689	.111

All the scales had a Cronbach's alpha (α), and an adjusted alpha (adj- α) in excess of 0.8, which is considered "good" (see *Chapter 3 – 3.6.2 Stage 2.2: Reliability Analysis*). The adjusted alpha is about the same as the α because all items have similar means and standard deviations. The average correlations were good, and none are negative (Veaux et al., 2017). The means, minimums and maximums for the correlations are on the high side, but the current sample was fairly homogeneous. As such the values need to be higher so that when moving to less homogeneous samples (see *Chapter 6*), the correlations have room to decrease without impairing the overall reliability.

Table 31 presents the analysis of each item. This is important because it shows that all items do in fact matter to the subscale. The first column ($r_{i,\text{total}}$) is the correlation between the item and the mean for the subscale. All of these correlations should be positive (they were) and greater than $r = .3$ (they were), and near a value of $.7$ (they were) (Field, 2009). This means that the item is related to the subscale. The second column includes the multiple R , which is the correlation using each item (in turn) as a DV and the remaining items of the subscale as IVs in a multiple regression. The multiple R measures whether or not that item is: (a) related to the rest, and (b) providing some unique information. Values in the $.5$ to $.7$ range are good (75-50% of the information in the item is new, 25-50% is redundant with the other items) (Field, 2009). Column 3 is the value α if the item is deleted, and column 4 is the change in α from the original value, when the item is deleted (i.e., the original α minus the new α) (Field, 2009). Ideally, the α should decrease if the item is deleted. That implies that the item helps the subscale. Conversely, if the α goes up when the item is deleted, the item is adversely impacting the validity. In every case except one, the α would decrease if the item were deleted. The one exception was an increase of just $.001$, which is negligible. Hence, all items help their respective subscales.

Table 31 The Reliability Statistics for Each Item of Each Subscale.

		$r_{i,total}$	multiple R	α if deleted	chg in α
Cognitive	1	.549	.376	.858	-.009
	2	.615	.461	.851	-.080
	3	.714	.533	.840	-.092
	4	.634	.474	.849	-.083
	5	.688	.537	.843	-.089
	6	.605	.478	.852	-.079
	7	.667	.490	.845	-.086
	8	.473	.302	.865	-.066
Personal Identity	1	.775	.623	.921	-.010
	2	.811	.767	.918	-.013
	3	.832	.771	.917	-.014
	4	.786	.633	.920	-.011
	5	.719	.542	.926	-.005
	6	.803	.663	.919	-.012
	7	.753	.628	.923	-.008
	8	.630	.487	.931	-.000
Social Integration	1	.538	.357	.898	.001
	2	.608	.418	.890	-.007
	3	.761	.612	.876	-.021
	4	.664	.478	.886	-.011
	5	.697	.501	.882	-.015
	6	.739	.607	.879	-.018
	7	.779	.666	.875	-.022
	8	.671	.499	.885	-.012
Diversion	1	.769	.629	.819	-.043
	2	.658	.557	.839	-.024
	3	.678	.521	.835	-.027
	4	.667	.505	.837	-.025
	5	.621	.502	.846	-.017
	6	.550	.372	.859	-.004

This analysis of the questionnaire provides strong support for its conceptual structure. Hence, scales were created using the mean – not the total – of the corresponding items, because using the mean allows subscales based on different numbers of items to be easily compared (i.e., 8 for the Cognitive, Personal Identity, and Social Integration subscales, but only 6 for the Diversion subscale). When using means, all subscales ranged from 1 to 5. Table 32 provides the descriptive

statistics for these subscales. These are the important values for any subsequent use of the questionnaire (e.g., the analysis in *Chapter 6*).

Table 32 Descriptive Statistics for Each Subscale of the New SSE-MS.

	Cognitive	Personal Identity	Social Integration	Diversion
Mean	3.28	3.71	3.75	3.14
Median	3.25	3.81	3.88	3.00
Mode	3.63	5.00	5.00	5.00
Std. Dev	0.94	1.01	0.93	1.05
Skewness	-0.05	-0.24	-0.48	0.29
Kurtosis	-0.60	-1.01	-0.55	-0.72
Min	1	1	1	1
Max	5	5	5	5

The means are near the middle, but towards the “Disagree” end of the spectrum. This is not surprising, because, as mentioned previously strong endorsements are only selected by a few participants (see comments pertaining to Table 24). Diversion has the lowest mean, which indicates that more people use SS’s to talk about TV shows while watching TV to satisfy a need for diversion.

As would be expected given the factor analysis and the initial conceptualization, the dimensions are moderately correlated (See Table 33). Similar correlations are found in other U & G questionnaires that conceptually overlap with other similar concepts (The Social Integration and the Personal identity subscales always overlap). The Social Integration and Personal Identity subscales had the highest association with an $r^2 = .55$, implying 55% overlap. The Cognitive and Diversion subscales had the lowest association with an $r^2 = .23$, implying 23% overlap. The Cognitive subscale is the most distinct from the rest with a highest association of $r^2 = .35$, or 35% overlap. This is an interesting finding. It means that people (participants/TV Viewers) who endorse the Cognitive scale are not related to the people who endorse the other scales. The Cognitive dimension is basically independent of the other dimensions.

Table 33 Correlations for the Subscales of the SSE-MS.

	Cognitive	Personal Identity	Social Integration	Diversion
Cognitive	1.000	.588	.527	.476
Personal Identity		1.000	.744	.721
Social Integration			1.000	.641
Diversion				1.000

5.2.1 Conclusions for Reliability

By all measures, the reliability of the SSE-MS is adequate, and all items of each subscale contribute to that subscale. The subscales are correlated, which is observed in questionnaires developed under the U & G framework. The current sample was fairly homogeneous (primarily undergraduate students). As such, one could expect the current degree of reliability to drop when the SSE-MS is used with less homogeneous samples (e.g., more range on age or education). However, the reliability is high enough that there is room for the degree to drop without compromising the integrity of the SSE-MS (Lakes, 2013).

5.3 Stage 2.3: Results for the Validity Analysis

Validity is the degree to which a measure accurately represents the concepts that it claims to measure (DeVellis, 2016). The SSE-MS is intended to measure the motivations to talk about TV shows while watching that TV show. In the SSE-MS such motivations were conceptualized with the four subscales of Cognitive, Personal Identity, Social Integration, and Diversion needs. There are no other questionnaires to date that are the same as SSE-MS that can be used for validation. Therefore, validity was assessed by comparing the subscales of SSE-MS to subscales of other existing measures that share similar or related concepts (DeVellis, 2016, p. 83 - 90; Gregory, 2004; Hinkin et al., 1997). The SSE-MS should be related to the more general motivations to use a second screen while watching TV and to the motivations to talk about TV. This was assessed by correlating the scores between the subscales from the SSE-MS that are considered to measure the same construct with the subscales in the pre-existing questionnaires For details *Appendix B-Analysis of Questionnaire Use for the Validity Analysis.*)

Validity was assessed by comparing the SSE-MS to six pre-existing questionnaires: the Interpersonal Communications Motives (Rubin, Perse & Barbato 1988), the Motivations for Watching TV (Rubin, 1983), the Use of Social Media (Leung, 2001), the User Engagement Scale-Short Form (O'Brien et al., 2018), the Motivations for Using the Internet (Roy, 2008), and the Hedonic and Eudaimonic Scales (Oliver & Rany, 2011). Each of these questionnaires has been validated in the cited study, has acceptable reliability, and has been used in a number of studies. The first three of these questionnaires were selected because they assessed the U & G framework in domains related to the four subscales of the SSE-MS (e.g., TV viewing, internet use, SS Use). The last three were selected to provide a broader base of inference, although the

development of the MUIInternet (Roy, 2008) acknowledges some contribution from the U & G framework (for details about the pre-existing questionnaires see section 3.6.3 *Stage 2.3: Validity Assessment*).

If the SSE-MS is valid, then each of its subscales should be appropriately related to some of these subscales of these pre-existing questionnaires and should be unrelated to the rest. When considering what is appropriate for the comparison, the labels attached to each subscale can only be used as a guide. The actual content of the items was examined to have a proper assessment of the content of the subscale. The items of each subscale for each questionnaire are presented in *Appendix B- Analysis of Questionnaire Use for the Validity Analysis*. This appendix also includes a number of detailed analyses of each questionnaire.

To identify the subscales that can be used for comparison each questionnaire was examined: The Interpersonal Communications Motives (ICM: Rubin Perse, & Barbato, 1988) consists of 28 items divided unequally across six subscales: Pleasure, Affection, Inclusion, Escape, Relaxation, and Control. Reliabilities per subscale (Cronbach's alpha) ranged from $\alpha = .75$ to $.89$ in the original citation (see Rubin et al., 1988) and from $\alpha = .85$ to $.96$ in the current thesis. One would expect that the Cognitive subscale of the SSE-MS would not be related to any of these subscales because none of the subscales of the ICM capture information seeking (e.g., surveillance). One would expect that the Diversion subscale of the SSE-MS would be related to the Pleasure, Escape and Relaxation subscales of the ICM because the Diversion subscale which is also called escape, entertainment, tensions release (see *Chapter 2* of this thesis for the detailed review) is designed to capture these components. Based on the conceptual similarities, those subscales were selected for comparison.

The Use of Social Media (USM: Leung, 2001) questionnaire consists of 26 items distributed unequally across seven subscales: Affection, Entertainment, Relaxation, Fashion, Inclusion, Sociability, and Escape. Reliabilities (Cronbach's alpha) ranged from $.67$ to $.88$ in the original work (see Leung) and from $\alpha = .73$ to $.93$ in the current research. One would expect that the Cognitive subscale of the SSE-MS would not be related to any of these subscales, and that the Diversion subscale of the SSE-MS would be related to the Entertainment, Escape and Relaxation subscales of the USM. The Social Integration and Personal Identity subscales of the SSE-MS would be expected to have similar relationships with the Affection, Sociability, and Inclusion subscales of the USM. Based on the conceptual similarities, the USM's Affection,

Sociability, and Inclusion subscales were selected for comparison with the SSE-M's Social Integration and Personal Identity subscales.

The Motivations for Watching TV (Rubin, 1983) has 18 items in five subscales: Habit/Pass Time, Information, Entertainment, Companionship, and Escape. Reliabilities (Cronbach's alpha) ranged from $\alpha = .71$ to $.75$ in the original work (see Rubin) and from $\alpha = .85$ to $.93$ in the current research. One would expect that the Cognitive subscale of the SSE-MS would be related to the Information subscale of the MWTV. The Diversion subscale of the SSE-MS would be related to the Habit/Pass Time, Entertainment, and Escape subscales of the MWTV. The Social Integration and Personal Identity subscales of the SSE-MS would be expected to have similar relationships with the Companionship subscale of the MWTV. Based on the conceptual similarities, those subscales were selected for comparison.

The User Engagement Scale, Short Form (UES-SF: O'Brien, Cairns, & Hall, 2017) consists of 12 items divided equally across four subscales: Focused Attention, Personal Utility, Aesthetic Experience, and Reward Factor. It was not created within the U & G framework. The items use a statement format (i.e., not stem and completion), but the responses use a five-point scale. Reliabilities ranged from $\alpha = .81$ to $.86$ in the original work (see O'Brien et al.), and from $\alpha = .79$ to $.84$ in the current research. Because the UES-SF was not based in the U & G framework, predictions are more difficult. One would not expect the Cognitive subscale of the SSE-MS to be related to any of these subscales. The Diversion subscale of the SSE-MS might be related to the Reward Factor subscale of the UES-SF. The Social Integration and Personal Identity subscales of the SSE-MS would be expected to have similar relationships with the Perceived Utility subscale of the UES-SF. Based on the conceptual similarities, those subscales were selected for comparison.

The Motivations for Using the Internet (MUInternet: Roy, 2008) consists of 23 items divided unequally across six subscales: Self-Development, Wide Exposure, User Friendly, Relaxation, Career Opportunities, and Global Exchange. The items use a stem and completion format, and a five-point scale. Reliabilities ranged from $\alpha = .62$ to $.82$ in the original work (see Roy), and from $\alpha = .78$ to $.86$ in the current research. One would expect the Cognitive subscale of the SSE-MS to be related to Wide Exposure and Global Exchange subscales, though the individual items do not focus solely on information acquisition. The Diversion subscale of the SSE-MS might be related to the Relaxation subscale of the MUInternet. The Social Integration

and Personal Identity subscales of the SSE-MS would be expected to have similar relationships with the Self-Development subscale of the MUIInternet. Based on the conceptual similarities, those subscales were selected for comparison.

The Hedonic and Eudaimonic Scale (HandE: Oliver & Rany, 2011) consists of 12 items divided equally across two subscales: Hedonic (pleasure seeking) and Eudaimonic (meaning seeking). The items use a statement format, and the responses use a seven-point scale. Reliabilities were $\alpha = .86$ and $.81$ in the original work – see Oliver & Rany, (2011) – and Reliabilities were $\alpha = .81$ to $.91$ in the current research. It was expected that the Cognitive, Social Integration and Personal Identity subscales of the SSE-MS to be related to the Eudaimonic subscales. Conversely, the Diversion subscale of the SSE-MS (possibly the Social Integration and Personal Identity subscales) would be related to the Hedonic subscale of the UES-SF. Based on the conceptual similarities, those subscales were selected for comparison.

In the analysis, validity assessment is conducted by an examination of the correlations between the selected subscales of the pre-existing questionnaires and the subscales of the SSE-MS. Responses were scaled in the same way for all questionnaires, so it is only the magnitude that matters. The strength of the association is the important question, and this is addressed with the correlation coefficient r^2 . That is, r^2 is the it is the degree of overlap between the two subscales. For example, if the correlation between the Inclusion subscale of the ICM and the Social Integration subscale of the SSE-MS was $r^2 = .50$, then the two subscales would overlap 50%. That implies that they measure the same construct, at least to some degree. Conversely, if the correlation between the Inclusion subscale of the ICM and the Social Integration subscale of the SSE-MS was $r^2 = .00$, then the two subscales would have no overlap. They would be measuring completely different constructs. Finally, if the correlation between the Inclusion subscale of the ICM and the Social Integration subscale of the SSE-MS was $r^2 = 1.00$, then the two subscales would overlap 100%. That means that the two scales would measure exactly the same thing.

To use r^2 , one needs a criterion for importance of the amount of overlap. In this study,

$r^2 = .50$, (50%; $r = .71$) is considered a high degree of overlap,

$r^2 = .25$ (25%; $r = .50$) is a moderate overlap, and

$r^2 = .10$ (10%; $r = .32$) is some overlap (See Tabachnick & Fidell, 2013 for the criteria).

Previously it was noted that $r > .30$ ($r^2 > .09 \approx .10$) is the standard used for identifying important factor loadings (see *Chapter 4*). That is, $r > .30$ ($r^2 > .09 \approx .10$)¹⁷ is the criterion that is commonly used to state that an item overlaps sufficiently with a factor, to be included with that factor (Tabachnick & Fidell, 2013).

Hence, in this analysis, when comparing each questionnaire to the new SSE-MS, squared correlations exceeding 10% ($r^2 = .10$) are highlighted. It functions simply to help the reader identify the important elements of the analysis. These squared-correlations are presented in Table 34 as well as the mean and standard deviation for each subscale.

Table 34 Descriptive Statistics for Each Subscale of the New SSE-MS.

				Cognitive	Personal Identity	Social Integration	Diversion
		Mean		3.28	3.71	3.75	3.14
			<i>SD</i>	0.94	1.01	0.93	1.05
ICM	Pleasure	2.63	1.07	.033	.148	.173	.172
	Affection	2.60	1.04	.020	.089	.116	.132
	Inclusion	2.87	1.18	.018	.137	.148	.188
	Escape	2.64	1.15	.013	.061	.082	.123
	Relaxation	2.54	1.12	.017	.095	.070	.149
	Control	3.40	1.05	.039	.124	.115	.130
USM	Affection	2.58	1.08	.042	.089	.089	.092
	Entertain	1.77	0.74	.007	.021	.018	.058
	Relaxation	2.20	0.95	.013	.045	.028	.088
	Fashion	3.42	1.21	.022	.098	.085	.064
	Inclusion	2.87	1.01	.025	.123	.093	.106
	Sociability	3.41	1.04	.038	.177	.140	.098
	Escape	2.33	1.04	.009	.013	.013	.038
MWTV	Habit/Pass Time	2.04	0.87	.017	.010	.010	.042
	Information	2.78	1.06	.067	.184	.186	.159
	Entertainment	1.73	0.79	.008	.005	.015	.014
	Companionship	2.92	1.21	.043	.110	.076	.124
	Escape	2.30	1.06	.021	.026	.033	.037
UES	Focused Attention	1.92	0.82	.010	.022	.025	.040
	Personal Utility	3.92	0.92	.040	.146	.104	.075
	Aesthetic experience	2.53	0.86	.012	.051	.049	.055
	Reward Factor	2.36	0.83	.009	.038	.042	.042
MUInternet	Self-Development	2.39	0.83	.034	.103	.124	.133
	Wide Exposure	1.90	0.72	.017	.018	.035	.062

¹⁷ Note that $r = .30$ corresponds to $p < .0000000114$ for $N = 348$ so it is significant.

				Cognitive	Personal Identity	Social Integration	Diversion
		Mean		3.28	3.71	3.75	3.14
			<i>SD</i>	0.94	1.01	0.93	1.05
	User Friendly	1.95	0.74	.007	.003	.013	.039
	Relaxation	1.90	0.76	.023	.007	.018	.043
	Career Opportunity	1.98	0.82	.011	.013	.023	.050
	Global Exchange	2.73	1.07	.067	.170	.163	.165
HandE	Eudaimonic	2.00	0.81	.027	.021	.064	.048
	Hedonic	1.91	0.68	.000	.002	.003	.006

In general, the pattern of the factor analysis in Table 34 supports the expectations that the SSE-MS subscales are correlated with the selected related subscales of the pre-existing questionnaires. The Cognitive subscale was not related (using the $r^2 > .10$ criterion) to any of the scales, but it did have its highest correlations with the Information subscale of the MWTV and the Global Exchange of the MUInternet. The Social Integration and Personal Identity subscale were related to the Pleasure, Affection, Inclusion and Control subscales of the ICM, to the Inclusion and Sociability subscales of the USM, to the Information and Companionship subscales of the MWTV, to the Personal Utility subscales of the UES, to the Self-Development and Global Exchange subscales of the MUInternet. Generally, the relationships for the Social Integration subscale were similar to those of the Personal Identity, although on occasion one or the other was below the criterion. The Diversion subscale of the SSE-MS had the most relationships, being associated with all subscales of the ICM, the Inclusion of the USM, the Information and Companionship of the MWTV, and the Self-Development and Global Exchange of the MUInternet. The HandE questionnaire had no relationships with the SSE-MS.

The results supported the validity of the SSE-MS. The support is not perfect, but it demonstrates that the SSE-MS is valid. Understanding the discrepancies between the expected and actual associations is better done through an examination of the individual items per subscale. Often the label assigned to a particular subscale does not provide a completely accurate picture of conceptual underpinnings of the subscale. Hence a more detailed analysis and discussion is presented in *Appendix B-Analysis of Questionnaires for Validity Assessment*.

5.3.1 Conclusions for Validity

Generally, the analysis supported the conclusion that the SSE-MS is valid. This was more apparent with the questionnaires that were based on the same U & G framework (the ICM, USM and MWTV). In addition to the positive support, none of the results of the analysis were significant in a negative direction (i.e. no results suggested a lack of validity in the SSE-MS). Finally, it must be noted that questionnaire development is often a long process. One sample is rarely sufficient to properly establish the validity (or reliability) of a question. For example, the development of the UES has spanned about 10 years.

5.4 Summary

The main goal of this chapter was to assess the reliability and validity of the new SSE-MS. The reliability of the SSE-MS is adequate, and all items of each subscale contribute to that subscale. The validity was assessed by comparing the subscales of the SSE-MS, with valid and reliable pre-existing subscales. The analysis supported the conclusion that the SSE-MS is valid. The following *Chapter 6* will use the reliable and valid SSE-MS to assess the first and second research goals.

CHAPTER 6 Stage 3: The Assessment of the First & Second Research

Goals

The main goal of this chapter is the assessment of the first and second research goals. The first research goal focused on the motivations for the use of a second screen to talk about a TV show while watching that show. The second research goal focused on the relationship between motivations to talk about TV shows while watching that show (assessed by the SSE-MS) and a number of background variables to better understand who engages in such behavior, when they engage in such behavior, and how they engage in such behavior.

This chapter is organized in three main sections:

Stage 3.1: Research Methodology,

Stage 3.2: The First Research Goal, and

Stage 3.3: The Second Research Goal.

The one research methodology applies to both of the subsequent discussions. Results are presented as the two main sections, Stage 3.2: The First Research Goal, and Stage 3.3: The Second Research Goal. This chapter focuses on the main results, detailed analyses are presented in the appendices.

6.1 Stage 3.1: Research Methodology

The basic methodology for the First Research Goal was the same as in the previous stage (see *Chapter 5, Stage 2.1*): an online questionnaire. Two separate samples were obtained, one from Ryerson University in Toronto, Ontario, Canada (hereafter, Sample X), and the second from Dalhousie University in Halifax, Nova Scotia, Canada (hereafter, Sample Y). Sample X is the same sample from the questionnaire validation stage (*Chapter 5*). Sample Y was added to increase the overall sample size and responses range (increase the breadth of the background variables) since it was known that sample X only contains university students, because only Ryerson University students were able to participate in this survey for 1% credit towards their grades, and because sample Y contained a wider range of ages and background variables. As mentioned in *Chapter 5*, Sample X had limited range in age and associated variables (e.g., education, living arrangements).

As a reminder, in this chapter, the term *questionnaire* is used to refer to a single

questionnaire within the survey package (the SSE-MS questionnaire). The term *item* is used to refer to one single question from one single questionnaire. The term *subscale* is used to refer to a specific collection of items from one questionnaire. Finally, the term *survey package* is used to refer to the collection of all questionnaires (Demographics, SS Use, TV watching habits, SSE-MS, and pre-existing questionnaires).

In both samples, the general research methodology consisted of an online survey package, which participants completed anonymously. A survey package was prepared, and participants completed that package at a time and place of their convenience. The package contained a section devoted to background questions, and the new SSE-MS (*Chapter 4, Stage 1*). Sample X also had the previously discussed validation questionnaires (*Chapter 5, Stage 2.3*).

An item typically consisted of a stem (the same statement i.e., when I watch TV I use my second screen to...) and a completion (the items). For the SSE-MS, all items use a similar stem, different completions and the same five-point rating scale from SA (“Strongly Agree”) to SD (“Strongly Disagree”).

The Background items used a mix of styles as appropriate consisting of a stem and completion (see Table 22-24): the completion might be an ordinal rating scale (e.g., a “Likert type” scale from 1 to 5), a single selection from a set of mutually exclusive options (e.g., one choice from two different genders), or possibly multiple selections from a set of options (e.g., selections for current employment) depending on the items. For example, participants selected just one age group from seven options. Conversely, participants selected as many occupations as desired from the 12 options. The term “component” refers to a collection of items representing a construct. For example, there were 16 items that each addressed the genre of TV viewing. The collection of all 16 items were considered a single component called Genre of TV viewing.

6.1.1 Materials

The survey package included different questionnaires. In the questionnaire, different categories/subscales were represented by some variables, each variable was represented by one or more items.

The new SSE-MS questionnaire (30 items) which consists of four subscales: Cognitive needs, Personal Identity needs, Social Integration needs, and Diversion needs. A Cronbach’s alpha reliability calculation showed that all four subscales were reliable (> 0.8) (See *Chapter 3*

Stage 1.3 analysis for the criteria used).

The background items that were classified into three categories, each category contained several variables. The background questionnaire consists of three categories:

Demographics (see Table 24): had 7 variables with 23 items that included Gender, Age, Education, Occupation, Relative Income, Residence Location, and Living Arrangements,

TV Viewing Habits (see Table 25): had 9 variables and 48 items, that included the assessment of preferred TV Genre, TV access device, TV Intensity: Modes of Access, TV Intensity: Hours/day, TV Timing: Control, TV Timing: Binge Watching, TV Emotion: Number, TV Emotion: Schedule, TV: Social Context (see Table 7 and associated text), and

SS Use (see Table 26): had 6 variables and 37 items that included the Type of SS, the Process for accessing the SS, the social media outlets used on the SS, the Tasks completed on the SS, the Timing of the SS Use, and the Social Context of SS Use.

6.1.2 Recruitment

Ethics approval was obtained from the Social Sciences and Humanities Research Ethics Board at Ryerson University (Toronto, Ontario, Canada) and at Dalhousie University (Halifax, Nova Scotia, Canada). For Sample X, the survey package was prepared and formatted for presentation using the online Qualtrics Survey Software (2018 Qualtrics) and posted from March 14th to April 18th, 2018 to the university undergraduate students to answer anonymously. Students were offered 1% credit point in a course in exchange for their participation in the survey. The final sample consisted of 348 participants. For Sample Y, the survey packages were prepared and formatted for presentation using the online Opinio Survey Software and posted from Feb 20th to April 18th, 2018. It was available to the general population since those who receive the link can participate. Participants were offered a chance to enter a draw for one of two gift cards. The final sample consisted of 102 participants.

Combining Samples X and Y

Combining the two samples had several advantages. The two samples are derived from university students. It is acknowledged that there may be regional or cultural differences, but such differences can be tested using various statistics (e.g., reliabilities analysis, confirmatory factor analysis) once the SSE-MS is in general use. Both samples represent urban areas in Canada, but future research will be needed to see if they are reflective of other urban areas in the

western world or non-urban areas. Both samples were taken from university students, though the Sample Y had a broader recruitment.

Firstly, combining the samples increased the sample size with all the advantages of a larger sample. The increased sample size of the combined sample is also important because there are guidelines for the number of participants per variable in regression analysis (or analyses that are based on regression, such as factor analysis). The minimum number of independent variables (IVs) per sample is typically cited as 5 or 10 (see Howell, 2002, p. 548, see also Williams, Onsmann, & Brown, 2010, p. 4), or 15 (e.g., Shultz & Whitney, 2005, p. 303) or 20 (Cohen & Cohen 1983). A total sample size of 450 allows for a maximum of 450/5 or 90 independent variables. When considering the number of independent variables, it is the number of items that matters (Field, 2009). That is, in the current thesis, each item of the questionnaire becomes a *variable* in the regression analysis. As noted previously, the initial number of items was 108 which was reduced to 102 after dropping those that had no responses (see Analytical Approach later in the current chapter, see also Table 6, Table 7 and Table 8 of *Chapter 3*). However, additional variables were created from the items (e.g., new variables included the total number of occupations selected, the total number of genres selected, etc.). This increased the number to 121 variables. As such, even with a sample size of 450, it was important to be selective and to use only those items or categories of variables that mattered. A variable is formed from a number of items; that is how variables are conceived in this thesis. However, in the actual analysis, it is the items that matter – not their conceptual grouping as a single variable. As mentioned earlier, all the variables in the survey were thought to be important or relevant to the question of SSE while watching TV (though some were considered more central). Hence, the following analysis carefully worked its way from the individual items, to the variables (collection of items) so to find those that were more important for the SSE.

Secondly, the combined sample had the advantage of breadth. In any regression analysis, one important limitation on the interpretation of results is range restrictions (e.g., see Howell, 2002, p. 282-285). Range restrictions occur when the IVs fail to have sufficient range, which may distort the relationships between the IVs and DV. Range restrictions affect the ability to generalize. Sample X had restricted range on age, education, and living arrangements, and so the inclusion of Sample Y was necessary (see *Appendix C-Sample Analyses*).

The two samples were not dramatically different. Across the two samples, some variables

had divergent means (particularly demographics), but the distributions for the two samples overlapped completely for every variable except Age and Education. That is, Sample Y had the same range on each variable, but simply moved the mean of the variable to a different point, thereby emphasizing a different part of the population. For Age, Sample Y extended the range to higher ages. Hence, combining the samples improved the data for subsequent analyses. Details of the comparison between the two samples is provided in *Appendix C-Sample Analyses*.

Previous analyses (*Chapter 5*) demonstrated that the new SSE-MS was both reliable and valid. The validity analysis of the Sample X was not repeated within Sample Y because some of the questionnaires used in the validity analysis Chapter 5 were not included in the survey package for Sample Y to reduce the length of the survey. However, the reliability analysis of Sample X was repeated with Sample Y. This included a PCA factor analysis and the Cronbach's alpha reliability analysis. In addition, the reliabilities analysis was repeated with the combined sample. It should be noted that the Sample X was about 3 times the size of the Sample Y, so the combined sample was more reflective of Sample X than Y. The detailed reliability analyses for Sample Y and the combined sample are presented in *Appendix D- Final Sample Analysis*. That of Sample X was in Chapter 5.

6.1.3 Participants

This final sample consisted of 124 males and 326 females (N = 450; 72% female). The gender asymmetry was similar in both samples. In subsequent analyses, gender was treated as a binary categorical variable (coded 1 and 2).

Ages were coded within seven levels. The model response was 18–20, but the highest age group (60+) had 6 participants. The age groups were converted to an ordinal scale ranging from 1 (18-20) to 7 (60+) and the average age on that scale was 1.75 (*SD*: 1.12). Two participants did not provide an age. In subsequent analyses, this variable was treated as an ordinal ranking.

Living arrangements were collected within seven mutually exclusive categories (See Table A.2 living arrangements): most participants lived with parents/family (46.9%). The remaining categories were much smaller, with “in a relationship with children at home” being the smallest at (5.6%). In subsequent analysis, each living arrangement was treated as a categorical variable, where a single dummy code with 1 used to identify participants who had that arrangement.

Education was collected within eight mutually exclusive levels: no education ($n=0$), some HS (.22%), completed HS (40%), some university (37.1%), BSc or BA or College (13.8%), MSc or MA (6.2%), PhD or PsyD or professional (1.8%), and PhD & professional (.7%). There was one missing value. For subsequent analyses these were reduced to a five-level ordinal scale that combined the three lowest level and combined the two highest levels. On that scale, the mean was 2.94 (SD : 1.03).

Relative income was recorded as three mutually exclusive categories: above average income (7.3%), average income (39.6%) and below average income (52.7%). There was one missing value. In subsequent analyses, these were treated as a three-level ordinal scale from -1 to 1. On that scale, the mean was -0.46 (SD : 0.63).

Place of residence was collected as three mutually exclusive categories: urban (60.9%), suburban (36.7%) and rural (2.2%). There was one missing value. In subsequent analyses, these were treated as a three level ordinal scale ranging from 1 to 3, which could be conceptualized as degree of urbanization. On that scale, the mean was 2.59 (SD : 0.54).

Occupations were collected in 12 categories: professional (3.3%), technical / research (5.78%), education (9.33%), administration (9.56%), service (22.22%), entertainment (2.22%), skilled labor (.89%), unskilled labor (2%), student (69.78%), home maker (0), not employed (5.11%), and other (13.77%). The counts per occupation do not sum to 450 because participants could select as many occupations as desired; 333 selected a single occupation, and the number ranged from 1 to 4. Homemaker was included because during *Stage 2: Items Testing and Refinement*, several participants had indicated this under “other”. However, it was not chosen by any participant in Sample X. In subsequent analysis, each category was treated as a categorical variable. That is, each occupation was a single item, and that item became a variable in the regression analysis. For example, each occupation was treated as a binary IV (an IV with 2 levels). For each occupation, the IV was coded as 1 if a participant selected that occupation and as a 0 if the participant did not select that occupation. In that way, each variable served to separate one occupation from all the other occupation. There were 12 occupations, so there were 12 occupation IVs. However, the *collection* of all 12 IVs was the *one* variable that coded for all occupations (the total number of occupations a participant chose).

6.1.4 Procedure

The survey package was presented online using Qualtrics or Opinio through URLs (see *Appendix A-27*). The online questionnaire consisted of five sections: Informed Consent, Background Items, the SSE-MSs, and Debriefing. As discussed in *Chapter 5*, Sample X also included the 6 pre-existing validity questionnaires.

Participants read the informed consent and then indicated consent by clicking on a continue button. The Informed Consent included the purpose of the research, the approximate amount of time for completion, the rights of participants (e.g., the ability to discontinue participation at any time by closing the browser; the right to skip items) and the stated compensation. It also included contact information for the Social Sciences and Humanities Research Ethics Board and for the lead researcher. The Debriefing included a summary of the work, instructions on how to clear the browser in a number of different web browsers (Mozilla, Internet Explorer, and Safari), a thank you, and a repeat of the contact information. It also allowed participants to submit an email address if they should desire to see the final results once published. The survey package did not request any sensitive or identifying information so there were no privacy concerns: confidentiality was assured.

The order of presentation of questionnaires and items within questionnaires was not randomized (i.e., all participants saw all items in the same order).

Data Preparation, Cleaning, and Coding

A total of 584 participants completed the survey but only 450 were retained for the final analysis after data cleaning and coding. The data cleaning is described in detail in *Appendix: Sample Analyses*. In this section, a summary of the most important elements is presented.

In the first step of data preparation, the text comments were re-coded to fit the existing categories, or used to create new categories, or left as “other”. For example, the variable Demographics: Living Arrangements included a category for “Other”. A total of 142 participants selected other. All but five responses fit within the predefined categories (e.g., using “dorm” or “residence” coded as “Living with roommates (house or apartment)”, “home” coded as “Living with parents/family (at home)”). The five responses that could not be coded were “taken”, “Living alone, with family (parents & siblings)”, “room and board situation with a family” and blanks (2 participants). These were left as “Other”. Generally, the other category reduced to

responses that were blank or could not be coded at all: The predefined categories were fairly exhaustive. For example, the Occupation item include responses of “Intern” , “HR SQ Consultant”, “Information Management”, & “Policy Analyst” (all coded as “Tech / Research”), “Lifeguard” (coded as “Skilled Labor”), “retail assistant manager” (coded as “Admin”), “Master student” or “Student” (coded as “Student”), “Currently Unemployed” & “no job” (coded as “Not Employed”), “Customer Service Rep” (code as “Service”) and “student and TA” (coded as both “Student” and “Education”). Only four participants who selected “other” could not be recoded (they did not provide additional details). Hence, there were four participants coded as “Other”. Other variables that included the “Other” category were Genres ($n=14$ that did not fit predefined categories), Mode of Access ($n=0$), SS: Type ($n=0$), SS: Process (104 were blank, 8 did not fit predefined categories; all these participants had also selected at least one of the predefined categories). Note that the item *TV: Social Context* included a rating of the amount of time people watched TV with "others" (not family, not friends, not roommates, not colleagues – this was not selected to a high degree). This was not an open-ended response category (i.e., other was not defined by the participant). Similarly, the item SS: Social media outlets Used included a rating for the amount of time some other app was used on the SS. However, this was not an open-ended response category. *Appendix D-Sample Analyses* provides more details.

The second step considered the 21 Background items. Participants were tagged if they failed to select an appropriate response within the majority of the Background items (e.g., failed to provide an occupation, failed to select any genres of TV viewing, failed to provide the social context for TV viewing, etc.). Any participant who had been tagged in five or more items was deleted. Participants were dropped if their completion time was too fast with a criterion for "too fast" that was developed from the internal consistency of responses (see the discussion in *Appendix: Sample Analyses*). As mentioned previously, the goal was a questionnaire that could be completed within about 15 minutes on average.

Of the initial 584 questionnaires, 62 had no responses at all (participants clicked on the link provided for the survey but not start answering the survey), and a further 29 had incomplete data. Most of those with incomplete data had a pattern that implied that the participant had dropped out part way through the process A further 43 were dropped because their total completion time was too fast, leaving 450 participants in total. All the data of a participant was deleted if a participant failed to meet the various criterion for inclusion. All the subsequent

analyses were based on the same final set of 450 participants.

In summary, all checks reduced the sample size from 584 to 450. This is detailed in *Appendix D: Sample Analyses*.

6.1.5 Stage 3: Methods of Assessing First and Second Research Goals

The data was analyzed within two independent sections: Assessment of the First Research Goal, and the Assessment of the Second Research Goal. The first section is a short replication of the essential elements of the analysis in *Chapter 5*, but applied to the new sample of 450 participants. The full analysis of the SSE-MS with the sample of 450 is presented in *Appendix D- Final Sample Analysis*. The second section is the main contribution: it includes the analyses of the Background variables, so they are described in more detail when needed. The detailed descriptive statistics for the background variables are included in *Appendix D- Final Sample Analysis*, which also includes all the detailed comparisons between the two samples.

6.2 Stage 3.2: Results for the Assessment of the First Research Goal

The SSE-MS questionnaire was designed with four subscales: Cognitive (8 items), Social Integration (8 items), Personal Identity (8 items), and Diversion (6 items). Table 35 presents the items and their descriptive statistics.

Table 35 Descriptive Statistics for the SSE-MS

	Item Text	Mean	sd	
Cognitive	While watching TV, I use a second screen to ...			
	1	look up information about the show.	2.53	1.27
	2	look up information about the production (e.g., staff, set, effects).	3.06	1.33
	3	see if the show is honest in its presentation of the facts or opinions.	3.23	1.29
	4	help others understand the show.	3.36	1.27
	5	learn the opinions of others about the show.	3.08	1.28
	6	read reviews of the show.	2.87	1.35
	7	learn the opinions of production staff	3.64	1.26
	8	give my opinion of the show.	3.96	1.18
Personal Identity	While watching TV, I use a second screen to talk about the show ...			
	1	to discuss the motivations of the characters.	2.87	1.23
	2	to discuss the characters who are like me.	3.87	1.12
	3	to discuss the characters who are different from me.	3.88	1.19
	4	as a way to share problems.	3.50	1.28
	5	because I like to try to figure out weird characters.	3.53	1.27
	6	because others value my opinion.	4.02	1.14
	7	because there are people I want to meet.	3.89	1.19
	8	because the production staff may join the discussion.	3.79	1.27
Social Integration	While watching TV, I use a second screen to talk about the show ...			
	1	as a way to keep in touch with family and friends.	3.43	1.31
	2	because my family or friends expect me to.	3.57	1.30
	3	to find new friends with similar interests.	3.76	1.17
	4	to start discussions.	3.70	1.26
	5	as a way to learn about life and society.	3.42	1.35
	6	with strangers because we focus on the show	3.65	1.21
	7	so I can be a part of a group.	3.93	1.14
	8	because it is like having people in the room with me.	4.10	1.09
Diversion	While watching TV, I use a second screen to talk about the show ...			
	1	to add to the fun.	3.04	1.33
	2	more often when the show is exciting or interesting.	3.18	1.35
	3	to help me relax.	3.36	1.32
	4	out of habit.	2.84	1.40
	5	when I have to say something about the show.	3.08	1.35
	6	because I am alone.	3.37	1.38

Notes: All minimums were 1 and all maximums were 5

A Principal Components Factor analysis (PCA) was conducted to assess the structure of the SSE-MS within the sample of 450. The factorability of the data has been substantiated by running the Kaiser-Meyer-Olkin Measure of sampling Adequacy (KMO) and the Bartlett's Test of

Sphericity. The KMO was .947 and the Bartlett's test of Sphericity was 8918.8 ($p < .0005$; $df = 435$), implying that a factor solution existed (see 3.5.4 *Stage 1.4* for criteria). The four-factor solution was the best solution, with an eigenvalue greater than 1 (Tabachnick & Fidell, 2013), and it explained 61.8% of the variance¹⁸. Details are presented in *Appendix D- Final Sample Analysis*. The solution placed 7 of 8 Personal Identity items on Factor 1 (missing Personal Identity Item 8) along with 3 of the Diversion items (Diversion Items 1, 2, and 5). Factor 2 contained 7 of the 8 Cognitive items (missing Cognitive Item 8). Factor 3 was the Social Integration items (all 8) plus the one extraneous Cognitive item and one extraneous Personal Identity item. The final factor was the three remaining Diversion items (Diversion Item 3, 4 and 6). The inclusion of the three Diversion items with the Personal Identity items is not surprising because the content of the items is very similar to the Personal Identity items (i.e., they are about "sharing"; see Table 35). Note that these items also capture the "arousal" component of diversion. The three "abatement" items tended to group together as a separate factor. The inclusion of Personal Identity item 8 with the Social Integration items is not surprising because Personal Identity and Social Integration tend to be tightly linked theoretically, and have been shown to be tightly linked (highly correlated) in prior studies using the U & G framework (Mazurek & Tkaczyk, 2016). Cognitive Item 8 is about providing opinions, so it is logically related to Social Integration. The factors were correlated, ranging from $r = .20$ to $r = .54$. These were about the same as in the analysis of Sample X alone. Generally, the factor analysis supported the structure of the SSE-MS. The original four subscales were each subjected to a reliability analysis. The summary results are presented in Table 36, including Cronbach's alpha (α), adjusted alpha ($adj-\alpha$), mean, minimum, maximum, and variance of the correlation.

¹⁸ A PAF analysis was also conducted. The PAF analysis explained 56.1% of the variance with four factors. The same items loaded on the factors, though the loadings were different. The relative importance of each item to the factor was largely preserved. The two solutions were essentially the same.

Table 36 Reliability Statistics for the Subscales of the New Questionnaire

	Combined					
	Cronbach's		Correlations			
	α	adj- α	mean	min	max	sd
Cognitive	.863	.863	.440	.182	.620	.096
Personal Identity	.934	.934	.640	.468	.849	.089
Social Integration	.894	.895	.516	.321	.749	.116
Diversion	.869	.869	.526	.346	.695	.110

All the subscales had acceptable values for Cronbach's alpha (see 3.6.2 *Stage 2.2* for criteria). The correlations were also acceptable (see Chapter 3, section 3.5.3 *Stage 1.3* for criteria). The similar analysis in *Chapter 5* provides more discussion of the interpretations of these values.

Additional analyses (*Appendix D- Final Sample Analysis*)¹⁹ of the individual items considered the α if the item is deleted, the correlation of the item with the total score ($r_{i,total}$), and the multiple R .

All statistics indicated that each item contributed to the quality of its associated subscale. All these analyses demonstrated that the conceptual structure of the SSE-MS was stable, that the SSE-MS is reliable, and that it was reasonable to combine the two samples.

Mean scores were presented for subscales rather than the total score to allow for comparisons between scales that have different numbers of items. The summary statistics are presented in Table 37, as well as the correlations between the subscales.

Table 37 Descriptive Statistics for Each Subscale of the SSE-MS

		Cognitive	Personal Identity	Social Integration	Diversion
Descriptive Statistics	Mean	3.22	3.67	3.70	3.15
	Median	3.25	3.75	3.75	3.00
	Mode	3.00	5.00	5.00	5.00
	Std. Dev (sd)	0.92	0.92	1.02	1.05
	Skewness	0.05	-0.45	-0.23	0.31
	Kurtosis	-0.53	-0.48	-0.97	-0.70
Correlations	Cognitive	1.000	.588	.527	.476
	PIId		1.000	.744	.721
	Social			1.000	.641
	Diversion				1.000

¹⁹ That appendix also presents a parallel analysis within Sample Y alone.

For the descriptive statistics, the range of responses was a minimum of 1 and a maximum 5, meaning that the full range of each subscale was used. This shows that for each need (Cognitive, Personal Identity, Social Integration, and Diversion) there were some who used the SS to meet that need (scores less than 5) and some who did not (scores equal to 5). Figure 3 presents the histogram for the Cognitive subscale.

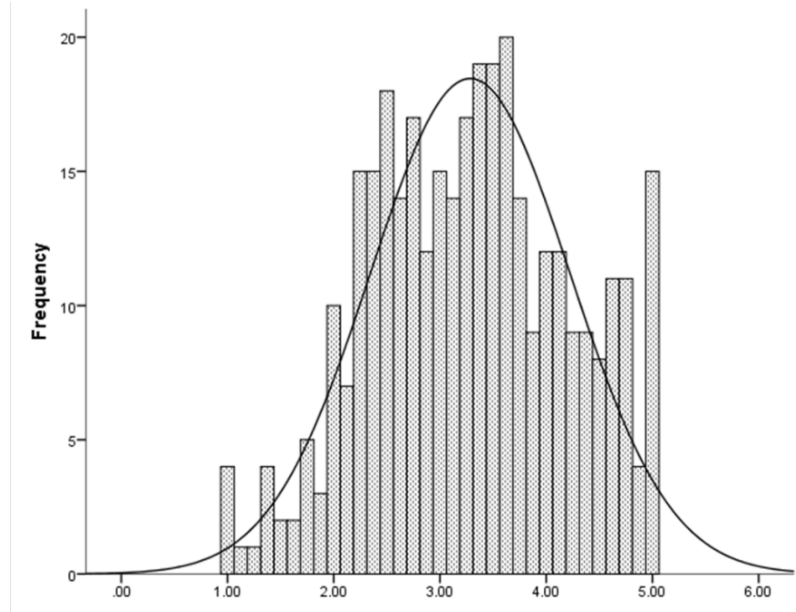


Figure 3: The Distribution of Responses for the Cognitive Subscale

The large proportion of the sample near the “Disagree” end of the spectrum (5 on the Likert scale) is those participants who tend not to use the SS to fulfill Cognitive needs. The SSE-MS captures four relatively distinct needs so such a result is to be expected. To illustrate, assume each participant were to use the SS to fulfill just one need. Further, assume that the participants were equally divided, so that 25% of participants used the SS to fulfill each need. In this case, each scale would have a clustering of responses near the “Disagree” end of the spectrum, with a scattering of responses to the “Agree” end. The correlations between the subscales imply that participants tend to have more than one need fulfilled when they use a SS. For example, they tend to select Personal Identity and Social Integration together as needs of SS Use. Nonetheless, it explains the general shape of the distribution.

Figure 4 presents the histogram for the Social Integration subscale. The distribution is similar to that of the Personal Identity needs, which is not surprising given the correlation

between the two subscales. As with the Personal Identity needs, it implies that there is a distinct group of participants who do not use the SS to fulfill this Personal Identity need.

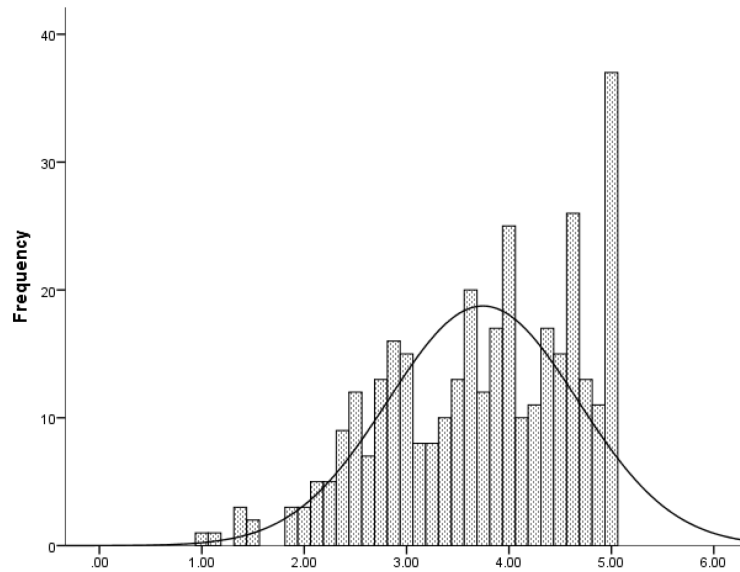


Figure 4: The Distribution of Responses for the Social Integration Subscale

Figure 5 provides the histogram for the Personal Identity subscale. The distribution is similar to the previous Cognitive needs, but there is a more pronounced peak at the “Disagree” end of the spectrum. This implies that there is a much stronger delineation between those who use a SS for Personal Identity needs and those who do not use a SS while watching TV to fulfill Personal Identity needs. It implies that there might be two subpopulations (Bi-modal Distribution).

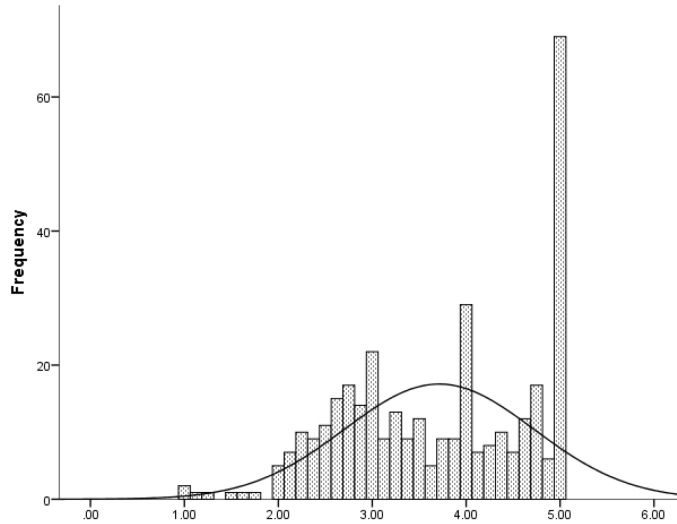


Figure 5: The Distribution of Responses for the Personal Identity Subscale
 Figure 6 presents the histogram for the Diversion subscale. It has a shape similar to that of the previous Personal Identity and Social Integration needs. It has a similar interpretation. There is a group of participants who do not use the SS to fulfill this need.

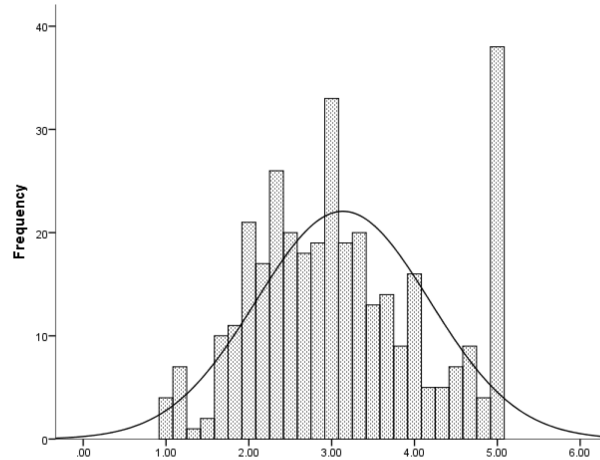


Figure 6: The Distribution of Responses for the Diversion Subscale

Consideration of the figures imply that the SS is used to fulfill different needs for different people. That is, for every subscale, there is a group of participants who do not use the SS to meet that need. Also, for those who do use the SS for that need, there is a unimodal, approximately normal distribution for the Cognitive and Diversion needs, and perhaps a uniform distribution for the Personal Identity and Social Integration needs.

Consideration of the individual items can help to further clarify the motivations for the use of SS. Table 38 repeats Table 35, and adds the actual distribution for each item. The data was collected using a five-point response scale, but for this presentation, it was reduced to a three-point scale that simply delineates “agree” (A), “neutral” (N), and “disagree” (D)²⁰. This was done purely to simplify the presentation. The data is presented as the percentage of the sample. Combining levels tend to make the distributions seem bimodal, but this is an artifact of the presentation (no analyses were conducted using this scaling).

Table 38 Descriptive Statistics for the Items of the New Questionnaire with Percentage Endorsement as Agree, Neutral or Disagree

	Item Text	Mean	sd	A	N	D	
Cognitive	I use a second screen to ...						
	1	look up information about the show.	2.53	1.27	62	12	26
	2	look up information about the production.	3.06	1.33	40	18	41
	3	see if the show is honest in its presentation.	3.23	1.29	31	20	49
	4	help others understand the show.	3.36	1.27	31	20	48
	5	learn the opinions of others about the show.	3.08	1.28	38	22	40
	6	read reviews of the show.	2.87	1.35	49	15	36
	7	learn the opinions of production staff.	3.64	1.26	23	16	61
	8	give my opinion of the show.	3.96	1.18	15	14	71
Personal Identity	I use a second screen to talk about the show ...						
	1	to discuss the motivations of the characters.	2.87	1.23	43	21	37
	2	to discuss the characters who are like me.	3.87	1.12	11	21	68
	3	to discuss the characters who are different from me.	3.88	1.19	18	16	66
	4	as a way to share problems.	3.50	1.28	28	19	53
	5	because I like to try to figure out weird characters.	3.53	1.27	24	18	57
	6	because others value my opinion.	4.02	1.14	11	16	73
	7	because there are people I want to meet.	3.89	1.19	16	17	68
	8	because the production staff may join	3.79	1.27	20	15	66
Social Integration	I use a second screen to talk about the show...						
	1	as a way to keep in touch with family and friends.	3.43	1.31	32	20	49
	2	because my family or friends expect me to.	3.57	1.30	29	18	53
	3	to find new friends with similar interests.	3.76	1.17	18	24	59
	4	to start discussions.	3.70	1.26	21	21	58
	5	as a way to learn about life and society.	3.42	1.35	31	20	49
	6	with strangers because we focus on the show	3.65	1.21	18	28	53
	7	so I can be a part of a group.	3.93	1.14	11	22	68

²⁰ The (“agree”) combined the previous SD (“Strongly Agree”) and A (“Agree”) categories. The D (“disagree”) combined the previous SD (“Strongly Agree”) and A (“Agree”) categories.

	Item Text		Mean	sd	A	N	D
	8	because it is like having people in the room	4.10	1.09	9	18	73
Diversion	I use a second screen to talk about the show ...						
	1	to add to the fun.	3.04	1.33	43	21	36
	2	more often when the show is exciting.	3.18	1.35	42	17	41
	3	to help me relax.	3.36	1.32	30	24	46
	4	out of habit.	2.84	1.40	48	20	32
	5	when I have to say something about the show.	3.08	1.35	46	17	36
	6	because I am alone.	3.37	1.38	33	17	50

Notes: Some of the text about items has been abbreviated for this format.

For the Cognitive subscale, 62% of the viewers used the SS to look up information about the show and 49% used the ss to read reviews. These were the only items that had greater agreement than disagreement (i.e., higher percent in column A than D). Thus, these two items were the main drivers of the Cognitive subscale. Participants used a SS to look-up other information less often, but the numbers who engaged in such behavior were about the same as those who did not (around 40%). Only 15% of viewers gave their opinion of the show, and only 23% were interested in the opinions of production staff (e.g., actors, directors, producers). The correlation matrix for these items suggested that there were no pairs of activities, implying that there were no activities that were always done together.

Within the Social Integration subscale, the overall pattern was different. All items were towards the disagree part of the scale. This is consistent with Figure 3. Hence, for each item, only a subset of the participants engaged in that activity. The most highly endorsed was the “family and friends” (32%) and “learning about life and society” (31%). It is interesting to see that very few (9%) endorsed that the use of a SS as “like having another person in the room”, or “to be part of a group” (11%). The use of SS “with strangers” was not strongly endorsed either (18%). The correlation matrix implied that the use of the SS “with strangers” was endorsed in combination with “to be part of a group”, and that “family and friends expect me to” was endorsed more often in combination with “to find friends”. The last one is interesting because it implies that the SS may be used to meet social needs that are not being met by the family.

Within the Personal Identity subscale, the overall pattern was similar to that of Social Integration. This was expected given the correlation between the subscales. More viewers (43%) used a SS to talk about the “motivations of the characters”. The second most common reason was “share a problem”, with 28% of second screen users to fulfill this need. Few viewers thought

that others valued their opinions (just 11%). Few viewers discussed “the characters that they are similar to” (11%), more discussed “the characters that they are dissimilar from” (18%), and even more simply discussed “the weird characters” (24%). Only 20% of viewers supported the use of a SS to talk about the production staff.

The Diversion subscale contains a mix of emotional arousal and emotional abatement items. There was a mix of responses. There was higher endorsement for the items “add fun” (43%), “when exciting” (42%), habit (48%), and “when something to say” (46%). These highest rates of endorsement were given to a mix of arousal and abatement items. The remaining items were still endorsed to >30%. It is also interesting that “because I am alone” did not have a higher level of endorsement (33%). It is possible that being alone while watching TV is not aversive. All the items were positively correlated, as is required of reliability. Hence, the same viewers who endorse abatement also endorse arousal. This indicates that there must be other situational factors that determine which motivation is the driver at any one time. The lowest correlations were between “exciting” and “alone” and between “something to say” and “alone”. In fact, “alone” was most strongly associated with “relax”. It is implied that the social aspect of the SS helps a person to relax.

Subgroups of Participants

To get a better sense of the patterns in the data, a hierarchical cluster analysis was used to identify different subgroups within the data (Field, 2009). This analysis gathers all participants who have a similar profile (scores on each of the four subscales) into a distinct group (see Table 39). This used the cluster algorithm of SPSS, with a squared Euclidean distance (to measure the “distance” between participants) and the between-groups average algorithm for clustering (Field, 2009). These are the default settings.

Table 39 The Profiles of the Ten Groups Identified in a Cluster Analysis

Group	Cognitive	Social Integration	Personal Identity	Diversion	N	%
All	3.22	3.70	3.67	3.15	450	100.0
1	4.55	4.56	4.91	4.88	43	9.6
2	4.15	4.61	4.77	3.43	56	12.4
3	4.75	3.95	3.57	3.74	7	1.6
4	2.46	2.82	2.67	2.39	129	28.7
5	2.88	1.84	1.50	1.04	4	0.9
6	1.38	1.17	1.33	1.47	6	1.3
7	3.06	4.48	4.66	4.69	43	9.6
9	3.22	3.79	3.67	2.83	147	32.7
10	4.10	2.35	3.43	2.50	5	1.1

Group 1 had low endorsements for all subscales. They endorsed the SSE-MS to a small degree on all subscales (between 4.5 & 5.0 on all subscales). That is, they rarely used the SS to talk about TV while watching TV. Group 6 was the opposite. They used the SS for all subscales (between 1.0 & 1.5 on all subscales), but this was a small group – only 1.3% of the sample. Group 4 (the second largest cluster) used the SS for to fulfill all needs, but in moderation, resulting in a score near the middle on every scale. Group 9 was the largest, and is somewhat different from the previous Groups 1, 6, and 4 in that it used the SS preferentially for Diversion, and Cognitive subscales (about 3.0 on both). That is, the SS was used for some but not all needs. The other two subscales were lower (between 3.5 & 4.0). Group 2 only used the SS “a little bit” for Diversion subscales (about 3.5) and not at all for the other subscales (about 4.5). Similarly, Group 3 used the SS “a little bit” for Personal Identity, Social Integration and Diversions (about between 3.5 and 4.) but not for Cognitive subscales (about 5.0). Group 5 was similar to Group 3, but had much higher use on all subscales than Group 3 (between 1 and 2 for Personal Identity, Social Integration and Diversion, and about 3.0 for Cognitive). Group 7 was something of the opposite of Groups 3 and 5 – it used the SS primarily for Cognitive needs (about 3.0) and not for the other subscales (between 4.5 & 5.0). Finally, Group 10 used the SS for Social Integration and Diversion subscales (about 2.5), but less so for Personal Integration subscales (about 3.5) and very little for Cognitive subscales (about 4.0).

This analysis was not intended to be the definitive analysis of TV viewer profiles. However, it does help to explain the means and correlations of Table 37, and to explain the

various ways in which the SS is used to meet needs. It shows that viewers may use the SS to meet just one need (primarily) or to meet all needs, or any combination in between.

6.3 Stage 3.3: Results for the Assessment of the Second Research Goal

There were three series of analyses that examined the relationships between the background independent variables (Demographics, TV Viewing Habits, SS Use) and the motivations of talking about TV while watching TV. These analyses built from the simple to the more complex.

In all of these analyses, the score on each subscale of the SSE-MS was considered as the dependent variable (DV) in a multiple regression analysis (Field, 2009; Tabachnick & Fidell, 2013). The various background variables were the independent variables (these are often called predictor variables). Analyses used the actual items as the IVs, but they are grouped and discussed in terms of variables. Occasionally, a sum or count was created from other items (e.g., the count of the number of genres cited). These computed measures are still called items because they were used like items in the analyses and they directly depended on the items in a simple way (but they were not part of the survey).

The items, when used as IVs, were coded; details about the variables (e.g., distributions of responses) are provided in *Appendix C-Sample Analyses*. The variables and items are summarized in Table 47.

Analytical Approach

There were three stages to the analysis:

Stage 3.3.1: Analysis of the Simple Correlations

Stage 3.3.2: The Full Analysis

Stage 3.3.2: Final Analysis to Reduce the Number of Variables

This approach made it possible to build from basic understanding of the simple relationships per item or variable to the more complex analyses in a comprehensible fashion.

In *Stage 3.3.1: Analysis of the Simple Correlations*, the relationships for each dependent variable (DVs: scores on the Cognitive, Personal Identity, Social Integration, and Diversion

subscales) were first explored in 24 separate, simple analyses²¹: There were four analyses for the Demographics variables – one per DV. There were 16 analyses for different groups of TV Viewing Habits variables – four for each DV. There were 12 analyses for different groups of SS Use variables – three for each DV. The point was to explore the individual relationships for each item, and then for each variable, and finally for groups of associated variables. These analyses also assessed the potential of each group of variables to explain the DVs (percentage of variance explained for the Cognitive, Personal Identity, Social Integration and Diversion subscales).

The correlations between all IVs (i.e., all items) were checked. The items within each group (Demographics, TV Viewing Habits, or SS Use) were generally correlated (i.e., not independent). However, the items were not correlated between groups (generally independent). The average correlation between the Demographic and the TV Viewing Habits items was only $r = .00$. The average correlation between the Demographic and the SS Use items was only $r = .01$. The average correlation between the TV Viewing Habits and the SS Use items was only $r = .07$. This implies that the groups of Background variables (Demographics, TV Viewing Habits, and SS Use) were essentially independent of each other²². That means that when interpreting the Demographic variables or items, there will be no associations among TV Viewing Habits or the SS Use variables or items, and vice versa that might affect the regression analysis.

The second set of analyses (*Stage 3.3.2, section 6.5 : The Full Analysis*) gathered all the variables (and items) into one analysis. There were four analyses at this stage: the scores on the Cognitive subscale as the DV with all the Background items as IVs. This was then repeated for the Personal Identity, Social Integration and Diversion subscales. The point of this analysis was to see what proportion of each DV could be explained by Background items as IVs (i.e., the R^2). This is important because it determines the maximum R^2 before the final analysis (Stage 3.3.3 below).

The third and final set of analyses (*Stage 3.3.3, section 6.6: Final Analysis to Reduce the Number of Variables*) tried to reduce the number of IVs. This set of analyses determined whether or not each variable mattered by removing that variable from the analysis. The virtue of this analysis was the focus on the variable, not the individual items. Items were used in the analyses,

²¹ As noted, there were initially 106 items in 22 variables. That is too many to digest if presented. Some items were added (e.g., sums or counts of other items) and some were deleted. This approach carefully goes through that process.

²² This is discussed in greater deal in Stage 3.3.2: The Full Analysis

but items were always treated as a set within a variable. In the analysis, each variable was removed (i.e., all items were removed as a unit), and the change in R^2 was assessed. If the R^2 dropped by a significant amount (using $p < 0.01$ as the criterion), then the variable was considered important (Field, 2009).

6.4 Stage 3.3.1: Analysis of the Simple Correlations

The first analyses were focused on the simple correlations between each item and each of the four subscales of the SSE-MS. The analyses were conducted within each set of background variables, and were followed by a simple multiple regression to see if the collection of all IVs had any predictability for each DV.

6.4.1 Demographics

Table 40 presents the Demographic items. It includes the means for each item, the means for the four subscales of the SSE-MS, and the correlations between that item and each of the subscales. The (-) under each subscale mean that higher numbers indicated less intensity for that subscale. Lower values imply more use and more gratification of that need.

The correlations capture the relationships between each Demographic variable and subscale. Age groups and Education groups had higher codes for higher ages or education levels. Urbanization was coded so that higher values referred to a more urban area, and Relative Income was coded so that higher values indicated more income relative to the mean. Living Arrangements and Occupations used dummy codes coded so that a 1 indicated the presence of that attribute. For example, for *Living 1: Married with children*, a code of 1 was the group of participants in that living situation. Because viewers could select as many Occupations as desired, the variable *Number of Occupations* was created. The new variable represents the number of occupations selected: for example, a user selecting X, Y, and Z is coded as 3. Only one living arrangement could be selected, so there is no corresponding count for Living Arrangements. There was a total of 25 items in this set, but “Home Maker” was not selected by any participant, and *Number of Occupations* was generated.

Table 40 Descriptive Statistics for Demographics and their Correlations with the Four Subscales of the SSE-MS.

				Cog (-)	PId (-)	Soc (-)	Div (-)
		Mean		3.22	3.67	3.70	3.15
			sd	0.92	0.92	1.02	1.05
Gender	Gender (1=female, 2=male)	1.27	0.45	-.044	-.016	-.054	-.004
Age	Age (ordinal)	1.75	1.12	-.136	-.040	-.145	.028
Living Arrangements	Living 1: Married with Children	0.06	0.23	-.097	-.081	-.135	-.049
	Living 2: Married, no Children	0.08	0.28	-.033	.095	.044	.104
	Living 3: Alone	0.13	0.34	-.057	-.083	-.051	-.092
	Living 4: Friends	0.11	0.31	.065	.087	.033	.089
	Living 5: Roommates	0.13	0.34	-.123	-.173	-.134	-.116
	Living 6: Parents/Family	0.47	0.50	.164	.121	.172	.061
	Living 7: Other	0.02	0.12	-.064	-.051	-.101	-.029
Education	Education (ordinal)	2.94	1.03	-.152	- .053	-.127	.006
Relative Income	Relative Income (ordinal)	-0.46	0.63	-.083	-.048	-.111	-.079
Urbanization	Urbanization (ordinal)	2.59	0.54	.019	.072	.065	.030
Occupation	Professional (binary)	0.03	0.18	-.120	.004	-.073	.031
	Tech / Research (binary)	0.06	0.23	-.015	-.042	-.026	.041
	Education (binary)	0.09	0.29	-.022	-.083	-.112	-.046
	Administration (binary)	0.10	0.29	-.085	-.040	-.071	-.052
	Service (binary)	0.22	0.42	.044	-.004	-.002	-.033
	Entertainment (binary)	0.02	0.15	.036	.034	.050	.053
	Skilled (binary)	0.01	0.09	-.013	-.027	-.017	.009
	Unskilled (binary)	0.02	0.14	-.031	-.031	.006	-.047
	Student (binary)	0.70	0.46	.061	-.008	.087	-.014
	Home Maker (binary)	0.00	0.00				
	Not Employed (binary)	0.05	0.22	.112	.062	.110	.067
	Other (binary)	0.01	0.09	-.032	.005	.031	.021
	Number of Occupations (ratio)	1.30	0.59	.026	-.065	.003	-.026

Notes: For $r > .093$, $p < .05$; for $r > .122$, $p < .01$. Living 1 was “In a relationship (married, or co-habiting) with children at home”. Living 2 was “In a relationship with no children at home”. Living 3 was “Living alone (house or apartment)”. Living 4 was “Living with friends (house or apartment)”. Living 5 was “Living with roommates (house or apartment)”. Living 6 was “Living with parents/family (at home)”. Living 7 was “other” (only selected by 7 participants)

Age and level of education were found to be positively correlated with the Cognitive and Social Integration subscales, *Living 1* (married with children) led to higher endorsement of the Social Integration subscale, while *Living 5* (with roommates) led to higher endorsement of

Cognitive, Personal Identity and Social Integration subscales, and *Living 6* (with Parents/Family) led to lower endorsements of the Cognitive and Social Integration subscales. That is, those living with parents/family are less inclined to meet Cognitive and Social Integration needs through second screening. This might indicate parental monitoring or access to equipment. Interestingly, *Gender, Income, Urbanization, and Occupations* were not correlated with any subscale, though some were marginal (e.g., *Professional* with Cognitive was significant at $p < .05$, but not $p < .01$).

As a simple start, the combination of all of these Demographic variables (Home Maker was not included because no participants selected that option) was used to predict each of the SSE-MS subscales. The item *Number of Occupations* was not included (because it was dependent with the set of occupation items). For the Cognitive subscale, $R^2 = .087$ ($R = .295$) which was significant with, $F(23,426) = 1.68$ ($p < .024$). So, the set as a whole has some potential to explain the Cognitive motivation. For the Personal Identity subscale, the $R^2 = .105$ ($R = .323$), which was significant with $F(23,426) = 2.07$ ($p < .002$). So, the set as a whole has some potential to explain the Personal Identity motivation. For the Social Integration subscale, the $R^2 = .117$ ($R = .342$) which was significant with, $F(23,426) = 2.35$ ($p < .0005$). So, the set as a whole has some potential to explain the Social Integration motivation. Finally, for the Diversion subscale, the $R^2 = .081$ ($R = .284$) which was significant with, $F(23,426) = 1.57$ ($p < .047$). So, the set as a whole has some potential to explain the Diversion dimension.

The Demographics explained 8 - 12% of the subscales, and the R^2 were all about the same, though the variables involved were different. However, at this point, it is not reasonable or prudent to eliminate individual variables. Rather this analysis was used to identify variables that might be more or less useful in subsequent analyses.

6.4.2 TV Viewing Habits

The TV Viewing Habits included 9 variables, with a total of 48 different items in this collection (16, 14, 9 and 9 respectively). For interpretability, the TV Viewing Habits were analyzed as four sets of variables: Genres (1 variable with 16 items), Mode of Access (2 variables with 12 items), Intensity of Access (4 variables with 11 items), and Social Situation (1 variable with 8 items).

TV Genres

Table 41 presents the Genres of viewing. Genre was a variable with 16 items (Table 25). This item defines the content preferences of TV viewers in a general sense (e.g., dramas vs. documentaries vs. sci-fi). Each option was dummy coded. Participants could select as many genres as they felt applied to their viewing. Because participants could select as many Genres as desired, the item *Number of Genres* was created as the count of the number selected.

Because each dummy code is binary (0 or 1), the mean is actually the percentage of participants who endorsed that option. For example, most participants selected Comedy (74%), or Drama (59%), or Action (56%). However, few participants selected Spiritual (6%) or Independent (13%). A few selected Sport and Fitness (3%), which was not focused on watching sports (like football), but rather on shows that were about sports and fitness (e.g., documentaries about sports or fitness programs). As mentioned, sports and news were not included in this survey because they have different properties (see Cunningham & Eastin, 2017; Kim, 2013).

Table 41 Descriptive Statistics for Genre and their Correlations with the Four Subscales of the SSE-MS.

				Cog (-)	PId (-)	Soc (-)	Div (-)
		Mean		3.22	3.67	3.70	3.15
			sd	0.92	0.92	1.02	1.05
Genres	Action (binary)	0.56	0.50	-.025	-.004	.038	.020
	Anime (binary)	0.16	0.36	.001	-.023	-.008	.014
	Children/Family (binary)	0.27	0.44	-.085	-.134	-.105	-.140
	Classics (binary)	0.28	0.45	-.119	-.028	-.031	-.011
	Comedy (binary)	0.74	0.44	-.045	-.004	.005	-.027
	Documentary (binary)	0.42	0.49	-.124	-.009	-.015	.027
	Drama (binary)	0.59	0.49	-.038	.021	.015	.048
	Spiritual (binary)	0.06	0.23	-.103	.001	-.056	-.004
	Horror (binary)	0.25	0.43	-.076	-.058	-.018	-.052
	Independent (binary)	0.13	0.34	-.116	-.045	-.066	-.006
	Music (binary)	0.23	0.42	-.108	-.149	-.141	-.085
	SciFi & Fantasy (binary)	0.32	0.47	-.110	-.036	-.019	-.020
	Thrillers (binary)	0.37	0.48	-.042	.032	.066	.016
	Reality TV (binary)	0.39	0.49	.028	-.047	.060	-.012
	Sports and Fitness (binary)	0.03	0.17	-.039	.030	-.031	.060
Other (binary)	0.03	0.17	-.044	-.044	-.080	-.035	
Number of Genres (ratio)	4.80	2.40	-.170	-.084	-.041	-.036	

Notes: For $r > .093$, $p < .05$; for $r > .122$, $p < .01$

As with the previous Demographics, all the correlations were small. Those who watched Documentaries fulfilled more Cognitive needs. Those who watched Children/Family or Music Videos fulfilled more Personal Identity needs. Those who watched Music Videos fulfilled more Social Integration needs. Finally, those who watched Children/Family viewing used a SS to fulfill more Diversion needs. In addition, there were five “marginal” correlations (correlations between .09 and .12) within the Cognitive subscale (Classics, Music, Spiritual, Independent, and Sci Fi). The last two cited would encourage people to seek additional information: those genres are designed or intended to stretch the imagination. Similarly, there was one marginal correlation within the Social Integration subscale (Children/Family). This might be a manifestation of the desire to extend the living room to include more people.

The combination of all of these variables was used to predict each of the SSE-MS subscales. The Number of Genres was not included in this analysis because it was dependent on the rest. For the Cognitive subscale, the $R^2 = .062$ ($R = .250$) which was significant with, $F(16,433) = 1.81$ ($p < .020$). Hence the set as a whole has some potential to explain the Cognitive dimension. For the Personal Identity subscale, the $R^2 = .057$ ($R = .238$) which was not significant with $F(16,433) = 1.63$ ($p < .058$ – though marginal). This implies that the Genre set as a whole was not predictive. However, because of the way multiple regression (MR) works, a smaller set of variables might be significant, even though that smaller set would still have a lower R^2 (see Tabachnick & Fidell (2013).

For the Social Integration subscale, the $R^2 = .059$ ($R = .242$) which was significant with $F(16,433) = 1.68$ ($p < .047$). As with Cognitive, the set as a whole is predictive. Finally, for the Diversion subscale, the $R^2 = .050$ ($R = .223$) which was not significant with $F(16,433) = 1.42$ ($p < .128$). Again, even though the set as a whole was not significant, there might be a smaller subset that would be significant.

The R^2 between Genres and the Cognitive, Personal Identity, Social Integration and Diversion subscales were slightly smaller than their corresponding values for the Demographic variables (i.e., the $R^2 = .087$, .105, .117 and .081 associated with Table 40). This implies that TV Genres had less effect on the range of gratifications sought (subscale). Also note that within the Genres, the R^2 for the Cognitive and Social Integration subscales were slightly larger and significant even though each of these subscales contained only one item with a significant correlation (see Table 41) while the Personal identity subscale contained two items with a significant correlation (Table

41). This happened because these two subscales contained more individual items that had larger simple correlations even if the correlations for those items were not significant (i.e., the Cognitive subscale contained 5 marginal correlations whereas the Personal Identity contained no marginal correlations).

Mode of Access & Intensity of TV Viewing

The next set of TV Viewing Habits variables focused on the Modes of Access and the Intensity of TV Viewing (see Table 42 and Table 25). TV Viewing Habits related to how participants accessed the TV show, including the physical device and broadcast channel they use (see Table 42 and Table 25).

The first variable, mode of access, consisted of six items addressing the physical devices used to engage in SSE; after data cleaning, no participant selected other. All items were binary coded as 0 and 1. The mean is therefore the percentage of the sample that used this mode. In this group, the item *Streaming via Broadcasters* refers to viewing TV content over the internet from TV distributors like HBO or Amazon Prime that provide serial content on a scheduled (e.g., weekly) basis. Conversely, the option *Streaming via Internet* refers to streaming media platforms such as Netflix that provide content “en masse” (e.g., an entire season at once.). Because participants could select as many modes as desired, the item *Number of Modes* was the count of modes used.

The next variable (TV Intensity: Mode) had four items (*Intensity of Cable, Intensity of Streaming Broadcast, Intensity of Streaming On-Demand, Intensity of DVDs*) that assessed the intensity of TV viewing for each mode of access, these items were focused on “any use” of that mode of access. Responses were collected using a four-point ordinal scale from “rarely or never” (1) to “everyday” (4).

To examine the number of hours spent watching TV during workdays in comparison to weekends the variable (TV Intensity: Hours) had three items (*Hours/Day Weekday, Hours/Day Sat, Hours/Day Sun*) which were focused on the intensity of TV viewing. Participants were asked how many hours of TV they watched per weekday (Monday through Friday), per Saturday, and per Sunday, and responses were collected on a five-point ordinal scale from “less than 1 hr” (1) to “more than 5 hrs” (5).

For all ordinal variables, the means are near the center of their ranges, implying good variability in the sample. The exception is watching TV using DVDs. In addition, as a marker for

how TV viewing as it was known before has changed, most participants watch TV through streaming media (streaming media to a TV set, or to a smartphone) followed by cable TV, and finally DVDs.

Table 42 Descriptive Statistics for Mode of Access & Intensity of TV Viewing and their Correlations with the Four Subscales of the SSE-MS

				Cog (-)	PId (-)	Soc (-)	Div (-)
		Mean		3.22	3.67	3.70	3.15
			sd	0.92	0.92	1.02	1.05
TV: Mode of Access	Watch via Cable TV	0.46	0.50	.051	.067	.079	.036
	Watch DVDs	0.09	0.28	-.075	-.023	.019	-.054
	Watch Streaming via Broadcasters	0.65	0.48	-.084	.000	.010	-.022
	Watch Streaming TV via Internet	0.76	0.43	-.013	-.049	-.004	-.060
	Watch via Phone	0.57	0.50	-.152	-.160	-.151	-.188
	Watch Other	0.00	0.00	--	--	--	--
	Number of TV Viewing Modes	2.53	1.12	-.104	-.066	-.024	-.114
TV Intensity : Mode	Intensity of Cable	2.04	1.11	-.029	.010	-.040	-.006
	Intensity of Streaming: Broadcast	2.43	1.11	-.132	-.091	-.115	-.140
	Intensity of Streaming: On-Demand	3.23	0.93	-.029	.044	-.007	-.005
	Intensity of DVDs	1.39	0.74	-.168	-.183	-.196	-.200
TV Intensity : Hours	Hours/Day Weekday	2.81	1.15	.038	.070	.065	.026
	Hours/Day Sat	3.27	1.14	-.070	-.092	-.076	-.130
	Hours/Day Sun	3.19	1.20	-.064	-.050	-.033	-.088

Notes: For $r > .093$, $p < .05$; for $r > .122$, $p < .01$

The items for *TV: Modes of Access* were not correlated with the subscales of the SSE-MS, except for the use of smartphones. This is not the result of a limited range on any of the items. The mean level of endorsement was 76% for streaming to computer, 65% for streaming to TV, 53% for streaming to a smartphone, 46% for cable, and 9% for DVDs (or pre-recorded material). No participants selected Other, so that item was not included in subsequent analyses. Most participants used more than one mode to access TV shows: The mean number of modes was 2.53 (of 5). However, only the use of smartphones was related to the subscales through the use of SS. The correlations between subscales and smartphone are more than twice the size of the correlations between subscales and other modes of access. The use of smartphones for watching TV is a recent, rising, trend (Bury & Li, 2015), so it may be that a participant who is willing to

use a cell phone for TV viewing is committed to their shows, and thus fulfills more needs from talking about that show.

In terms of TV Intensity, the relationships for the individual items were also generally weak. However, the item *Intensity of Streaming: Broadcast* (viewing TV at the time of broadcast) was related to the Cognitive and Diversion subscales, and was “marginally” related to the Social Integration and Personal Identity subscales. This makes sense because a TV viewer must schedule time to watch a broadcast. Such a TV viewer is likely more committed to the show, and family/friends (who share interests) might be watching at the same time. This would make conversations about the show possible. By comparison, there is little relationship between the SSE-MS and the item *Intensity of Streaming: On-demand* (watching TV using online on-demand streaming at the time of choice). On-demand streaming media allows one to watch TV at the most convenient time, implying that others need not be sharing the same experience at the same time. Oddly enough, the item *Intensity of DVDs* (intensity for watching TV on DVDs) was also related to the subscales. It is important to note that only 9% ($n=40$) of the sample used DVDs. Purchasing TV shows on DVD implies a degree of commitment to the show (in this era of streaming video, mega-channel cable packages, and the proliferation of TV stations catering to every need). The correlations imply that those few participants who watched DVDs fulfilled needs through the use of the SS to talk about the show while watching the show. This seems counterintuitive. DVDs, like on-demand streaming media, can be viewed at the time of convenience, but unlike on-demand streaming, others cannot access the same material as easily (unless they have the same DVD – even then synchronizing the point in the TV show would be difficult).

Thus, those who used a SS to talk about the TV show *while watching that show on a DVD* (or other pre-recorded material) were likely talking to other people who are *not* watching the same show. Is this reasonable? It is a consequence of the way the questionnaire and research proceeded. The SSE-MS only asked if a participant used a SS to talk about that show while watching TV. The SSE-MS did not require that all people sharing the SS conversation be watching the same show. Further, it did not require that the other people in the SS conversation be watching TV at all. This allowed the assessment of participants who used asynchronous sources like Twitter (i.e., one can post even if no one else is watching). That is, the person watching a DVD may be using a SS to post comments about the show in an asynchronous

fashion. There is no requirement that the recipient of such posting be watching the same show. In fact, this could be happening with any TV media. That is, a person watching Live TV may be using the SS in an asynchronous fashion (i.e., not conversing with other viewers about the show).

For the variable TV Intensity: Hours (hours per day of TV viewing), the only significant relationship was between the Diversion subscale and hours of TV viewing on Saturday. This might indicate that those who are willing to spend their weekends watching TV are more committed to the TV and get more out of associated online discussions. The remaining correlations were smaller.

Finally, it could be noted that most of the relationships were negative. This offers additional support for the notion that these variables are related to the SSE-MS in the expected manner. Higher intensity of use was generally associated with fulfilling more needs – but the relationship was not strong.

The combination of all of these variables was used to predict each of the SSE-MS subscales (the *Number of Modes* and *Other* were not included). For the Cognitive subscale, the $R^2 = .091$ ($R = .302$), which was significant with $F(12,437) = 3.12$ ($p < .0005$). Hence the set as a whole has some potential to explain the Cognitive dimension. For the Personal Identity subscale, the $R^2 = .112$ ($R = .334$), which was significant with $F(12,437) = 3.90$ ($p < .0005$) implying that the set as a whole is predictive. For the Social Integration subscale, the $R^2 = .119$ ($R = .345$), which was significant with $F(12,437) = 4.21$ ($p < .0005$). Finally, for the Diversion subscale, the $R^2 = .121$ ($R = .348$), which was significant with $F(12,437) = 4.28$ ($p < .0005$). Note that the R^2 were all slightly larger than those seen in the analyses of the Demographic items.

Timing of TV Viewing and Emotional Connection to TV

The next set of items included five variables and 11 items. This assessed the intensity of TV viewing from another angle – these items were called timing and emotional connection to be distinct from the previous intensity variables. Participants were asked about their intensity of viewing but participants were not queried about any particular TV show (e.g., “How often have you watched *Game of Thrones*?”).

The variable TV Timing: Control had two items (*Watch at Time of Broadcast*, *Watch at Time of Choice*). *Watch at Time of Broadcast* be typical for new releases, or scheduled broadcast shows and would be most relevant to Live TV. *Watch at Time of Choice* would be typical for

DVDs, and for on-demand streaming media. Responses used a five-point ordinal scale (see Table 5.2) from “Never” (1) to “Always” (5).

Binge watching is a relatively new phenomenon, related to the availability of pre-recorded material (i.e., VHS, DVDs) and on-demand streaming TV (e.g., Netflix). The variable TV Timing: Binge asked participants how often they engaged in binge watching using three items: frequency of “Watching an entire season at once”, frequency of “watching 3 or more episodes at once”, and frequency of “watching 1 or 2 episodes at once”. Responses were collected using the same five-point ordinal scale (see Table 5.2) from “Never” (1) to “Always” (5).

It is difficult to measure the emotional connection to a TV show, but if a person is more attached to a show, they will make time for that show and they will be “upset” if they should miss a planned viewing or episode. Hence, in the third variable (TV Emotion: Affect), one asked if “My day is planned around TV shows” and another asked if “I get upset if I miss my show”. These questions are related but the second is a somewhat stronger version of the first. Responses were collected using the same ordinal scale with five levels (1 = “Never” to 5 = “Always”). A second variable in this component (TV Emotion: Number) asked about the number of shows they “watched”, “followed”, “made time for” and “followed on social media. Responses were collected on an ordinal scale with 5 levels (1 = “1 or less shows/wk”, 2 = “2 - 5 shows/wk”, 3 = “6 - 10 shows/wk”, 4 = “11 - 20 shows/wk”, and 5 = “more than 20 shows/wk”). Both variables have an item for “make time for” but from different angles. For both variables, higher codes imply higher use. Variations on the same variable were included in the questionnaire because they capture the nuances of more nebulous constructs (i.e., emotional connection) and because they are useful as internal consistency checks.

Timing and emotion were presented together because they seem related. For example, binge watching is as much about commitment to a show as it is about time. More time implies more commitment and more commitment requires more time. Table 43 provides the results which generally imply that most participants were not overly dedicated to their shows. For example, for the emotional connection, the means were near the low end of the scale (between "never" and "rarely") implying the participants did not plan their days around TV and did not get upset if they missed the show. The means for the number "followed", "made time for" and "followed" on social media were also low at one to two shows a week ("watched" was 2 to 5

shows a week). The means for binge watching were a bit higher implying that participants watched 1, 2, or 3 or more episodes in one sitting about 50% of the time (the entire season was only watched about 25% of the time).

Table 43 Descriptive Statistics for the Timing & Emotional Commitment for Particular Shows and their Correlations with the Four Subscales of the SSE-MS.

				Cog (-)	PId (-)	Soc (-)	Div (-)
		Mean		3.22	3.67	3.70	3.15
			Sd	0.92	0.92	1.02	1.05
TV Timing: Control	Watch at Time of Broadcast (Live)	1.95	0.87	-.052	-.090	-.100	-.067
	Watch at Time of Choice (VoD)	3.78	1.21	.054	-.004	.089	.034
TV Timing: Binge	Binge: Entire Season	2.28	0.99	-.112	-.095	-.116	-.170
	Binge: 3 or more Episodes	3.24	1.08	.004	-.028	.058	-.072
	Binge: 1 or 2 Episodes	3.00	1.07	.046	-.001	.009	.030
TV Emotion: Number	# Watched per Week	2.12	0.92	-.010	.062	.098	.042
	# Watched reg per Week	1.77	0.75	-.067	-.069	-.012	-.036
	# Make Time For per Week	1.76	0.82	-.053	-.083	-.057	-.034
	# Followed on SM per Week	1.55	0.88	-.264	-.270	-.283	-.251
TV Emotion: Affect	Plan Day around Shows	1.66	0.86	-.123	-.184	-.180	-.131
	Upset if Show is Missed	1.71	0.97	-.104	-.169	-.136	-.114

Notes: For $r > .093$, $p < .05$; for $r > .122$, $p < .01$

For the TV Timing: Control variables, there were no large (or significant) relationships with the four subscales. This has implications for the importance of the distinction between Video on Demand (VoD) and Live TV. VoD allows one to watch TV at the time of choice whereas Live TV almost forces one to watch TV at the time of broadcast (the term "almost" was used because one could record a live broadcast for later consumption). In any case, the two modes of consumption do not differ in the amount of needs fulfilment. That is, those who use VoD more often do not fulfill more needs than those who use VoD rarely, and vice versa.

This analysis does *not* compare VoD directly with Live TV. There was *no* item that asked something like "Do you use Live TV more often than VoD?". Hence, it is not possible to say that a person would have received more gratification from Live TV than VoD. This question was not asked because Live TV and VoD tend to be used with different TV content, in different settings, at different times (including the life-cycle of a TV show), and with different degrees of promotion. Hence, the direct comparison of Live TV and VoD would be confounded by many

other considerations. The only proper way to compare the two would be to have the same show presented using the two formats at the same time (i.e., controlling for all other variables) but this would be pragmatically impossible.

For the variable TV Timing: Binge, the only significant relationship identified was between Binge: Entire Season and the Diversion subscale. Those who binged fulfilled more Diversion needs through the use of a SS to talk about the show. Conceptually, this is similar to the previously mentioned DVD effect. Note that bingeing is only possible for VoD and DVD viewing (broadcasters do occasionally offer marathons²³, but the viewer does not get to pick what episodes to play on demand). As such, the TV viewer who is bingeing is likely use the SS to talk about the show with other people who are not watching the same show.

That is, conceptually, this is similar to the previously mentioned DVD effect.

The item "Followed on Social Media" of the *TV Emotion: Number* variable implied that participants who followed shows on SM fulfilled more needs of all types through the use of a SS to talk about those TV shows. Following shows on social media likely involves discussing those shows on social media. The correlations approached values near $r = .3$ (or about 10% of the variance). However, the items for a number of shows "watched", "watched regularly" or "made time for" were not related to the subscales of the SSE-MS. Thus, it was only those who were most interested in the TV show enough to follow it on SM, were related to all subscales.

As noted, the means implied that participants watched or watched regularly only 1 or 2 shows per week. However, some participants indicated that they watched or watched regularly as many as "20 or more shows" per week (see *Appendix C- Sample Analyses*). Thus, there was a large range in the number of shows watched or watched regularly despite the low mean number. From the perspective of statistical inference, this is important. If the *range* of one variable is limited it is possible to create "spuriously" high correlations that are misleading (this is called a *range restriction*) (Field, 2009). In this case, the range of both variables was not limited (i.e., there was no range restriction).

For the variable TV Emotion: Affect, those who "plan my day around shows" had strong relationships with all subscales. In addition, those who tended to get "upset if the show as missed" had strong relationships with the Personal Identity and Social Integration subscales. It is

²³ Reruns of the entire season/show for the entire day/week

possible that all of those who make plans around the shows they watch – those who get upset if such plans are unfulfilled – are avid fans of their shows. They may also share that enthusiasm with others of their social group. As noted previously, one would predict that the need to plan TV viewing would be more strongly associated with Live TV. That is, TV viewers would only need to schedule their time if their favorite show(s) were only available at the time of broadcast. However, it is possible to schedule time for TV viewing even if one watches VoD. It simply means that a person has put aside a part of the day for that activity. Thus, even though it seems more relevant to Live TV, this finding applies to both Live TV and VoD. Furthermore, previous analysis demonstrated that the distinction between Live TV and VoD was not important for the amount or type of fulfillment of needs through the use of a second screen. Participants were not using the SS to talk about the show to obtain details that they had missed. It was about the social connection.

The combination of all of these variables was used to predict each of the SSE-MS subscales. For the Cognitive subscale, the $R^2 = .089$ ($R = .298$), which was significant with $F(11,438) = 4.76$ ($p < .0005$). So, the set as a whole has some potential to explain the Cognitive dimension. For the Personal Identity subscale, the $R^2 = .117$ ($R = .342$), which was significant with, $F(11,438) = 6.49$ ($p < .0005$). This implies that the set as a whole is predictive. For the Social Integration subscale, the $R^2 = .144$ ($R = .379$), which was significant with, $F(11,438) = 8.22$ ($p < .0005$). Finally, for the Diversion subscale, the $R^2 = .096$ ($R = .311$), which was significant with, $F(11,438) = 5.22$ ($p < .0005$). Note that the R^2 values were all slightly smaller than – but comparable to – those of the Demographics.

Social Situation for TV Viewing

The final variable contained eight items pertaining to the social situation while viewing TV. Participants were asked about the frequency of the different social settings (with no one, with my children, with my partner, with my family, with my friends, with roommates, with colleagues, and with others) while watching TV, using the same five-point ordinal scale from “Never (1)” to “Always (5)”. Participants rated each social context, but logically some of the options should have a high frequency and other options should have a low frequency²⁴. The item *Number of Social Situations* was computed as the number of social situations that were endorsed at the

²⁴ The sections across all options should sum to 100 percent, but as can be seen in Table 5.2, the scale was only approximate. This was one of the integrity checks (see *Appendix: Sample Analyses*)

Level 2 (“Rarely”) or higher per participant.

The means show that the most common mode of TV access is “alone”. However, everyone had multiple social situations for TV viewing, and the mean number of social situations was 3.5. On average, participants watched TV in 3 to 4 different social situations. Table 44 provides details of responses related to this variable.

Table 44 Descriptive Statistics for the Social Context of TV Viewing and their Correlations with the Four Subscales of the SSE-MS.

				Cog (-)	PId (-)	Soc (-)	Div (-)
		Mean		3.22	3.67	3.70	3.15
			sd	0.92	0.92	1.02	1.05
TV: Social Situation	No One	3.67	1.04	-.086	-.105	-.030	-.105
	My Children	1.16	0.60	-.129	-.123	-.191	-.096
	My Partner	1.96	1.22	-.086	-.033	-.063	-.052
	My Family	2.45	1.02	-.062	-.110	-.052	-.086
	My Friends	2.32	0.97	-.076	-.142	-.098	-.093
	Roommates	1.38	0.85	-.082	-.079	-.070	-.039
	Colleagues	1.16	0.50	-.145	-.257	-.288	-.224
	Other	1.20	0.58	-.107	-.187	-.180	-.140
	Number of Social Situations	3.52	1.44	-.187	-.219	-.211	-.164

Notes: For $r > .093$, $p < .05$; for $r > .122$, $p < .01$

Those who watched TV more often with "Friends" did not fulfill more needs from the use of a SS. However, those who were "forced" (perhaps by various social constraints) to spend more time watching TV with "Children", with "Colleagues", or with "Others" did fulfill more needs from the use of a SS. That is, more TV viewing within these social situations was associated with more gratifications from the use of a SS.

For each Social Situation, one possible response option was "Never (about 0% of the time)". If a participant selected "never", it could be inferred that the particular social situation never arose in the situation of TV viewing. The option "Never" was selected by 306 for the social situation of "Others", by 308 for the social context of "Colleagues", by 283 for the social situation of "Roommates", and by 342 social situations of "Children". That is, for the majority of participants, these social situations (for TV viewing) never occurred. On the other hand, “Never” category was only endorsed by 16 for the social situation of “No One”, by 60 for the social situation of “Family”, by 70 for the social situation of “Friends” and by 211 for the social situation of "Partner". This pattern of social situation may be a consequence of the sample

Demographics more than general trends that might be seen in the population (i.e., most of the participants did not have children, were in university, and were living at home). However, this does not invalidate the observed relationships between social context and fulfillment of needs through the use of a SS. Said another way, the relationships observed, for example, between watching with no one and subscales, provide valid inferences for their corresponding relationships in the population. However, the *number of participants* who engage in that behavior is not necessarily representative of the population.

The combination of all of these variables was used to predict each of the SSE-MS subscales. For the Cognitive subscale, the $R^2 = .058$ ($R = .240$), which was significant with, $F(9,440) = 3.00$ ($p < .002$). So, the set as a whole has some potential to explain the Cognitive dimension. For the Personal Identity subscale, the $R^2 = .108$ ($R = .328$) which was significant with, $F(9,440) = 5.90$ ($p < .0005$). This implies that the set as a whole is predictive. For the Social Integration subscale, the $R^2 = .107$ ($R = .327$) which was significant with $F(9,440) = 5.87$ ($p < .0005$). The set as a whole is predictive. Finally, for the Diversion subscale, the $R^2 = .079$ ($R = .282$) which was significant with $F(9,440) = 4.21$ ($p < .0005$). Again, the set as a whole was significant. Note that the R^2 were all comparable to those of the Demographics.

6.4.3 SS Use

This set of items addressed the physical properties of the SS (i.e., split screen, different screen) and the process used to work with the SS (i.e., During breaks, by missing TV). These variables included the Type and Process for SS Use, the Social Media Outlets & Activities on the SS, and the Social Context for SS Use. There were a total of 6 variables (see Table 26) with 46 different items (4, 6, 8, 6, 5 and 10 respectively). They are presented in three groups for simplicity.

Types and Processes

The types and processes include the type of screen used as a second screen and the manner in which the second screen was accessed while watching TV. The first variable, SS: Types, contained four items used to capture the type of SS. The first item asked if the SS was typically same screen as the TV show (switching between screens, or splitting one screen on a computer, TV or some other device). The second item asked if the second screen was typically a different screen (e.g., watching TV on one screen and using a computer or phone as a second screen). The

third item specifically asked if the SS was typically a smartphone. A final item asked about other arrangements (with an associated open-ended text response. Responses were binary but participants could select as many as desired, so the *Number of Types* was computed.

The second variable (SS: Processes) had 6 items and asked how participants accessed the SS. The first item was about breaks (Breaks: “I use the second screen during breaks (e.g., commercials)”), the second item was about pausing the TV (Pausing: “I pause the TV to use the SS”), the third item was about simultaneous viewing (Both: “I try to watch both the TV and the SS simultaneously”), the fourth item was about missing the TV (Miss: “I miss or ignore the TV while using the SS”), and the final item asked for other options using a free-field text. All options were binary endorsements (yes or no), but participants could select as many as desired, so the *Number of Processes* was computed. Many participants chose Other ($n=116$) but only 10 provided text, and only 2 of the 10 could be recoded into pre-existing groups, so Other includes all other options that were not captured in the questionnaire (see Table 45).

Table 45 Descriptive Statistics for the Type and Process of SS Use and their Correlations with the Four Subscales of the SSE-MS.

				Cog (-)	PId (-)	Soc (-)	Div (-)
		Mean		3.22	3.67	3.70	3.15
			sd	0.92	0.92	1.02	1.05
SS: Types	One Split Screen	0.41	0.49	-.064	-.077	-.086	-.079
	Second Screen	0.42	0.49	-.111	-.027	-.073	-.034
	Phone	0.83	0.38	-.085	.010	.026	-.045
	Other	0.01	0.11	-.012	.044	.023	.027
	Number of Types	1.67	0.71	-.168	-.059	-.092	-.097
SS: Processes	Use SS During Breaks	0.18	0.39	-.093	-.050	-.041	-.074
	Pause TV to Use SS	0.54	0.50	-.112	-.108	-.066	-.091
	Watch Both	0.65	0.48	.034	.028	.071	.037
	Listen to TV, Watch SS	0.33	0.47	.074	-.033	.050	-.054
	Miss TV, Attend to SS	0.54	0.50	.016	.021	.076	-.024
	Other	0.26	0.44	-.014	.010	.018	-.041
	Number of Processes	2.50	1.42	-.027	-.043	.038	-.079

Notes: For $r > .093$, $p < .05$; for $r > .122$, $p < .01$

The pattern of correlations makes it clear that the type of SS and process for accessing the SS were largely irrelevant to the fulfillment of needs captured by the SSE-MS. All of these variable capture some aspect of "how" the SS is used. This is interesting because it implies that it is not “how” one uses the SS that matters to the fulfillment of needs (note that other items of the SSE-MS address the "why"). People will use the SS even if it is less convenient (e.g., switching

between screens or splitting the one screen). The *Number of Types* was related to Cognitive needs. The use of a second screen had a marginal relationship with Cognitive needs ($p < .05$). Pausing the screen also had a marginal relationship with Cognitive needs and with Personal Identity needs ($p < .05$). This may reflect the increased complexity of Cognitive needs (i.e., seeking, understanding new information) which require more focused attention. Nonetheless, these relationships were not strong and should not be over interpreted.

The combination of all of these variables was used to predict each of the SSE-MS subscales (*Number of Types* and *Number of Processes* were not included because they were dependent). For the Cognitive subscale, the $R^2 = .061$ ($R = .246$) which was significant with $F(10,439) = 2.84$ ($p < .002$). Hence the set as a whole has some potential to explain the Cognitive dimension, but this is likely due to the *Number of Options* item. For the Personal Identity subscale, the $R^2 = .027$ ($R = .164$) which was *not* significant, $F(10,439) = 1.22$ ($p < .279$). This implies that the set as a whole is not predictive. Because all the individual simple correlations were small, it is unlikely that a smaller set of predictors could be significant. For the Social Integration subscale, the $R^2 = .032$ ($R = .179$) which was not significant with $F(10,439) = 1.45$ ($p < .154$). As with Personal Identity, the set as a whole is not predictive, and a smaller set is unlikely to be significant. Finally, for the Diversion subscale, the $R^2 = .031$ ($R = .177$) which was not significant with $F(10,439) = 1.42$ ($p < .170$). Again, the set as a whole was not significant, and it is unlikely that a smaller set would be. Note that these four R^2 were all smaller than those of the Demographics.

Social Media Outlets & Activities on the SS

The next variable (SS: Social Media Outlets) had 8 items that were concerned with the activities associated with the SS. What was the participant doing on the SS? For Social Media Outlets, participants were asked “While watching TV, I use” with options of Social Media, Blogs, Micro Blogs, Email conversations, Forums, Chat, information channels (e.g., Wikis) and Video Conferencing (e.g., Skype). Note that this encompasses most of the common social media tools, in generic form. Responses were collected using the same five-point scale using the same five-point ordinal scale (see Table 26) from “Never” (1) to “Always” (5). The *Number of Social Media Outlets* counted the number of Social Media Outlets with a use greater than 2, for each participant.

The variable SS: Activities focused on six items pertaining to “work”, or “shopping”, “talking about the show”, “socializing but not about the show”, “browsing the web”, and “other activities not about the show”. Note that all participants used the SS to talk about the TV to some degree, as it was a selection requirement for recruitment; however, this item helped to contextualize the responses to the other items (e.g., do they work more often than they talk about the show). Responses were collected on the same five-point (see Table 26) from “Never” (1) to “Always” (5). The item *Number of Activities* counted the number of activities with a response greater than 2, for each participant.

The variable SS: Timing used five items to capture, in a general way, the attributes of the TV show that were related to SS Use: “I use the SS when the TV show is: ... slow, fast, boring, exciting, or to fill in the Free Time”. Responses were collected on the same five-point scale (see Table 26) from “Never” (1) to “Always” (5). The item *Number of Slow Endorsements* counted the number of items with a response greater than 2, for each participant, for the Slow and Boring items. The item *Number of Fast Endorsements* counted the number of items with a response greater than 2, for each participant, for the Fast and Exciting items.

Table 46 presents the results. There were significant differences between the means for the different SS: Social Media Outlets (see in *Appendix D- Final Sample Analysis*). Social media and Chat were the most common, while video conferencing and Blogs were the least. The means for the Type of Content were in the middle, with good range on both sides. The means for SS: Timing implied that the SS was used when the TV show was not captivating.

Table 46 Descriptive Statistics for the Social Media Outlets & Activities Associated with the SS and their Correlations with the Four Subscales of the SSE-MS.

				Cog (-)	PId (-)	Soc (-)	Div (-)
		Mean		3.22	3.67	3.70	3.15
			sd	0.92	0.92	1.02	1.05
Social Media Outlets	SS - Social Media	3.51	1.07	.087	.022	.047	-.056
	SS - Blogs	1.62	0.95	-.118	-.186	-.156	-.136
	SS - Microblogs	2.15	1.23	-.147	-.162	-.154	-.175
	SS - Email Conversations	2.24	1.08	-.099	-.127	-.103	-.113
	SS - Forums	1.80	1.02	-.161	-.282	-.240	-.242
	SS - Chat	3.56	1.10	.034	-.013	-.021	-.047
	SS - Information Channels	1.84	1.04	-.234	-.167	-.204	-.113
	SS - Video Conferencing	1.53	0.82	-.035	-.123	-.116	-.140
	Number of SM outlets on SS	4.95	2.01	-.221	-.272	-.251	-.245
Activities	Work on SS	2.53	1.20	-.077	-.054	-.057	-.042
	Shop on SS	2.49	1.10	-.068	-.093	-.139	-.101
	Talk about Show on SS	2.14	1.01	-.306	-.430	-.388	-.427
	Socialize (not about show) on SS	3.23	1.13	.023	.012	.053	-.032
	Browse the Web on SS	3.30	1.12	-.040	-.021	-.017	-.095
	Other Activities on SS	3.35	1.14	.021	.017	.040	-.009
	Number of Activities on SS	5.02	1.23	-.146	-.216	-.209	-.222
Timing	Use SS When Show is Slow	3.40	1.07	-.077	-.089	-.065	-.144
	Use SS When Show is Fast	1.78	0.87	-.052	-.150	-.186	-.148
	Use SS When Show is Boring	3.60	1.04	-.022	-.015	.019	-.036
	Use SS When Show is Exciting	1.70	0.83	-.101	-.129	-.191	-.134
	Use SS to Fill Free Time in Show	3.64	1.14	-.060	-.081	-.037	-.103
	Number of Slow Endorsements	1.92	0.34	-.097	-.070	-.066	-.112
	Number of Fast Endorsements	1.10	0.90	-.084	-.074	-.130	-.123

Notes: For $r > .093$, $p < .05$; for $r > .122$, $p < .01$

The highest correlations in this variable are notably higher than previous correlations (in the .3 to .4 range). The Cognitive subscale was related to the use of Microblogs (e.g., Twitter), Forums (e.g., discussion boards for particular shows), and Information channels. Blogs were marginal; the use of Blogs was marginally correlated with the use of SS, with a p value < 0.05 but more than 0.01. The Personal Identity subscale was related to the use of Blogs, Microblogs, Email Conversations, Forums, and Video Conferencing. The Social Integration subscale was related to the use of Blogs, Microblogs, Forums, and Information Channels, while email conversations was marginal. The Diversion subscale was related to the use of Blogs, Microblogs, Forums, and Video Conferencing. Note that the different subscales tended to overlap, but the degree was different – some subscales are more likely to be associated with different social media outlets.

What seems odd here is that social media (e.g., Facebook) was *not* related to any subscale and the reason is not clear. It may be that social media is so ubiquitous that everyone uses social media all the time, so those who have a higher use are not different than those who have a lower use when it comes to the amount of gratification. It may be that there is too much variability in the amount of gratification when examined this way (the range in the amount of gratifications for each level of social media outlets is large). It may be that the amount of gratification is a constant for any amount of social media outlet used.

The use of a SS for shopping was more associated with Personal Identity needs and, to a lesser extent, Diversion needs. The other uses of a SS were not associated with needs. This was expected. This thesis asked about the gratifications obtained through the use of a SS to talk about the TV show. The study was specific about what provides the gratifications: talking about the TV show. Thus, it is not logical to expect that more use of a SS for Work (while watching TV) would provide more gratifications related to talking about TV. The gratifications obtained from Work are completely different from the gratifications obtained from talking about TV. They are unrelated. Similarly, one would not expect more use of the SS to shop (while watching TV) to produce more gratifications from talking about the TV show. Again, the gratifications obtained from shopping are different from those obtained from talking about TV. They are unrelated. Thus, one would not expect any relationships between gratifications obtained and Work or Shopping. The same is true for Socializing and for Browsing. Having said that, note that the participants were surveyed about the use of the SS for Work, for Shopping, for Socializing, for Browsing, for Other, or for Talking about the TV show. It may be that those who use the SS more (in general) are simply more comfortable with the use of the SS and thus derive more gratifications from the use of a SS no matter what that use is. As such, there might be a small correlation between all that simply reflects "comfort with the use of a SS". That might be the cause of the relationship between shopping and the Social Integration scale (the people who often use the SS for shopping, also used the SS for socializing and for socializing about TV shows). This is supported by the observation that the number of Activities on the SS was related to all subscales. That is, these correlations reflect "comfort" with the use of a SS.

More participants used the SS when the TV show was "slow" or "boring". When the show was slow, more use of the SS was associated with more gratification of Diversion needs. One might assume that when the show is slow, there is a greater need for diversion. This did not

happen when the show was “boring” but it is difficult to speculate as to why. Those who used the SS when the TV show was “fast” or “exciting” obtained more gratification of Personal Identity, Social Integration, and Diversion needs. That is, the use of the SS seemed to enhance the excitement or arousal.

This thesis showed that those who reported more use of blogs, microblogs and forums on the SS tended to obtain more gratifications from all types of needs. This is likely related to the simple asynchronous structure of these social media outlets: one can post a quick comment while watching without the need to monitor feedback (i.e., such social media outlets are not associated with a continual dialogue in the manner similar to that of chat; the interface is quite simple). At this point, this is simply speculation. The current thesis did not ask participants why particular channels were preferred. All of these results are merely associations between participants who report more use of SS within a particular social media outlet and the amount of gratifications received. The current research did not directly assess the amount of gratification obtained within the use of a single social media outlet (i.e., participants were not asked something like “I use Twitter to talk about the plot of the TV show”).

The combination of all of these variables was used to predict each of the SSE-MS subscales. The variables *Number of Social Media Outlets*, *Number of Activities*, *Number of Slow* and *Number of Fast* were included because they were not dependent on the other variables (they were not simple sums or counts). For the Cognitive subscale, the $R^2 = .214$ ($R = .463$), which was significant, $F(23,426) = 5.05$ ($p < .0005$). Hence the set as a whole has some potential to explain the Cognitive dimension. For the Personal Identity subscale, the $R^2 = .281$ ($R = .530$) which was large and significant with, $F(23,426) = 7.23$ ($p < .0005$). This implies that the set as a whole is predictive²⁵. For the Social Integration subscale, the $R^2 = .264$ ($R = .514$) which was significant, $F(23,426) = 6.67$ ($p < .0005$). The set as a whole was predictive. Finally, for the Diversion subscale, the $R^2 = .262$ ($R = .512$) which was significant with, $F(23,426) = 6.58$ ($p < .0005$). Again, the set as a whole was predictive. Note that all these R^2 were higher, but it might be the item “To Talk about Show on SS” that is driving most of the relationship.

²⁵ In this context, the term "predictive" is used in the mathematical or statistical sense that the combination of IVs is capable of reproducing the value of the DV. The term "predictive" is not used in the sense that the IVs cause the level of the DV. This is a correlational study.

Social Context of SS Use

The final variable (SS: Social Context) used 10 items to examine the social situation surrounding the use of the SS (“I use a SS when: “). The variable was a mix of physical descriptions and social reasons. Responses were collected on the same five-point scale (see Table 26) from “Never” (1) to “Always” (5). The item *Number of Social Situations* coded responses greater than 2, for each participant, for all social situations. Table 47 presents the results.

Table 47 Descriptive Statistics for the Social Context Associated with the SS and their Correlations with the Four Subscales of the SSE-MS.

				Cog (-)	PIId (-)	Soc (-)	Div (-)
		Mean		3.22	3.67	3.70	3.15
			sd	0.92	0.92	1.02	1.05
SS: Social Context	When Alone	3.69	1.01	-.049	-.043	.009	-.017
	Because Others Are	2.29	1.06	-.086	-.161	-.213	-.217
	When Others are Annoying	2.26	1.15	-.114	-.181	-.149	-.192
	When Others are Ignoring	2.14	1.16	-.098	-.148	-.144	-.193
	When No One Wants to Share	2.14	1.16	-.096	-.140	-.183	-.157
	Even When Others Around	2.38	1.08	-.070	-.074	-.022	-.075
	To Socialize with Certain People	2.56	1.03	.018	-.095	-.043	-.105
	To Get a Change of Company	2.13	1.02	-.110	-.236	-.227	-.224
	To Avoid Inviting People to My Home	2.15	1.22	-.074	-.148	-.156	-.142
	To Avoid Leaving my Home	2.21	1.23	-.101	-.176	-.171	-.194
	Number of Social Contexts	7.10	2.89	-.143	-.228	-.248	-.253

Notes: For $r > .093$, $p < .05$; for $r > .122$, $p < .01$

The most obvious observation is that the social context is related to the non-Cognitive needs: the Personal Identity, the Social Integration and the Diversion needs. Those who used the SS more often when alone did not obtain more gratifications (from talking about TV). Those who used the SS more often to escape the current situation did obtain more gratifications from that use. Similarly, those who used a SS when others were annoying or ignoring them obtained more gratifications. However, those who used the SS more often to seek particular company did not obtain more gratifications. It is as if the TV show provides something to talk about when one is stuck in a less-than-optimal social situation. The same might be true when one is indisposed to

be with others physically.

The number of social contexts had an average of 7 out of 10 possible situations. That is, most TV viewers used the SS in most social contexts.

The combination of all of these variables was used to predict each of the SSE-MS subscales. For the Cognitive subscale, the $R^2 = .034$ ($R = .184$), which was not significant $F(11,438) = 1.39$ ($p < .173$). For the Personal Identity subscale, the $R^2 = .077$ ($R = .278$) which was significant with, $F(11,438) = 3.33$ ($p < .0005$). This implies that the set as a whole is predictive. The R^2 is lower than would be expected given the number of large correlations, but these situations seemed to be correlated. For the Social Integration subscale, the $R^2 = .105$ ($R = .324$) which was significant with, $F(11,438) = 4.68$ ($p < .0005$). The set as a whole was predictive. Finally, for the Diversion subscale, the $R^2 = .101$ ($R = .318$), which was not significant with, $F(11,438) = 4.48$ ($p < .0005$). Again, the set as a whole was significant. With the exception of the Cognitive needs, the R^2 were all comparable to those of the Demographics.

6.5 Stage 3.3.2: The Full Analysis

All the items were entered into a single analysis using hierarchical multiple regression (Field, 2009; Tabachnick & Fidell, 2013). The first goal was to examine maximum the amount of variance (the maximum R^2) that could be explained by all the variables. The second goal was to see how the variables increased the variance explained when entered in a conceptually-defined order.

In the hierarchical multiple regression, the previous collections were entered in reverse order. That is, the SS Use terms were entered first. The TV Viewing Habits were entered second. The Demographics were entered third. This order was used because one should see whether or not each subscale of the SSE-MS was related to the use of the SS. The use of the SS is the defining feature of the SSE-MS (and the second screen experience). Then, one should see what part of each subscale of the SSE-MS that is not explained by SS Use can be explained by TV Viewing Habits. One could argue for the reversal of these two steps, but it is largely irrelevant because the correlations between SS Use and TV Viewing Habits were not large.

The final step asks what part of each subscale of the SSE-MS that is *not* explained by SS Use or TV Viewing Habits can be explained by Demographics. Logically, the demographics are the least interesting because Demographics might explain access to TV or a SS, but not likely the

subscales of the SSE-MS.

Pragmatically, the order is not too important because the items within the SS Use were not related to the items within the TV Viewing Habits, the items within SS Use were not related to the items within the Demographics and the items within the TV Viewing Habits were not related to the items within the Demographics. Table 48 provides the details.

Table 48 Correlations Among Background Items

	# of correlations	average	sd	median	mode	max	min	5% overlap	10% overlap
SS Use and TV Viewing Habits	816	-.011	.06	.007	.025	.182	-.266	3	0
SS Use and Demographics	2210	.066	.067	.062	0	-.134	.306	35	0
TV Viewing Habits and Demographics	1560	-.002	.061	.005	0	-.415	.812	26	7

***#r > .224 ($r^2 > .05$; 5% overlap), ** #r > .316 ($r^2 > .10$; 10% overlap)**

All of the larger correlations were between the items that defined the social situation within TV Viewing Habits (e.g., alone, with children, with partner, etc.) and the living arrangements within Demographics (e.g., alone, at home, with roommates, etc.). Such would be expected to have higher correlations. The important point for the purpose of analysis is that the order of entry for the groups of items defined SS Use, TV Viewing Habits, and Demographics group could be changed without affecting the results.

The variables (items) were entered in the following order shown in Table 49. These reflect the previous analyses, though some groups of variables were combined.

Table 49 Order of Variable Entry for Hierarchical Regression

Block	Variables	Number of Items	Comments
1	SS: Social Context	10	excluded <i>Number of Social Contexts</i>
2	SS: Social Media Outlets	8	excluded <i>Number of Social Media Outlets</i>
	SS: Activities	6	excluded <i>Number of Activities</i>
	SS: Timing	5	excluded <i>Number of Slow</i> excluded <i>Number of Fast</i>
3	SS: Mode	4	excluded <i>Number of Modes</i>
	SS: Process	6	excluded <i>Number of Processes</i>
4	TV: Social Situations	8	excluded <i>Number of Social Situations</i>
5	TV: Genre	16	excluded <i>Number of Genres</i>
6	TV Emotion: Number	4	
	TV Emotion: Affect	3	
	TV Timing: Binge	2	
7	TV: Control	2	
	TV Intensity: Hours	3	
	TV Intensity: Mode	4	excluded <i>Number of Modes</i>
	TV: Mode	5	
8	Gender	1	
	Age	1	
	Education	1	
	Relative Income	1	
	Occupation	11	excluded <i>Number of Occupations</i>
	Urbanization	1	
	Living Arrangements	7	

As previously explained, the first goal was to examine the maximum amount of variance (the maximum R^2) that could be explained by all the variables; for the Cognitive subscale, the combination of all variables resulted in maximum $R^2 = .424$ ($R = .6651$) which was significant with, $F(109,340) = 2.30$ ($p < .0005$). For the Personal Identity subscale, the maximum $R^2 = .496$ ($R = .704$), which was significant with, $F(109,340) = 3.07$ ($p < .0005$). For the Social Integration subscale, the maximum $R^2 = .506$ ($R = .711$) which was significant with, $F(109,340) = 3.20$ ($p < .0005$). Finally, for the Diversion subscale, the maximum $R^2 = .476$ ($R = .690$) which was significant with, $F(109,340) = 2.84$ ($p < .0005$). The set as a whole was predictive. Table 50 presents the incremental improvement in the R^2 , (the change in R^2 (ΔR^2)) as each set was added.

Table 50 The hierarchical regression showing the R^2 , the change in R^2 (ΔR^2) and the significance of that change p (ΔR^2) for each set of variables

	Step	R	R^2	$Adj-R^2$	ΔR^2	$F(\Delta R^2)$	df_1	df_2	p (ΔR^2)
Cognitive	1	.172	.030	.008	.030	1.346	10	439	.203
	2	.462	.214	.160	.184	5.176	19	420	.000
	3	.493	.243	.171	.029	1.576	10	410	.111
	4	.525	.276	.192	.033	2.305	8	402	.020
	5	.561	.315	.203	.039	1.378	16	386	.149
	6	.591	.349	.224	.034	2.160	9	377	.024
	7	.612	.374	.226	.025	1.053	14	363	.399
	8	.651	.424	.240	.050	1.288	23	340	.171
Personal Identity	1	.268	.072	.051	.072	3.397	10	439	.000
	2	.537	.288	.239	.216	6.724	19	420	.000
	3	.554	.307	.241	.019	1.114	10	410	.350
	4	.601	.361	.286	.054	4.245	8	402	.000
	5	.635	.403	.305	.042	1.688	16	386	.046
	6	.661	.437	.330	.034	2.559	9	377	.007
	7	.680	.463	.336	.026	1.234	14	363	.248
	8	.704	.496	.334	.033	0.967	23	340	.508
Social Integration	1	.309	.096	.075	.096	4.639	10	439	.000
	2	.545	.297	.249	.202	6.340	19	420	.000
	3	.560	.314	.248	.017	0.990	10	410	.452
	4	.604	.365	.291	.051	4.044	8	402	.000
	5	.642	.412	.316	.047	1.923	16	386	.017
	6	.671	.451	.346	.039	2.960	9	377	.002
	7	.688	.473	.348	.023	1.119	14	363	.339
	8	.711	.506	.348	.033	0.986	23	340	.483
Diversion	1	.307	.094	.074	.094	4.577	10	439	.000
	2	.543	.295	.247	.201	6.300	19	420	.000
	3	.558	.311	.246	.016	0.942	10	410	.494
	4	.587	.344	.268	.033	2.538	8	402	.011
	5	.616	.380	.278	.035	1.379	16	386	.148
	6	.640	.410	.297	.030	2.119	9	377	.027
	7	.671	.450	.320	.040	1.902	14	363	.025
	8	.690	.476	.308	.026	0.739	23	340	.804

The second goal was to see how the variables increased the variance explained when entered in a conceptually-defined order. In each step, the ΔR^2 is “about” the same as it was in the prior separate analyses. This implies that the sets are relatively independent.

As noted, the maximum R^2 represents the maximum amount of variance that can be

explained with the inclusion of all variables – without consideration of any interactions. The maximum R^2 is high (which is good). Nonetheless, some of the variables are not likely important and will be dropped in the next analysis which would lower the R^2 . The next goal would be the creation of a single set that crosses all subscales of the SSE-MS even if one variable should not be of use for predicting a subscale. For the selection of the final set of predictors stepwise regression was used; the approach was going stepwise through each set of variables and picked the variables that were considered to be useful in at least one subscale (Field, 2009). That forms the final set of predictors.

6.6 Stage 3.3.3: Final Analysis to Reduce the Set of Predictors (IVs)

In general, the point of this research was to see what might be related to the SSE. Hence, a large net was cast to see what might matter. However, there may be some variables that are not relevant, and future research could benefit from this knowledge. There are several techniques for reducing the set of variables. Stepwise is the most common approach, but stepwise regression has three different versions (Forward stepwise, Backward stepwise, or Forward and Backwards stepwise). For more on Stepwise regression see (Field, 2009; Tabachnick & Fidell, 2013).

Backwards stepwise is used at the level of variables (not items) and will not actually delete variables. The previous analysis determined the maximum R^2 (when including all variables.) When a variable is removed, the R^2 can only decrease. If the R^2 decreases by a lot, the variable matters. In this analysis, each variable was removed (i.e., all items of the variable were removed as a unit), and the change in R^2 was assessed. If the change was significant, (using $p < .01$ as the criterion) then the variable was considered important for that subscale. If a variable was important for any subscale, it was considered important overall. If a variable was not important for any subscale, it was considered unimportant overall (Field, 2009). Table 51 provides the results. Table 51 also lists the independent variables (IV) and the number of items used to represent that variable (e.g., the 10 dummy codes used to define the Social Context for SS Use), It then includes the change in R^2 (ΔR^2) and the significance of that change in R^2 . If dropping that variable should cause the R^2 to drop “significantly”, then that variable should be retained (Field, 2009; Tabachnick & Fidell, 2013). Focusing exclusively on “significance” was not sufficient because different variables had different numbers of items (e.g., the variable Age had a single item, while the variable Living Conditions had 7 items). Crudely, the R^2 is reflective

of the *sum* of the simple correlations-squared (r^2) between the DV and each IV, after removing the overlap between items. The significance of the R^2 is reflective of the average of the simple correlations squared. Hence, a set might fail to achieve significance simply because it has more items (DeVellis, 2016). More critically, a set may contain more items simply because the variable was categorical (e.g., Living Arrangements, Occupations) rather than ordinal (e.g., Age, Education). Hence, in this thesis, a twofold criterion was used for the retention of a variable, a variable was considered important (and retained in the final analysis/discussion):

- (1) if removing that variable would cause a significant decrease in the R^2 (using $p < .01$ as the criterion), and
- (2) if removing that variable would cause a decrease in R^2 greater than .01 (1% of the total variance).

Furthermore, a variable was considered unimportant (not retained) only if it was found to be unimportant for *all* DVs (i.e., Cognitive, Personal Identity, Social Integration and Diversion). That is, to be retained, a variable had to be useful with at least one DV. The final set of variables was the same for all DVs so to simplify comparisons between the DVs.

Table 51 The Analysis of Set of IV (Predictors), within each Subscale of the SSE-MS

Set	#	Cognitive		Personal Identity		Social Integration		Diversion	
		ΔR^2	$p(\Delta R^2)$	ΔR^2	$p(\Delta R^2)$	ΔR^2	$p(\Delta R^2)$	ΔR^2	$p(\Delta R^2)$
SS: Social Context	10	.012	.720	.025	.088	.033	.013	.037	.009
SS: Social Media Outlets	8	.035	.009	.037	.002	.028	.014	.022	.073
SS: Activity	6	.046	.000	.068	.000	.063	.000	.078	.000
SS: Timing	5	.014	.133	.006	.516	.006	.516	.017	.050
SS: Type	4	.006	.491	.006	.412	.003	.676	.003	.756
SS: Process	6	.015	.183	.014	.142	.011	.248	.013	.217
TV: Social Situation	8	.028	.037	.047	.000	.037	.002	.027	.028
TV Emotion: Affect	2	.002	.507	.001	.731	.001	.778	.002	.479
TV Emotion: Number	4	.023	.011	.025	.002	.031	.000	.018	.021
TV Timing: Binge	3	.004	.453	.000	.958	.004	.397	.005	.338
TV Timing: Control	2	.009	.071	.001	.743	.000	.858	.001	.797
TV Intensity: Hours	3	.001	.893	.004	.411	.003	.506	.008	.168
TV Intensity: Modes	4	.004	.627	.008	.264	.006	.351	.011	.121
TV: Mode of Access	5	.010	.333	.011	.191	.010	.232	.019	.027
TV Genres	16	.024	.561	.026	.375	.041	.037	.026	.389
Gender	1	.000	.844	.000	.672	.000	.609	.000	.955
Age	1	.001	.412	.000	.820	.002	.275	.001	.543

Set	#	Cognitive		Personal Identity		Social Integration		Diversion	
		ΔR^2	$p(\Delta R^2)$	ΔR^2	$p(\Delta R^2)$	ΔR^2	$p(\Delta R^2)$	ΔR^2	$p(\Delta R^2)$
Living Arrangements	7	.016	.240	.015	.182	.010	.433	.011	.418
Education	1	.001	.499	.001	.481	.000	.847	.001	.561
Relative Income	1	.000	.644	.000	.692	.001	.442	.006	.048
Residential Area	1	.005	.083	.002	.251	.002	.193	.000	.938
Occupation	11	.019	.419	.011	.785	.015	.515	.010	.829

Table 51 highlights the variables that could be eliminated (bolded). These include age and gender which are variables retained in most analyses. The analysis could also drop education, relative income and residential area. These variables were not significant and did not increase the R^2 sufficiently for any subscale. However, Living Arrangements and Occupation would be retained. Note that the change in R^2 (ΔR^2) for Living Arrangements is above .01 for all subscales, even though that change was not significant. This is because this variable had 7 items. Similarly, the change in R^2 for Occupations is above .01 for all subscales even though that change was not significant (this variable had 11 items). Thus, one could conclude that Living Arrangements and Occupation were important determinants of fulfilment of needs. One should also remember that Occupation, Income and Education are themselves highly related so Income or Education might be important.

For TV Viewing Habits, it would seem that TV Emotion: Affect (e.g., getting upset, planning day around TV), TV Timing: Binge (binge watching), TV Timing: Control (watching VoD vs. Live TV), and TV Intensity: Hours (hours per day) could be dropped. These variables were not significant and did not increase the R^2 sufficiently for any subscale (all the changes in R^2 are less than .01). However, TV Genres, TV Modes of Access, TV Intensity: Modes of Access, TV Emotion: Number and TV: Social Context were all important to the fulfilment of needs. Note that all (except TV Intensity: Modes of Access) had a change in R^2 greater than .01 and many of these were significant. TV Intensity: Modes of Access was only important for the Diversion subscale. As such, one could argue that its retention is debatable.

For SS Use, only SS: Type (e.g., two screens, split screens) was not important (change in R^2 less than .01 for all subscales. All the remaining variables (SS: Process, SS: Timing, SS: Activity, SS: Apps, & SS: Social Context) were important determinants of the amount of gratifications received. These variables were important for all subscales. The only exception was

SS: Timing which was only important for the Cognitive and Diversion subscales (change in R^2 was less than .01 for the other subscales).

What is important in Table 51 is that the Social Context variables (SS: Social Context, TV: Social situation, & Living Arrangements) were all retained. This is important because it demonstrates that these three variables were not redundant with each other. Each of these captured something unique about the social situation that lead to the use of a SS to obtain gratifications related to watching TV. Glancing at Table 50 shows that the variables related to the social situation were generally among the most important (had the highest changes in R^2 , as high as .047). The variables for SS: Applications and SS: Activity were also important. The variables related to the method of use (e.g., SS: Type, SS: Timing) had changes in R^2 that were far smaller than those related to the social situation even if they were deemed important (changes in R^2 near .01). Similarly, variables related to TV timing and intensity were far less important than the social context. However, the importance TV Genres (a measure of TV content) and TV Emotion (a measure of commitment to the shows) approached those related to social situation in terms of importance (changes in R^2 as high as .041). One could approximately rank the variables in order of importance as social context being approximately equal to TV Genres which were more important than TV Emotion, which were more important than the others. A finer delineation would place Living Arrangement below TV: Emotion.

Further, multicollinearity was evaluated for variables that were included in the final model, and the Variance Inflation Factor (VIF) was assessed. Multicollinearity arises when at least two highly correlated predictors are assessed simultaneously in a multiple regression model (Field, 2009). Based on the multicollinearity test, the average VIF was 3.923 ($SD= 0.449$). 98% on the variables entered in the multiple regression model had a VIF below the acceptable threshold of 10 (Field, 2009; Mela & Kopalle, 2002). Only 2% of the variables had a VIF of more than 10 (Living Arrangements: Living with Parents and Living with Roommates). Since Living with Parents and Living with Roommates were considered as significant predictors in the stepwise model for all four subscales of the SSE-MS, it was decided to retain them in the final SSE-MS but approach the results related to these variables with caution.

This analysis confirms that which was seen in the analysis of each set of variables. However, at this time, based on one sample, it should not be concluded that the variables noted in Table 51 do not matter. They were less important in the current sample. They might be more

important in a different sample. However, this listing can be used to select the variables that are likely the most important to include in other studies of this type, which is valuable because time (to complete questionnaires) is a valuable commodity.

6.7 Summary

The analysis for the first and second research goals has shown that TV viewers do obtain cognitive, and/or personal identity, and/or social integration, and/or diversion needs from the use of a SS to talk about TV shows while watching those TV shows. It has also identified numerous factors – particularly the social situation (living arrangements, context of TV viewing, and context of SS Use) – that are related to the use of a SS.

CHAPTER 7 Discussion

There were two research goals for this work. The first research goal focused on the motivations for the use of a second screen to talk about a TV show while watching that show. In this discussion, it should be noted that “fulfilling a need”, “motivations to use”, and “obtaining gratifications” are three sides of one core concept. That is, people have needs, and they are motivated to fulfill those needs, and fulfilling those needs is personally gratifying. The use of a SS to talk about TV is called the Second Screen Experience (SSE). Hence, the research is focused on the motivations for, and gratifications received from the SSE. In this discussion, this is often shortened to the gratifications obtained through the SSE, or the motivations for the SSE.

Whereas the first research goal concerns the “why” of the SSE, the second research goal focused on the relationship between the motivations for the SSE and a number of background variables. The goal was to develop a better understanding of who engages in such behavior, how they engage in such behavior, and when & where they engage in such behavior.

Both of these research goals required the development of the Second Screen Experience: Motivations Scale (SSE-MS). The SSE-MS was used to assess “why” – the motivations for the SSE. In the second research goal, scores on the SSE-MS were related to various background measures classified within Demographics, TV Viewing Habits and SS Use.

This discussion is organized as discussion of the first research goal, including the development of the SSE-MS, and then the second research goal. Throughout this discussion the term “subscale” refers to one of the four subscales of the SSE-MS (i.e. the actual measurement of gratifications received from the SSE). It is used when making specific comments relevant to the interpretation of statistics. The term “dimension” is used to refer to the conceptual underpinning of each subscale. It is used when referring to the general construct or when tying the construct to other aspects of the literature. The dimension and subscale have the same names (Cognitive, Personal Identity, Social Integration, and Diversion needs) and are tightly linked. However, one should always remember that there is a distinction between a concept (construct, the dimensions) and the measure of that construct (the subscales), and that it is prudent to regularly re-assess the link between the two.

7.1 The Development of the SSE-MS

The assessment of the first and second research goals required the prior development of the SSE-MS. Motivations and gratifications were considered within the U & G framework (Katz, Blumler, & Gurevitch, 1973), which has had a long and successful application within media and entertainment research (see reviews in *Chapter 2*, Case, 2012; Lin, 1996; Ruggiero, 2000; Shao, 2009). The U & G framework has been applied in numerous domains (see *Chapter 2*). It is typically used to assess needs within four or five main dimensions: Cognitive, Personal Identity, Social Integration, Entertainment and Diversion needs. Entertainment and Diversion are often a single dimension. In this thesis, the U & G was considered within four domains: Cognitive needs, Personal Identity needs, Social Integration needs, and Diversions needs. For this thesis, the Second Screen Experience: Motivation Scale (SSE-MS) was developed to assess those needs within four related subscales.

Development of the SSE-MS consisted of four steps described in *Chapters 4* (Stage 1.1 to Stage 1.4) and three steps in *Chapter 5* (Stage 2.1 to Stage 2.3). In Stage 1.1, 178 items were generated by the researcher based on a review of the literature, with a particular focus on the U & G questionnaires in similar domains (e.g., TV viewing, SS Use, Social media use) In Stage 1.2, subject matter experts provided a qualitative review of the items which helped to reduce the set to just 110 items. In Stage 1.3, the 110 items were presented to 98 participants using an online questionnaire format. The responses were statistically analyzed to find the best 30 items resulting in 8 Cognitive, 8 Personal Identity, 8 Social Integration, and 6 Diversion items. Finally, Stage 1.4, the final set of 30 items was subjected to an initial reliability analysis (exploratory factor analysis and Cronbach's alpha).

In Stage 2.2 (Stage 2.1 was a summary of methods), the reliability of the SSE-MS was assessed using a sample of 348 participants. The conceptual structure of the SSE-MS was confirmed using exploratory factor analysis. Then, the four subscales of the SSE-MS were created as the average of the associated items. The Cronbach's alpha for each subscale exceeded $\alpha = .86$. In Stage 2.3, the validity of the SSE-MS was assessed by comparing the subscales of the SSE-MS to subscales of six existing validated and reliable questionnaires that shared constructs related to those of the SSE-MS. Three of these questionnaires were based in the same U & G

framework, and three were not. Based on this comprehensive analysis, the resulting SSE-MS questionnaire was deemed reliable and valid.

The SSE with TV shows is still a relatively new phenomenon. It is important to place this in context. One item of the background material asked participants about the frequency with which they used the SS while watching TV to talk about the show. A five-point scale from “never” to “always” was used. In this study, 18.4% of the sample reported using the SS in this manner “about 50% of the time”, 8.2% reported using it “about 75% of the time”, and only 2.4% reported using it “about 100% of the time”. That is, only 29.3% actively used the SS in this manner more than half the time. By comparison, in this sample 76.9% reported using the SS to “browse the web” more than half the time, 75.6% reported using the SS to “socialize in a manner unrelated to the show” more than half the time, 47.8% reported using the SS “to shop” more than half the time, and 47.1% reported using the SS “to work” more than half the time²⁶. Thus, relative to the use of the SS for “other activities”, the use of the SS to talk about TV is not as prevalent. This may change over time.

The participants for the current study were recruited because they use the SS while watching TV. These values are broadly comparable to the use of smartphones (30% of the population) or tablets (21% of the population) while watching TV (Nielsen, 2017). IAB (2017) reported (data is relevant to the period 2015 to 2017) that multitasking on a second device was practiced by 72% of the population while watching digital video and by 81% while watching traditional TV, based on a sample of 821 in the USA. Smartphones were the most popular second device (58% of traditional TV viewers and 56% of digital video streaming viewers). Of more direct relevance, they stated that 34% of streaming TV viewers and 29% of the traditional TV viewers used the SS to access content relevant to the TV show (or the TV commercial – IAB is focused on the use of the internet for advertising). All values were increased from previous years, but this must be interpreted within the context that streaming is still a relatively new phenomenon (i.e., it is continuing to grow). Given the growth of both streaming and smartphone adoption, it is reasonable to assume that the popularity of the SSE will continue to increase in the future. It is the logical extension of the current societal phenomena that sees increased use of the

²⁶ These percentages do not add to 100% because one could engage in many activities during the course of one TV show. For example, one could browse the web during one commercial, then chat with a friend during a second commercial, and update Facebook during a third and so on. In addition, one could engage in different activities in different shows.

internet from home in lieu of the traditional physical alternatives (e.g., shopping, socializing). As a relatively new phenomenon, the SSE for TV shows is still evolving and as such, current patterns of use may not be an accurate reflection of future patterns. However, these results should be interpreted and extended with caution.

7.2 The First Research Goal

The first goal focused on the motivations for, and gratifications obtained from, the Second Screen Experience (SSE): the use of a second screen while watching TV.

The specific research goal with its various sub-hypotheses were:

Understanding the motivations for the use of second screens to discuss TV shows while watching those TV shows (SSE).

H 1.1 SSE will fulfill cognitive needs

H 1.2 SSE will fulfill personal identity needs

H 1.3 SSE will fulfill social integration needs

H 1.4 SSE will fulfill diversion needs

H 1.5 SSE will fulfill all needs

These questions were tested using an online survey method with a sample of 450 participants (102 from Sample Y, and 348 from Sample X).

Results generally affirmed all questions. That is, results indicated that people used the SS to talk about TV shows while watching TV to fulfill each of the four needs. The means for the four subscales ranged from 3.15 to 3.70 on a five-point scale (from 1 to 5). They were close to the center of the scale; however, they were slightly more toward the “do not use” side. These means per subscale are reasonable, they are typical of the means observed with other studies based on the U & G framework (See *Chapter 2*).

The different needs had slightly different levels of support from participants. The Diversion dimension was preferred to the highest degree, followed by the Cognitive, Personal Identity and then Social Integration dimensions. The Diversion subscale had a mean of 3.2, compared to a mean of 3.7 for the Social Integration subscale. As a reminder, the range of the SSE-MS scale was from 1 (Strongly Agree) to 5 (Strongly disagree).

All subscales had some participants who selected the maximum level, and all subscales had some who selected the minimum level. The distributions were unimodal, but with an

additional spike for “do not use” (score of 5) for the Diversion, Personal Identity and Social Integration subscales.

The different subscales were moderately correlated (average $r^2 = .37$; min $r^2 = .20$; max $r^2 = .54$). The Cognitive subscale was the most distinct (lowest correlations with other subscales). Again, this is consistent with the literature which typically finds a similar pattern of correlations on those occasions when the correlations are reported (i.e., Barton, 2009; Papacharissi & Mendelson, 2007; Rubin, 1977; Shade et al., 2015).

This implies that the SSE fulfilled various needs but to differing degrees with different people. That is, the broadly unimodal distributions for each subscale imply that some people always use the SSE to meet that need, and that some people never use the SSE to meet that need, but that most people use the SSE to meet that need “some of the time” or “to some degree”. The correlations imply that different people use the SSE for different needs, and more specifically, the correlations imply that those who use the SSE to fulfill Cognitive needs are distinct from those who use the SSE to meet Diversion, Personal Identity or Social Integration needs.

Results suggest that participants use SS to fulfill different needs. Hence, a profile analysis was applied, and this identified five main groups of participants: The largest group (32.7% of participants) used the SS preferentially to meet Diversion and Cognitive needs, and to a lesser degree to meet Personal Identity and Social Integration needs. The second largest group (28.7% of participants) used the SS equally for all needs and was near the middle on every subscale. The third group (12.4% of participants) used the SS rarely to meet Diversion needs and not at all to meet other needs. In contrast, the next group (9.6% of participants) used the SS primarily for Cognitive needs and not for the other needs. Finally, the fifth (tied with the fourth at 9.6% of participants) had low endorsements for all needs: that is, they rarely used the SS to meet the needs assessed by the SSE-MS. Interestingly, very few participants (only 1.3%) used the SS for all needs. Pending more studies, these profiles should only be considered preliminary. At this time, the important point is not the actual profiles for different groups, but rather the demonstration that there are likely groups of TV viewers who use the SSE to meet different collections of needs.

7.3 The Second Research Goal

The second research goal was the determination of background variables (Demographics, TV Viewing Habits and SS Use) that are related to the use of a SS to talk about the TV show while watching that TV show (the SSE for TV viewing). This addressed the “who”, “when”, “where” and “how” of the SSE (the “why” was Research Goal 1). This is basically a profile of the typical SSE user. The specific research goal with its various sub-hypotheses were:

Understanding who, what, when and where viewers use second screens while watching TV:

H 2.1: Demographic variables are related to the fulfillment of needs through the SSE

H 2.2: TV Viewing Habits variables are related to the fulfillment of needs through the SSE

H 2.3: Second Screen Use variables are related to the fulfillment of needs through the SSE

At a general level, the main findings are that the Demographic variables were not strongly related to the SSE. The TV Viewing Habits variables and the Second Screen Use variables were stronger predictors than the Demographic variables of the ability of the SSE to fulfill Cognitive, Personal Identity, Social Integration and/or Diversion needs. The situation is complicated by the fact that within each set of variables, there were a number of items, and that each item could affect only some of the four needs (Cognitive, Personal Identity, Social Integration and/or Diversion needs). Within each set (Demographics, TV Viewing Habits, SS Use), some variables were useful (added predictability to the model) and other variables were not, but the important point is that some variables were needed from each set. Hence, any consideration of the motivations for the SSE must consider elements from all domains. Meaning, for example, even if a study were to consider only the role of the SS Use on motivations, it would need to control or contextualize the other domains to provide a complete description of effects.

In summary, for the Demographic variables, none except Living Arrangements and Occupation were deemed useful. For TV Viewing Habits the social situation of TV viewing (TV: Social Situation), the emotional attachment to TV shows (TV Emotion: Number, but not TV Emotion: Affect), the intensity of viewing (TV: Intensity: Mode, but not TV Intensity: Hours), the mode of access (TV: Mode of Access) and the genre of TV viewing (TV: Genres) were deemed useful. The timing of TV viewing (TV Timing: Control and TV Timing: Binge) was not useful. Given the rising prevalence of streaming TV (VoD), it is not too surprising that the

timing of TV was not a factor. People can watch most TV at the time of their choice (Bury & Li, 2015; Nielsen, 2019). There are a few televised options that are only available at the time of broadcast (Live TV), but these are limited to new shows. From the perspective of statistical analysis, the fact that most material can be obtained through VoD means that the concept behind TV Timing: Control only applies to a small part of the population (hence participants) and is thus unable to demonstrate strong effects.

The lack of effects for Binge TV is more interesting. This outcome is contrary to that of Steiner & Xu (2018) who found that some TV viewers enjoy binge watching alone while communicating through second screens with others who are also watching alone. In this thesis, the lack of a relationship may imply several things, none of which can be answered with the current study. It may be that those who engage in more binge watching do so at times when it is not possible to converse with others over a SS (e.g., a 4 in the morning). It may be that those who engage in more binge watching do not have any friends to converse with. Note that none of this has any implications for the gratifications received from binge watching itself. For SS Use, all the variables were predictive of gratifications, except the type of SS (SS: Types).

The following discussion considers the effects at a more granular level. In this discussion, there are variables (Demographic, TV Viewing Habits and SS Use), and each variable had one or more items that captured some component of that variable.

7.3.1 SSE-MS and Demographics

The general pattern for the Demographic variables is shown in Table 52, which provides the variables and a two-point rating of utility (useful vs. not useful). The rating was based on the final analysis (*Chapter 6, Analysis 3: Final Analysis – Reducing the Set of Predictors*). As stated in *Chapter 6*, a variable was defined as useful if it had an important contribution to the prediction of at least one need (Cognitive, Personal Identity, Social Integration, or Diversion).

Alternatively, a variable was deemed not useful if it did not have an important contribution to the prediction of any need. Table 52 also includes a brief summary of the simple correlations (*Chapter 6, Analysis 1: The Simple Correlations*). If any item of a variable had a significant correlation with any subscale, then the subscale is cited. For example, Age had some relationship with the Cognitive and the Social Integration subscales. Table 52 also includes the number of items that made up the variable.

Of the Demographics, only Occupation and Living Arrangements were determined to be useful.

Table 52 The Utility of the Demographic Variables by Component.

Component	Variable	# Items	Utility	Simple Correlations
Demographics	Gender	1	not useful	
	Age	1	not useful	Cog, Soc
	Education	1	not useful	Cog, Soc
	Relative Income	1	not useful	
	Occupation	12	useful	
	Urbanization	1	not useful	
	Living Arrangements	7	useful	Cog, PId, Soc

Notes Cog = Cognitive needs, PId = Personal Identity needs, Soc = Social Integration needs, Div = Diversion needs.

When glancing at Table 52, the simple correlations may seem to contradict the assessment of utility. That is, Age and Education have some significant correlations (between the item and the Cognitive and Social Integration subscales) even though Age and Education as a whole were deemed not useful. Conversely, Occupation was deemed useful in the final analysis even though none of its items had a significant correlation with any subscale. However, this is not a contradiction or a problem. The importance of a variable or item (i.e., significance, p , and/or effect size, r^2) when considered in isolation is different from the importance of that variable or item when considered in the context of other items. Significance in isolation, and significance in context, are equally valid and useful measures. The interpretation depends on the focus. This apparent or possible contradiction happens because the various Demographics are related to each other. For example, age and educational achievement are typically correlated (in this case, $r = .75$, which is high). Age and educational achievement are also related to occupation. For example, particularly, Aguilar et al., (2015) noted that the use of social media to talk about TV shows is more prevalent in the younger generations, and generally, the adoption of new technologies and new social norms (e.g., the use of a SS) is inversely related to age (Morris & Venkatesh, 2006; Rogers et al., 2017), but the adoption of new technologies (and progressive social norms) is also related to higher education (Riddell & Song, 2017; Rogers et al., 2017). Some occupations may promote the use of new online technologies (e.g., computer science) whereas others may not. It is hard to isolate the various effects but that is what the final analysis (*Chapter 6, Stage 3: Final Analysis*) was designed to do – to see whether or not each item was

important when all items were considered. Nonetheless, it must be noted that a different sample might find Education to be more important than Occupation (and Age), while a third sample might find Age to more important than Education and Occupation (see Howell, 2016, p 551 for a similar discussion). These variables are always interconnected so the specific composition of a sample will determine which is the most important. At this point, the safest conclusion would be that there are age-related effects on the amount of gratifications received from the use of a SS to talk about TV. These age-related effects could be any of Education, Occupation, Income, or even social maturity.

It is important to realize that a correlation does not imply causation. The items themselves might imply a causal link but this is an inference that is not based on the statistics. For example, one might assume that there is a simple chain such that age determines (in part) educational achievement, and that education determines occupation (and income) and that occupation (or income) is related to the gratification of needs. However, that occupation effect is the result of a chain of effects that includes age and education and the chain does not need to be causal in nature.

Gender was not predictive of any needs in either the simple correlations or the final analysis. The gender ratio was skewed to females (72%), but there was a sufficient number of males (28%) to see a gender difference. Note that, in this case, the test of the simple correlation is identical to the two-group t-test comparing males to females on each need: hence, there were no significant differences between males and females on the level of gratifications obtained. This means that both genders obtain the same amount of gratification from the use of a SS to talk about TV shows while watching those shows.

Age was related to the Cognitive and Social Integration needs in the simple correlations but was not useful in the final analysis. This is likely because Age, Education and Occupation were strongly related, and Occupation turned out to be the better predictor.

Education, occupation and income are major components of socio-economic status (SES). There is no single formula that defines how these are to be combined as SES, so they were used as separate variables in the current research. None of these were strong predictors. In the simple correlations, Education was related to the Cognitive and Social Integration needs, but the other items had no significant relationships. In the final analysis, Occupation mattered when considered as a unit (not individually), but not Education or Income. This finding is not

surprising since Education, Occupation and Income are usually tightly related. It would be better to delay further consideration of this effect until more samples (with more breadth of education and occupation) have been obtained. The number of participants per occupation (other than student; 70% of the sample) was low. In addition, the current sample may have suffered from a range restriction for SES since most of the sample university students.

Urbanization was not an important predictor for the simple correlations or for the final analysis. This is surprising because there are plausible reasons to expect a predictor in two directions: living in a rural area (i.e being more isolated) could be expected to lead to more SS Use to connect with others, while individuals in urban environments might be expected to be more tech-savvy and interested in trends. One might expect those living in more isolated environments (i.e., rural) would have greater use of the SS to meet needs but this did not happen. However, only 2.2% of the sample came from a rural region (60.9% were urban, the rest suburban), so this relationship might be worthy of future work.

Living arrangements had some interesting effects. In the simple correlations, married with children led to higher endorsement of Social Integration. It is possible that the presence of children tends to confine parents to the home, which leads some to seek more adult company through online tools. Living with roommates led to higher endorsement of the use of the SSE to attain Cognitive, Personal Identity, and Social Integration needs. The relationship for Diversion was almost as high. The term “roommates” was chosen carefully and was specifically distinct from “living with friends”. “Roommates” was used to capture the typical residence or student accommodation situation, in which roommates are put together without prior social contact or established bonds. The lack of prior bonds would suggest that those living with roommates would have more Social Integration or Personal Identity needs. Living with parents or family led to lower support of Cognitive and Social Integration needs. This finding is broadly supported by the work of Larsson & Lundkvist (2019) who examined the interactivity of a group of people who use second screens while watching TV together. For their study, the researchers decided to recruit a group of family members and a group of friends instead of two groups of random participants to make sure that the interaction is more natural. Although their study was not focused on motivations of using second screens but focused on the physical interactions of viewers while using second screens, they considered the physical space of the SSE. They found a difference between how each of the group members interacted with each other while using

second screen apps. Their results indicate that the interactions are different within different groups (i.e., living arrangements), which might help explain why different living arrangements fulfill different needs. Living with friends had similar non-significant relationships. Conversely, one could also speculate that family and/or friends provide sufficient social interaction so there is less need for the use of a SS for social integration. Cognitive needs may also be met by family and friends, though this would seem less likely than social needs. Thus, the fact that Living Arrangements (as a whole) was important (statistically) in the final analysis is not surprising. Generally, it would seem that a friendly social environment leads to lower need to seek gratifications through the use of a SS while watching TV.

Largely, the results are consistent with – though weaker than – studies examined in literature reviews of the U & G framework (e.g., Rubin & Rubin, 1985; Lin, 1996; Ruggiero, 2000; Valkenburg, Peter, & Walther, 2016). This weakness may reflect the current sample (which was somewhat restricted in age and occupation) or may be a more general fact of the use of SS to enhance gratifications associated with talking about the TV show.

Nonetheless the results were informative in two ways. Firstly, most of the Demographic items (i.e., Gender, Relative Income, Degree of Urbanization, and individual Occupations) were not related to attaining needs from the use of the SS to talk about TV shows. Secondly, Living Arrangements, Occupation, Education and Age did matter. This disconnect is interesting because when examining the correlations age mattered whereas gender and SES did not. Age and educational attainment are generally correlated so the fact that both mattered is not surprising.

7.3.2 SSE-MS and TV Viewing Habits

The general pattern for the TV Viewing Habits variables is shown in Table 53 which provides the variable, the number of items per variable, the utility of the variable, and a summary of significant simple correlations involving items of the variable. Again, variables that were deemed useful in the final analysis had an important contribution to the prediction of at least one need (Cognitive, Personal Identity, Social Integration, or Diversion). Alternatively, those that were deemed non-useful had no important contribution to any need (see *Chapter 6* for details).

The “utility” refers to the collective effect of all items of the variable, regardless of how the items were coded, meaning, in the final analyses, each variable was a collection of related items, and the analysis treated all items of the variable as a unit.

Table 53 The Utility of the TV Viewing Habits Variables by Component.

Component	Variable	# Items	Utility	Simple Correlations
TV Genres	TV: Genre	16	useful	Cog, PId, Soc, Div
Mode of Access	TV: Mode of Access	5	useful	Cog, PId, Soc, Div
Intensity of TV viewing	TV Intensity: Mode	4	useful	Cog, PId, Soc, Div
	TV Intensity: Hours	3	not useful	Div
Timing of TV viewing	TV Timing: Control	2	not useful	
	TV Timing: Binge	3	not useful	Div
Emotional Connection to TV	TV Emotion: Number	4	useful	Cog, PId, Soc, Div
	TV Emotion: Affect	2	not useful	Cog, PId, Soc, Div
Social Context	TV: Social Context	8	useful	Cog, PId, Soc, Div

Notes: Cog = Cognitive needs, PId = Personal Identity needs, Soc = Social Integration needs, Div = Diversion needs.

TV Genres

Generally, those who endorsed the watching of specific genres used the SS to obtain more gratifications related to the TV show. However, the actual effects were spread across a number of different genres. For example, those who selected Children/Family genres used the SSE to fulfill Personal Identity and Diversion needs. For this study, the selection of Children/Family implies an adult watching TV shows with children. The show itself may not be engaging for the parent, but parents might be discussing the content with other parents. Those who watched Documentaries chose more Cognitive needs. This seems reasonable: those who watch documentaries (by choice) seek information, so it seems natural that they would use a SS to seek even more information about the topic discussed in the TV show. Those who endorsed the genre Music (i.e., shows devoted to music videos, or concerts, or talent searches) acknowledged more Personal Identity and more Social Integration needs. Superficially, this makes some sense because the music is primarily a form of emotional self-expression and/or communication.

Although the individual effects were not large, in the final analysis, genre was a useful predictor. One reason for the small effects in the current research might be that most participants watched a variety of genres (the mean number of genres was 4.8 out of 16). The survey did not ask about the use of a SS for each specific genre. It asked about the genres watched, and it asked about motivations. If some of the genres mattered but others did not, then those that did not might weaken the effects of those that did. Future work could consider specific genres or specific groups of viewers who watch specific genres.

A second reason is that particular shows (within particular genres) were not targeted. It may be that only certain shows within a genre generate a need for immediate online discussion because of its popularity. For example, in the Sci Fi Fantasy genre, *Game of Thrones* might generate a lot of discussions, but other shows do not. That is, the genre as a whole (the generic notion of a genre) might not be related to the gratification of needs. Many of the cited studies in the previous literature review have focused on a small number of specific TV shows (e.g., *The Voice* in Laursen & Sandvik, 2014; *American Idol*, *Project Runway*, and *Glee* in McBride, 2015; *Dancing with the Stars*, *Mad Men*, and *True Blood* in Mukherjee & Jansen, 2014; *Downton Abbey* in Schirra, Sun & Bentley, 2014) and the results may not be generalized to all genres.

A third reason is that the effect of the interaction of genre with Live TV was not considered at this time because it was not possible. For each participant, there were items that asked about Live TV or about VoD. There were separate items that asked about genres viewed. However, items about genres collapsed over both Live TV and VoD, and vice versa. There were no items that asked about specific genres while specifically using Live TV, or about specific genres while specifically using VoD. This issue was further exacerbated by the fact that almost all participants watched both Live TV and VoD to some degree – there was no group of participants that only watched Live TV. Thus, it was not possible to create and contrast two groups of TV viewers. However, one might expect more online discussion (i.e., SSE) for a much-anticipated new release. Similarly, the gratification of needs might be an “episode-by-episode” phenomena. That is, some episodes (particularly season finales, or season premieres) may generate more discussion than other episodes. There are numerous websites devoted to the “best” or “most talked about” episodes of a show (e.g., a Google search with key words *show name* and *best episodes* invariably generates hundreds of links). Also, some shows make much more active efforts to get a viewer to engage in SSE (i.e., advertise on social media for an episode).

Modes of Access

The items under TV: Modes of Access (i.e., watching TV using Cable, DVDs, streaming video on demand, live streaming video, or smartphones) were collectively useful in the final analysis, but this was entirely due to just one item – the use of smartphones to watch TV. This finding supports that using smartphones to watch TV is on the rise (see Bury & Li, 2015; Ofcom,

2019). One must carefully consider *when* people would use a smartphone to watch TV. The smartphone offers a small screen and limited audio quality. Thus, the smartphone would be used when the larger TV, or larger computer is not available. This most likely happens when the person is on the move. It may also happen if a person does not own a TV or computer, or when that TV or computer is otherwise unavailable. In any case, those who are willing to accept the improvised experience of TV on a smartphone must be committed to their shows. Previous research shows that it is easier to switch attention between spatially separated devices (Thomas & Wickens, 1999). If someone uses a smartphone for TV is because they are on the move, then the smartphone is likely the device used for both the TV and the SS interactions. This dedication to the TV show likely extends to a dedication to use the SS to talk about the TV show. Remember that all of the assessment of motivations was about the use of SS *while watching TV*. These participants are reporting the use of a SS *more often* when using a smartphone to watch TV. Of course, all of this is just reasonable speculation. Further research would be needed to isolate when TV on a smartphone leads to greater use of a SS.

TV Intensity

The items that referred to the TV intensities or frequency of watching TV sourced from cable sources (i.e., scheduled), streaming media from broadcasters (i.e., scheduled), streaming media from on-demand sources (i.e., not scheduled), and DVDs (i.e., not scheduled) were useful in the final analysis. At the level of the simple correlations, those who watched more TV from broadcasters (i.e., scheduled broadcasts, often associated with Live TV) obtained more gratifications of all types through the use of the SS. When watching Live TV, it is the schedule of the broadcaster that determines the viewers' schedule. Viewers must schedule their time, and family or friends might be watching the same show at the same time. This can permit or encourage online discussions.

Those who watched DVDs also gratified more needs from the use of a SS to talk about TV shows. This must be a different mechanism. The use of DVDs does not have a predetermined schedule. It is unlikely that different people, in different places, would be watching the same show on DVDs at the same time. Even if they were, synchrony would be an issue (being at the same point of the show at the same time). This would make two-way online communication difficult or pointless. As such, it was initially difficult to reconcile this result. However, in retrospect, none of the items used in the current survey demanded that all participants in the

online conversations be watching the same TV show: Items only referred to the “use of the SS to talk about the show while watching the show”. Thus, it may be that those who watch DVDs are excited enough to talk about those shows online using a SS even though the other persons in the conversation were not actually watching the show. In fact, this could be happening with any mode of access – a person could be conversing online about a show while watching the show, even though the other persons in the conversation were not watching the show. This suggests a line of further inquiry – online synchronous viewing and conversation versus online synchronous conversation without synchronous viewing.

Also, nowadays, watching DVDs is an “extra effort” form of watching (viewer went out and bought/rented/borrowed a specific show because they cared about it, then went through the effort of putting the disc on instead of popping on watching whatever is available on Netflix), which can also suggest more enthusiasm about the show.

Further, sometimes internet groups will deliberately plan to watch “classic” (not currently airing) shows (either on DVD or any means) at the same time precisely so they can have conversations. The *A.V Club*, a popular online pop culture website, used to have *TV Club Classic*, which was when a TV critic declares “for the next X weeks, we’ll watch, review, and discuss two episodes of this old show every week until we make it all the way through.” In this sense, DVD watching can promote talking about a TV show together in social media: the SSE.

The items under TV Intensity: Hours were not useful in the final analysis, though one item (hours on Sunday) was related to the Diversion subscale. Those who watched more TV on Sundays derived more diversion related needs from the use of SSE while watching. It may be because viewers unwind from the weeks obligations and are preparing themselves for the week ahead.

Timing of TV Viewing

The distinction between Live TV and VoD was addressed in several ways. The previously cited TV: Modes of Access and the TV Intensity: Modes captures some of this. However, the main variable was TV Time: Control. This directly assesses the amount of choice the TV viewer had over the time of viewing (“watching at the time of broadcast” vs. “watching at the time of choice”). Watching TV at the time of broadcast would be associated with Live TV. At the other end, TV Time: Binge captured the idea of binge watching which is only possible with VoD (i.e., Netflix) or DVDs. As it turned out, in the final analysis, these variables were not

important, although binge watching was associated with the Diversion subscale. This lack of relationships was surprising. The lack of an effect might truly imply that the Live TV vs. VoD distinction does not matter, or it may imply that a different approach to this research question is needed. For example, this research did not directly contrast the SSE with VoD to the SSE with Live TV.

Emotional Connection to TV

The inclusion of variables that address the emotional connection to TV was an attempt to get at the deeper motivations for watching particular TV shows. If a TV Viewer is strongly attached to a particular TV show, then that individual would be more likely to plan their day around the show (i.e., schedule time for the show). This was addressed by two variables. TV Emotion: Number and TV Emotion: Affect. In the analysis, TV Emotion: Number was deemed useful, but this was entirely due to the effect of “followed shows on social media”. That is, those who followed more shows on social media also received more gratification from the use of a SS to talk about those shows. TV Emotion: Affect directly asked if the viewer was upset if a show was missed and if the viewer planned their time around the show. In the final analysis, TV Emotion: Affect was not useful, even though both the items had significant simple correlations with all the subscales. This is likely a consequence of the fact that this variable overlapped with the other variables. It is something to keep in mind for future studies.

Social Context

The final variable was TV: Social Context, which coded for the type of company when watching TV. A list of 8 types of company (e.g., “alone”, “with family”) was provided, and each participant rated the amount of time they watched TV in that type of company using an ordinal scale from “never” to “always”. Not surprisingly, the type of company was useful in the final analysis, but not completely as expected. It was argued that the use of a SS allows for shared TV viewing (social TV) when viewers are physically separated (Cesar & Geerts, 2011; Courtois & D’heer, 2012; Jenkins, 2006; Lochrie & Coulton, 2011; Schirra, Sun, & Bentley, 2014; Wilson, 2016). If the SS is an extension of the living room that allows for social TV viewing, then it is logical to assume that the SS is most useful when one is alone. That is, intuitively, one would expect that “being physically alone” might promote the highest level SS Use for the gratification of needs – particularly Social Integration and Personal Identity. However, watching TV with “no one” was not associated with more gratification via the SSE, although there were marginal

relationships between being alone and the Personal Identity and Diversion. The use of a SS would also be valuable when the desired company for that TV viewing were not present (i.e., the current company is not the desired company) As expected, those who watched TV with "colleagues" or with "others" did receive more gratifications through the use of a SS (but this was a small percentage of participants). However, the pattern did not extend to "roommates". Similarly, those who watched TV with a "partner", with "family" or with "friends" did *not* receive more gratifications through the use of a SS, with the exception of a relationship between "friends" and the use of a SS for Personal Identity needs (this may be a comment on the quality of friendships). Again, this would be expected because one would not need to seek online gratifications if friends were in the room. Note that for this variable, the terms “colleagues”, “roommates" and “family " and "friends” were carefully chosen to separate these type of relationships (i.e., closer versus more accidental). Only the lack of effects for "roommates" was unexpected and was about the same magnitude at that for "friends". One can speculate that because the sample had a large proportion of university students, and because data collection occurred near the end of the university year, those "roommates" might have been transitioning to "friends" (i.e., even in residence, people have found compatible company by the end of the year). What was more surprising was that viewers who watched TV more often with Children/Family obtained more gratifications of Cognitive, Personal Identity and Social Integration, but not Diversion needs. There was no literature that I could source that explain why people use a second screen as a function of the type of company (the lack of information about the type of company for the SSE was a reason this variable was included in the current research). Hence, at best, one can only speculate that parents watching TV with children likely have some need for adult company or conversation. However, anyone who is, or has been, a parent knows that parents do discuss the TV shows that their children watch, particularly the shows for younger children. Thus, even if the SS is used to seek some adult conversation, that conversation would likely include some references to the TV show. There was no requirement in the current research that the online conversation using a SS focus exclusively on the TV show. Conversely, viewers who watched TV with “friends” obtained more gratifications in the Personal Identity dimension. This minor inconsistency might be due to the inclusion of a larger social group (via the SS) as part of the circle of friends. Surprisingly, those who watched TV with roommates did not gain any gratifications from the use of the SS. This may seem to contradict the relationship discovered

between living with roommates (under Living Arrangements within Demographics) and increased use of the SS for Cognitive, Personal Identity and Social Integration needs. Moreover, TV viewers who watched TV with colleagues obtained more gratifications in all dimensions from the use of a SS to talk about the show. One possibility is that the effects were somewhat random because few participants selected either option: Only 27% watched TV with a roommate and only 15% watched TV with colleagues. It may be that for the few participants in those situations, it is being with colleagues that creates more need to use a SS to fulfill needs. This difference may be because colleagues usually do not share the same interests. It should be added that many of the simple correlations in this Social Context variable were “near” to significance. So, the social situation likely matters, but the nuances need to be teased out in more specific studies. More generally, studies of this type should be mindful of the important impact of the social situation on any data collection. For example, one cannot assume that being alone will be predictive of the motivations for using the SSE.

The general pattern that emerges is that most aspects of the TV viewing situation (i.e., the type of show, the mode of access, the timing and intensity of TV viewing, the social situation) may have some impact on the use of the SS to seek gratifications of one type or another. Not all aspects seem to be equally important (e.g., genre and the social context matter more than emotion, timing, intensity, or mode of access). This is an important observation because it implies that any future work in this area needs to consider the TV viewing situation when trying to assess any aspect of the SSE.

The TV Viewing Habits variables used in this study had some overlap. For example, the variables TV Intensity: Hours (hours per day), TV Emotion: Number (number watched or followed), and TV Timing: Binge are all related to the behavioral commitment to TV watching (time in front of a TV). The variables TV Timing: Binge, TV Emotion: Number, and TV Emotion: Affect all related to the emotional commitment to a show. These variables tried to assess motivations of watching TV while using second screens without the need to refer to a particular show (e.g., *Game of Thrones*) which would limit generalizability. Several items were used to approach the problem from several directions. The general finding is that the SSE is related to the commitment to TV watching.

The distinction between Live TV and VoD was addressed by a number of “generic” items (to avoid a focus on particular shows or particular broadcasters): it was assumed that Live TV

would require a number of viewers (family/friends) to be watching the same show at the same time. This would encourage the use of the SS to talk about that TV show. On the other hand, VoD does not create the need for synchronized TV viewing (conversely, if many viewers are watching the same show using VoD, they are likely in the same room and would not need a SS). The main variable was TV Timing: Control (watching TV at the time of broadcast vs. watching TV at the time of choice). Watching TV at the time of broadcast (be that cable or online-streaming from broadcasters) is Live TV, whereas watching TV at the time of choice is streaming TV or DVDs. This is an imperfect association, but it captures the essence. The variables TV: Mode of Access and TV Intensity: Modes were also directly relevant to the distinction because they asked about streaming versus broadcast access. The variable TV Emotion: Affect (get upset if missed, plan day around TV show) was indirectly relevant if one assumes that there is no need to get upset if the show is not Live TV (i.e., could be watched at any time). Finally, the variable TV Timing: Binge was also indirectly relevant because binge watching is only possible with VoD or with DVDs (some broadcasters will occasionally offer marathons of a particular show, but even then, the viewer does not have choice over which episodes). Because the main variables were not strongly associated with any need, one main conclusion is that the distinction between Live TV and VoD is not too important. This further implies that the planning component of TV Emotion: Affect (plan day around viewing) and the planning component of TV Emotion: Number (# of shows that the viewer makes time for) were not due to the Live TV vs VoD. Rather it implies that some people are committed to their shows and set aside some time in the day for the show, regardless of the source. This is an important point because Van Es (2016) and Schirra et al. (2014) have argued that the "liveness" (the novelty) of Live TV enriches discussions about TV shows on social media. Furthermore, Mukherjee & Jansen (2014) and Midha (2014) have shown that there is more social interaction (tweeting) with Live TV. However, the current research seems to suggest that this is not the case, or at the very least, it is only a minor component of the desire to use a SS to talk about TV while watching TV.

Generally, the use of the SS to gratify needs associated with TV watching was consistent with other work in this area (e.g., Basapur et al., 2011; Bulterman, 2014). However, these studies were not focused on the gratifications obtained through the use of a SS to talk about the show while watching the show. As such, direct comparisons cannot be made. The results are broadly

consistent with larger studies related to the use of social media (particularly Twitter) but again direct comparisons cannot be made (e.g., Ericsson, 2012; IAB, 2012; Nielsen, 2014).

Generally, the results indicated that TV Viewing Habits mattered in the general sense. This is important for any work that examines this phenomenon because it implies that the TV Viewing Habits are a determinant of the amount and type of gratifications obtained through the SSE. If a particular study tries to allow for all categories of TV Viewing Habits (e.g., does not control or measure these variables), the result would be an increase in noise that could impair the discovery of other effects. Conversely, if a particular study tries to control TV Viewing Habits (e.g., it only examined Live TV or VoD) then generalizability of results would be limited. For the purpose of control, the most important attributes seem to be intensity as assessed by the emotional commitments (e.g., following on social media; planning the day around TV viewing). The least important seems to be the mode of access and the distinction between Live TV and VoD.

7.3.3 SSE-MS and SS Use

The general pattern for the SS Use variables is shown in Table 54 which provides the same content as Table 52.

Table 54 The SS Use Variables by Component.

Component	Variable	# Items	Utility	Simple Correlations
Types	SS: Types	4	not useful	
Processes	SS: Processes	6	not useful	
Social Media Outlets	SS: SMO	8	Useful	Cog, PId, Soc, Div
Activities	SS: Activities	6	Useful	Cog, PId, Soc, Div
Timing	SS: Timing	5	Useful	PId, Soc, Div
Social Situation	SS: Social Situation	10	Useful	PId, Soc, Div

Notes Cog = Cognitive needs, PId = Personal Identity needs, Soc = Social Integration needs, Div = Diversion needs.

Types

A number of items addressed the type and process by which the SS was accessed (SS: Types and SS: Processes). In the final analysis, the physical form of the SS did not matter. None of the items had significant correlations. That is, there were no real differences in the amount of gratifications associated with a SS that was a split screen (selected by 41% of participants), a second screen (endorsed by 42%), or a smartphone (endorsed by 83%). The different options had

sufficient levels of support to see effects if they existed. Naturally, one would expect the use of two screens (e.g., TV plus a computer or phone as a SS) to be easier than one split screen because both would be constantly available, but this was not an issue for the amount of gratification.

Process

Similarly, in the final analysis, the process used to access the SS (SS: Process) did not matter. None of the items had significant correlations. Pausing the TV Show to access the SS was selected by 54% of the sample (an option for streaming media or DVDs) and using the SS during commercial breaks (only available for Live TV) was selected by 18% of the sample. This was surprising as it was expected that commercial breaks would help viewers obtain some needs but that was not the case. Wohn & Na (2011) observed a rise in tweeting activity during commercial breaks, but this finding might be exclusive to the social media outlet (Twitter) and the TV show Genre (Historical Drama). Attempting to watch both, or watch one while monitoring the other (i.e., watch one and listen to the other) and focusing on one only (i.e., missing one) were endorsed by 65%, 33% and 54% of participants respectively. All these values imply that participants have various strategies for splitting their attention over multiple streams of information (i.e., the TV show, and the other conversations). Nonetheless, these distinctions had no bearing of the gratifications received from the use of a SS to talk about the TV show. The process is not relevant to gratifications.

Social Media Outlets

In the final analysis, the social media outlets used on the SS (SS: Social Media Outlets) mattered. Items primarily focused on Social Media Outlets, broadly defined (i.e., social media sites, blogs, micro-blogs, email conversations, forums, chat, and video conferencing), but also included information channels. Though the items were generic, commonly used examples were provided (e.g., Facebook for social media sites, Twitter for micro-blogs, IM for chat, Wikipedia for information channels). The amount of use of social media sites and the use of chat was not related to the amount or type of gratifications obtained from the use of a SS to talk about TV. This was a bit surprising to me. Intuitively, I would have expected that those who use the internet to socialize more often, would also use a SS to talk about TV shows more often because both reflect socializing. My research implies that the two phenomena are not strongly linked. At this point, there is no literature to identify why. One can speculate that the type of socializing about a

TV show is different from the more broadly defined socializing that is associated with social media sites or chat. The use of a SS to talk about the TV show is focused on the TV show. Only one dimension of the question actually focused on the social interaction (Social Integration). Alternatively, it may be that the use of social media sites and the use of chat are so prevalent that amount of use is not related to specific ideas. A possible analogy would be the lack of a relationship between the amount of driving and the pleasure derived from driving. The amount of driving is dictated by so many other factors, that the amount is not related to the amount of pleasure derived from driving (i.e., some love to drive, others drive because it is necessary, so on average, there is no relationship). The amount of use of blogs, micro-blogs (e.g., Twitter), email conversations, forums, information channels, and video conferencing were all related to the amount and type of gratifications obtained from the use of a SS to talk about TV. Micro-blogs and forums were related to all needs: Those who used blogs more often fulfilled more Personal Identity, Social Integration, and Diversion needs from that use. Greater use of information channels was related to greater fulfillment of Cognitive needs and to Social Integration needs. The link to Cognitive needs is obvious (i.e., one would access information channels to seek information), but the link to Social needs is unclear. The current study cannot provide any detailed information about why this may have happened, so one can only speculate. The Social Integration dimension had some focus on the motives of characters, and it may be that information channels (such as Wikipedia, Rotten Tomatoes) provide some additional descriptions of the rationales of characters or the plot. Such channels would also provide a backstory, descriptions of prior episodes or other contextualizing information that enables the viewer to understand why characters acted in the manner that they did. The increased use of email conversations was only related to increased gratification of Personal Identity needs. Finally, increased use of video conferencing was related to increased gratification of Personal Identity and to Diversion needs. Note that more than 60% of the sample stated that they used blogs (but not micro-blogs) and video conferencing about “Never = about 0% of the time”. Only 12.7% of the sample said they used blogs more than 50% of the time, and only 13.3% said they used video conferencing more than 50% of the time. Consequently, the relationship between video conferencing and gratifications received, and the relationship between blogs and gratifications received, were each based on very few participants. As such, the links should be considered preliminary.

All these (SS: Social Media Outlets) items had sufficient ranges to see effects if they existed. All Social Media Outlets had participants at every level of use (from “never: 0% of the time”, to “always: 100% of the time” on a 5 point scale) but some Social Media Outlets had much higher levels of use. Social media (mode 4, mean 3.5) and chat (mode 4, mean 3.6) were used to a much greater degree than email conversations (mode 2, mean 2.2), micro-blogs (mode 1, mean 2.2), information channels (mode 1, mean 1.8), forums (mode 1, mean 1.8), blogs (mode 1, mean 1.6) or video conferencing (mode 1, mean 1.5). The amount of use of each type of app is important for the interpretation of results. In particular, it shows that any *lack of relationships* between Social Media Outlets and gratification is *not* caused by a range restriction in App use (e.g., if no one used email conversations, then there could be no relationship between the amount of email use and gratifications received). Because use was broadly consistent across all Social Media Outlets (excluding social media and chat), the differences in types of gratifications obtained for the various Social Media Outlets are not an artifact of the level of use.

Activities

In the final analysis, the activity (SS: Activity) on the SS also mattered to the amount or type of gratification obtained through the use of the SS. Participants were asked if the SS was used for “work”, “shopping”, “talking about the show”, “socializing (not about the show)”, or “browsing”. There was also a category of “other”. The inclusion of “talking about the show” cannot be compared directly to the other options because participants were recruited for this study, in part, because they used a SS for this function. The variable SS: Activity was intended primarily contextualize the amount and type of SS Use for talking about TV relative to other uses. It was expected that those who used the SS to talk about TV while watching TV would also use the SS for other activities (a general predilection for SS Use). Nonetheless, there is a finite limit to the amount of time that one can watch TV and to the amount of time when can use a SS while watching TV. Thus, the extensive use of the SS for *other* activities (i.e., the use of SS for “work”, “shopping”, “socializing”, “browsing”, in lieu of the use of the SS to talk about the TV show) would limit the amount of time available for the use of the SS to talk about the TV show. That is, one could speculate that those who used the SS for other online activities would receive fewer gratifications from the use of the SS for talking about TV; a TV viewer would use SS for other online activities *because* that other activity is more rewarding than the use of the SS to talk about TV. Thus, one could predict lower gratifications with higher levels of other use. In fact, as

it turned out, there were no significant relationships between the use of SS to work, to socialize (but not about the show), to browse the web, for other activities and the amount of gratifications. Increased use of the SS to shop was positively associated with increased gratification of Social Integration needs. Interestingly, although as noted the relationships were not significant, the relationships implied that more SS Use for any other online activity was positively associated with increased gratification for Diversion needs. This implies that any SS Use has a diversion component. In addition, the use of a SS for socializing (not about the TV show) and other online activities (i.e., not work, not shopping, not browsing) implied less gratification of Cognitive, Personal Identity and Social Integration needs for the use of the SS to talk about TV show. These weak relationships were consistent with the logical expectations, but the weak relationships for work and shopping were not. In general, the use of the SS for other activities (while watching TV) did not have any association with the use of the SS to talk about TV while watching TV. This trade-off (the various possible uses of the SS while watching TV) will be an interesting phenomenon to watch as the use of the SS matures. One must always remember that the use of the SS to talk about TV while watching TV will have to compete with numerous other activities. It will only win if it is more appealing.

Those who used the SS more to talk about TV also obtained more gratifications of all types from that use. This was expected and can be seen as a manipulation check. That is, generally, one assumes that people who engage in more of a particular behavior have greater motivations to engage in that behavior (e.g., people who engage in more sports derive more pleasure from that sport). This would only be expected to be true on average – for any one individual, there could be other mitigating circumstances that might alter the relationship between the amount of motivation and the amount of SS use. For example, a TV viewer may lack resources for a SS despite the motivation (i.e., the house only contains one device that could be effectively used as a SS), or a TV viewer might use the SS despite low motivation (e.g., the TV show does not demand attention – addressed to some degree by the diversion dimension), or a TV viewer may derive large gratification despite low SS use because the SS use is a special event (e.g., with family/friends, with particular shows). Hence, if there had been no relationship between the amount of SS Use and the amount of gratification, one would be forced to wonder how gratifications and amount of SS Use are related. It would not invalidate the current research, but it would imply that the relationship between SS Use and gratifications obtained is more

"nuanced" and subtle (i.e., more situational) and thus harder to assess with the current methodology (which only capture broad patterns). Those who used a SS (while watching TV) for "work", for "browsing", or for "other" were not more inclined to use the SSE to seek gratifications. Similarly, those who used a SS while watching TV to socialize in a manner unrelated to the show were not more inclined to use the SSE to seek gratifications. These findings were expected because these other activities should not be related to gratifications obtained through the SSE. However, there was one effect. Those who used the SS to shop while watching TV also tended to use the SS to seek Social Integration gratifications. More generally, the lack of relationships for work, shopping, socializing (not about show), browsing, and other activities on the SS are important: they demonstrate that uses of the SS that are directly related to the show on the primary screen are not related to other uses of the SS. The SSE-MS is focused the use of a SS to talk about TV while watching TV. Thus, these results support the idea that the SSE-MS is capturing the intended behaviors. The participants of the current study may use the SS to do work, and/or shop, and/or to browse the web, and/or to socialize about "other things", but the SSE-MS only captures use related to socializing about the TV show.

Timing

One variable attempted to relate the use of the SS to the characteristics of the TV show in a generic fashion (SS: Timing). This addressed the pace of the TV show, without getting into specific TV content that would need to be tied to particular genres and/or a particular show. The items were generic in the sense of asking about SS Use "when the show is slow", "when the show is fast", "when the show is boring", "when the show is exciting", or "to fill in free time". Normally, one would expect SS Use to be more common when the show is relatively slow because such times make conversations possible (consider how people react in a living room while watching TV). As expected, the SS was used more often when the show was slow or boring or to fill in free time than when the show was fast or exciting. However, even though SS was used more often when the show was slow, TV viewers fulfilled more Personal Identity, Social Integration, and Diversion needs from the SSE when the show was fast or exciting. That is, even if the SSE was used less often when the show was fast, it was more gratifying to use the SSE on those occasions. Note that the gratifications did not include Cognitive needs. That is, viewers were not using the SS to catch up on material that might have been missed when the show was moving too quickly (e.g., backstory or prior episodes) or to fill in for TV content that

was missed due to the prior use of the SS. The fact that the SS is more likely to be used for emotional gratification has important implications because it implies that the SS is used to enhance emotions that are generated by the TV show. The use of a SS to talk about TV was associated with more Diversion needs when the show was slow. It would seem that the SSE was used to enhance the viewing experience when the show was not exciting. That is, the SSE does not make the show itself more exciting when the show is slow: it may make the experience of watching a slow-paced show more appealing.

Social Situation

Finally, participants were also asked the social context that was associated with the use of SS (SS: Social Situation). This was similar to the Social Context of TV Viewing Habits, but focused on the actions of others in the same physical space. In the final analysis, the social situation did matter. At the level of the individual correlations, viewers used the SS to obtain more Personal Identity, more Social Integration, and more Diversion needs when they were in a social situation in which other people were also using a SS (mentioned in ranks below). TV viewers did not use the SS to gratify any needs when they wanted to socialize with specific people, when alone, or when other people are around (in a general sense). What is also interesting is that the social situation was never related to the Cognitive needs. That is, the social situation seemed to drive the use of the SS to obtain the social needs (i.e., Personal Identity, Social Integration and Diversion). All the social situations had sufficient ranges of selection to see effects. Hence, these differences between social situations are not an artifact of excessively low levels of endorsement.

Table 47 provides the mean (and *SD*) levels of endorsement (Tables C.21a and C.21b of *Appendix C- Sample Analyses* provides a more detailed breakdown) but the general rank order of use was (1) being alone, (2) socialize with certain people, (3) when others are around, (4) because others are using a SS, (5) when others are annoying, (6) to avoid leaving home, (7) to avoid inviting people over, (8) when others are ignoring me, (9) when no one wants to watch TV with me, and finally (10) to get a change of company . Even though being alone had the highest endorsement (i.e., more people used the SS when alone), this use did not have an association with gratification (i.e., participants who used the SS more often when alone did not obtain more gratifications from that SSE). The rationale or mechanisms for this behavior were not probed more deeply, but generally, the results link to the classic notion of an extended living room in

that social media (or the internet broadly defined) allows on to engage in living-room type behavior without the need to physically be in the same room (Auverset, 2017; Schirra et al., 2014). What is most compelling about these findings is that all of these social situations only had relationships with Personal Identity, Social Integration, or Diversion needs and none had a relationship with the Cognitive needs. This suggests that SS Use is related to the notion that if the current company is insufficient, the TV viewer can seek alternative companionships through the SSE. The use of SS is a way to avoid or remove oneself from the current situation rather than actively pursuing a positive situation.

Thus, in summary, various factors connected to the use of a SS were related to the gratifications obtained through the use of a SS. The important observations are that gratifications were not related to the type of SS or the manner in which the SS was used. However, gratifications were related to the social situation and the Social Media Outlets used (e.g., social media sites, micro-blogs, etc.). The amount of other uses of the SS screen (e.g., work, shopping) were not related to gratifications obtained from the use of the SS to discuss the TV show.

7.4 Summary of the Main Results for the Second Research Goal

This research has shown that people use a SS (while watching TV) to obtain Cognitive, Personal Identity, Social Integration and Diversion gratifications that are related to the TV show. These gratifications are related to the social situation surrounding the use of a SS, to the social situation of TV viewing, and to the living arrangements (i.e., the social situation of living arrangements). The Social Situation, Social Context, and Living arrangements were the most consistent finding across independent variables (Demographics, TV Viewing Habits, SS Use) that influenced the use of a SS while watching a show.

The gratifications obtained through the use of SS to talk about a TV show while watching that show were not strongly related to basic Demographic variables (age, gender, education, relative income, degree of urbanization.), although the variable occupation was identified as significant. At this time, it is not certain if it is occupation, education, or even age that is the main driver for such gratifications. These variables are strongly related to each other, in part, because the sample was largely limited to undergraduate students with limited range of age, education, and occupation. As such, future work will be needed to tease out various effects.

The gratifications obtained through the use of SS to talk about TV show while watching

that show were related to TV Viewing Habits, particularly those that conceptually overlap with the genre of TV viewing and with the intensity of TV viewing.

Finally, the gratifications obtained through the use of a SS to talk about a TV show while watching that show were related to the use of a SS, particularly the type of Social Media Outlets (e.g., social media), the pace of the TV show, but not the type of a SS or the process used to access the SS.

7.4.1 Modelling

This study included a number of factors that were thought or assumed to be related to the amount or type of gratifications received from the use of the SS to talk about the show while watching the show. The collection of all variables was used in a multiple regression analysis to predict each gratification. As shown in Table 50, to assess the quality of fit, the R^2 for the combination of all variables explained about 43% of the variance of the Cognitive subscale. For the Personal Identity subscale, the combination of all variables explained about 50% of the variance. For the Social Integration subscale, the combination of all variables explained about 51% of the variance. Finally, for the Diversion subscale, the combination of all variables explained about 50% of the variance. Researchers in the social realm are generally pleased to be able to explain just 30% ($R^2 = .26$) of a variable: Field (2009) and Cohen (1988, p. 413-414) define R^2 greater than .13 as a medium effect and an R^2 greater than .26 as a large effect. Hence, an R^2 of 40 or 50% (the case of this research) is quite good. In the real world, a single variable likely has numerous relationships (e.g., numerous causes, and/or numerous consequences, and/or numerous associations) so this must be interpreted in context.

As noted by Ferguson (2009):

Rigid adherence to arbitrary guidelines is not recommended. However, this admonition should not be taken as license for the over interpretation of weak effect sizes. Guidelines are suggested as minimum cut-offs, not guarantees that effect sizes exceeding those cut-offs are meaningful. Study limitations, failure to control for other relevant predictors or threats to internal validity, the reliability and validity of responses to the measures used, etc., should be considered when interpreting effect size (2009, p. 536).

Assessing the quality of fit expressed by these R^2 values depends on a number of factors including the domain of study, the type and number of variables used, and the type and number of variables that *could have been* used (see *Chapter 3: Second Research Goal – Analyses for*

more discussion). This research considered 22 variables, expressed in 109 items. This was research in a relatively new domain so it is difficult to know how many variables might matter to the final prediction. It is not known if there are other variables that might be more important than those that were selected. The selection of variables was based on literature search in related areas. It is also not known how much of the variance should be explained (e.g., should $R^2 = 50\%$ or 60%). Nonetheless, as one of the contemporary studies in this area, explaining 50% of the variance in the amount of gratifications received is satisfactory (Veaux et al., 2017).

Dropping the variables that were not needed to explain any gratification (i.e., retaining a minimal but common, set of IVs across all gratifications) reduced the explained variance slightly to 41% for Cognitive needs (a 2% reduction), 48% for Personal Identity needs (a 2% reduction), 50% for Social Integration needs (a 1% reduction), and 48% for Diversion needs (a 2% reduction). The reduction in explained variance was not large, implying that the original set of variables was fairly comprehensive. For the Demographics, only the Living Arrangement and Occupation were considered important. For TV Viewing Habits, it was again the social situation, plus genres and the variables related to intensity that mattered. For SS Use, it was again the social context and the applications used on the SS that mattered. It could be added that the variables from the different categories (i.e., Demographics vs. TV Viewing Habits vs. SS Use) were basically independent. Hence, the lack of demographics was not due to them being strongly associated with SS Use or with TV Viewing Habits. This is important because it implies that one can consider the effects of Demographic variables separately (in isolation) from the TV Viewing Habits variables and from the SS Use variables. That is, future work could focus on just one set of variables without loss of generalizability.

Different sets of predictors had different roles when predicting gratifications. When considering previous discussions, it seems that the Cognitive gratification was the most distinct from the rest. The Personal Identity and Social Integration often had similar relationships with the IVs. The Diversion dimension was more often similar to the Personal Identity and Social Integration needs than to the Cognitive needs. This is not surprising because the Cognitive is the only gratification that is not (primarily) emotion based.

7.5 Theoretical Implications of Findings

7.5.1 Motivations

This research clearly shows that viewers sought to gratify specific needs when they used a SS. That is, the motivations for the SSE included the gratification of Cognitive, Personal Identity, Social Integration and Diversion needs. On average, all needs were gratified to the same degree, though there was a slight tendency to meet Diversion or Cognitive needs more than Personal Identity or Social Integration needs.

At the level of individual TV viewers, there were differences in the motivations for the SSE: Some used the SSE primarily for Cognitive needs, some used the SSE primarily for Personal Identity and Social Integration needs, some used the SSE for other combinations of needs, and a few did not use the SSE to meet any needs. The important point is the demonstration that there are likely different profiles for TV viewers who use a SS to satisfy a *diverse assortment of needs*.

It is only reasonable that the use of a SS should meet some needs. The use of a SS requires more physical effort and more cognitive resources, since dividing one's attention between two streams of information is more work (see Sweller et al., 2011; Gleitman et al., 2011). It is "harder" than just watching TV, so it must serve a purpose. Those who engage in such behavior may not "feel" that it is harder because they enjoy it. There must be a benefit that outweighs the costs.

Although there was a slight tendency to use the SSE to meet Diversion or Cognitive needs more than Personal Identity or Social Integration needs, it would be premature to claim that this ranking is universal. The differences on the subscales were small, and the current sample was not perfectly representative of the entire population of TV viewers. It is, at this point, unknown if the sample was representative of the subpopulation of those who use the SSE to fulfill gratifications. It is a new phenomenon, and its demographic is constantly changing.

In addition, it is possible that there are other motivations to use the SSE that were not captured by the SSE-MS questionnaire although this seems unlikely because the dimensions of the U & G framework are quite broad and have been successfully applied in multiple domains of human entertainment-seeking behavior.

7.5.2 Background Predictors of Motivations

This thesis clearly shows that the gratifications obtained from the SSE can be related to many background factors. Prominent amongst these factors is the social situation/context of the TV viewers. Other relatively important factors included the genre of the TV show, the intensity of TV viewing, and the applications used on that SS. The gratifications obtained through the SSE were not strongly related to Demographic factors, or to the distinction between Live TV and VoD, or to the type of SS.

The fact that gratifications obtained through the SSE can be related to various background factors has pragmatic implications, as well as more broadly defined social implications. TV has been a popular mode of entertainment since the 50s. People have always talked about the TV programs that they view. TV shows and discussing TV shows has had an enormous impact on the evolution of society. Thus, an understanding of the situational variables that affect the tendency to talk about particular TV shows is important.

The internet has changed the way TV is consumed — not only has there been an increase in access to content but there more ways for that content to be viewed (e.g., streaming on demand media, streaming schedule media from broadcasters) (Greer & Ferguson, 2015; Bury & Li, 2015). The internet has also changed the way people discuss TV: with the internet comes the ability to *have a second screen experience* and to have discussions with total strangers. Understanding why, when, where, and how people use the internet to discuss TV is important because it helps to understand the impact of shows and the way in which information about a show is spread. Social media (e.g., Facebook, Twitter, amateur and professional TV show blogs and review channels) and information channels (e.g., Wikipedia, Rotten Tomatoes) are now a place for discussions of TV shows. The reach (breadth, audience size), speed, and synchrony of the internet is such a large change from the past ways of communicating and disseminating content that it can be considered a paradigm shift (Graham & Dutton, 2019). The bulk of the population is just beginning to find themselves at the junction of social media and TV (e.g., Ofcom, 2019). The emerging phenomena of the SSE may have an important role to play.

Though it has been mentioned several times, it must be emphasized that all of this research was focused on the gratifications obtained through the use of a SS to talk about TV *while watching a show on that TV*. This phrase was used in every item in the SSE-MS. Shows that generate discussion *while watching the show* will have a much better chance of succeeding

because they will be the first to attract new viewers. In many cases, it is the immediate discussion generated by the *first* presentation of a TV show (particularly for Live TV) that sparks interest and is an important predictor of the future success of a show (Van Es, 2016). Monitoring that initial discussion by being part of the SSE while watching TV will allow producers and directors to alter the course of a show (at least, provide the maximum amount of time to alter the course) to meet the needs of viewers – it is like the pre-screening (a.k.a. special or exclusive or advanced screening)²⁷ of movies. Furthermore, while monitoring, producers or other members of the production crew could “inject” comments to bolster interest and discussion, or to highlight important elements of the show, or even to explain the rationale for various aspects of the show. This will most likely help in maintaining or increasing the audience pool and share.

However, none of this would be effective if one does *not* understand *why* TV viewers use a SS to talk about a show. For example, there is a large difference between “talking up a show” because it raises one’s own status vs. “talking up a show” because it is a good show.

7.5.3 Defining the Second Screen Experience

Out of necessity, this research has provided a clear definition of the Second Screen Experience (SSE). This led to the development of the Second Screen Experience: Motivations Scale (SSE-MS). Previous research focused on the Second Screen Experience (SSE) in various domains has included exploratory studies (i.e., Doughty, Rowland, & Lawson, 2011; Stavros, Meng, Westberg, & Farrelly, 2014), application creation (i.e., Courtois & D’heer, 2012; Hu et al., 2014), and studies of specific social media platforms or specific TV genres (i.e., Castillo, 2013; McPherson et al., 2012). A comprehensive definition of the SSE was constructed as part of the current research to formalize the range of conceptualization of the SSE. The SSE is defined as the involvement with the content of TV shows using a second screen (i.e., computers, tablets, smartphones, etc.) to socialize, to communicate, to follow conversations, to seek or provide information *about a show* that they are watching on a first screen (usually a TV, or other computer, the same computer, tablet or smartphone). It was found that the components of the definition changed according to disciplines, but there were common themes, namely that cognitive, emotional and behavioural connections are needed to foster and sustain the SSE.

²⁷ Pre-screenings may serve two main purposes: to allow for minor edits before general release, and to gauge potential success before general release. Monitoring the online discussion of TV shows in real time (i.e., the SSE) could allow time to edit subsequent episodes (e.g., tone down the language) and help to gauge potential success.

For a device to be considered a second screen, it must have connectivity (internet) and functionality (social media outlets). The aim of this formalization was to create a useful operational definition for the empirical research. The current research was focused on the SSE *while watching TV*, but the definition extends to other domains. However, when it is used, the domain of application should be clearly specified.

7.5.4 The SSE-MS

One of the main contributions of this research is the development of an easy to use, valid and reliable scale that is capable of determining the motivations for using a SS to talk about TV while watching that TV. This is the Second Screen Experience: Motivations Scale (SSE-MS). The SSE-MS was created using a linear survey design methodology. It was based on the U & G framework, and on prior U & G scales developed in other related domains. The scale was designed to be brief while maintaining breadth. The final version of the scale includes 30 main items that can be answered in less than 10 minutes when responding at a comfortable pace. As such, the SSE-MS can be used within a survey package that allows one to relate the use of SS to other variables.

The SSE-MS can be used by application designers to improve their understanding on what improves the viewer's experience. It can also be used to by TV producers, directors, marketers, and to understand what generates discussion about a TV show – what people want in a TV show (which might be genre specific).

Finally, the questionnaire was designed so that it would be transferable to other related domains – the stem of each item is the main component defining the context of application (i.e., the stem read “While watching TV, I use a SS to: “). The items are tied to the use of the internet (e.g., “... look up information about the show”), but it could be adapted to asynchronous discussions about TV (e.g., “After watching TV, I use a SS to:”, or “Before watching a TV show, I use a SS to: “), or it could be adapted to specific TV shows or genres (e.g., “While watching *Game of Thrones*, I use a SS to:”).

7.6 Future Research and Limitations of the Study

The future research and the limitations associated with any study are often two sides of one coin. That is, the current limitations are the questions for future research. Hence, they are discussed

here as a unit. However, there are some special limitations that cannot be circumvented by any reasonable research design (see the following 7.7 *Limitations*).

The first observation is that the current set of variables explained about 40 to 50% of the variance in gratifications sought. One must ask, “What other variables might explain that unexplained variation?” Some of the unexplained variation might be just due to random variation (“noise”). However, it is unlikely that “noise” would explain all of that 50 to 60%.

Personality is likely a major factor for seeking gratification. For example, the five factor model of personality, originally articulated by Tupes & Christal (1961), includes a scale for extraversion (extraverted vs introverted) which is the need for social interaction (the Social Integration dimension). It also includes a scale for Agreeableness which is about friendliness and compassion (friendly vs detached). This would also relate to the Social Integration and Personal Identity dimensions. It also includes a scale for Openness to Experience (curious vs cautious) which would be related to the Cognitive dimension (in particular, the surveillance aspect of the Cognitive dimension). Other models include concepts like “sensation seeking” (the need for entertainment, developed by Zuckerman et al. (1964), or anxiety (perhaps leading one to prefer to converse online from the safety of the home; the Beck Anxiety Inventory developed by Beck et al. (1988). The current research did not attempt to include personality factors because the study of personality is very large. It was felt that attempting to include personality factors would make the current study too complex. Nonetheless, the SSE-MS developed herein could be used in a study that involved personality. That is, a survey package would simply need to include the SSE-MS and some personality questionnaires (e.g., the Five Factor personality assessment, the Minnesota Multiphasic Personality Inventory (Ben-Porath et al., 2019), the Sensation Seeking Scale, the Beck Anxiety Inventory, etc.). The survey package would also need to include (or perhaps control) the appropriate background variables. Personality likely explains a part of the 50 to 60% of the variance that remains to be explained.

Related to personality is the issue of mood. Personality is considered a relatively stable aspect of a person. Mood is the moment-by-moment affective state of a person (Zadra & Clore, 2011). Likely, mood is related to the gratification sought and received. A person who is happy likely has different needs from one who is frustrated or angry. Mood can determine receptivity (consider trying to talk to someone who is happy vs. depressed vs. angry). Exploring this issue would lead to a very complex study. A core problem is simply defining mood and the consistent

use of labels (e.g., one person's frustration is another's anger; frustration often leads to anger). A second problem is that mood is variable and generally outside the control of the experimenter. Furthermore, it is hard to know what mood a participant would be on any given day of testing, though it can be assessed. Finally, mood is layered on top of personality (e.g., resilience can affect the response to mood altering events). Hence, though it would be interesting, it is recommended that such work only be contemplated after many other studies (including personality) have been conducted. Nonetheless, it is feasible (e.g., a diary-based study linking mood and gratifications sought) and it might explain a part of the 50 – 60% of the variance that remains to be explained.

On a more basic level lifestyle or life situation was not considered. The Demographic factors did include some basic information about lifestyle (e.g., Living Arrangements, Occupation), but did not get into details. For example, the current research did not examine issues like amount of free time (for TV viewing), the number and availability of TVs or computers in a household, degree of mobility (e.g., infirm or confined to a wheelchair), changes in lifestyle (e.g., a recent move to a new city or job), or the dispersal of social contacts (i.e., family and friends do not live in close physical proximity). The current research did not probe finances in detail. Any one of these can be rationalized for an effect on SS Use or TV viewing, and therefore, on the gratifications obtained from the SSE. The current research did not ask about specific shows within specific genres. The current research did not request more details about SS Use (e.g., time of day, place of internet access such as work or home).

None of these variables was pursued to any degree in the current thesis simply because it would have increased the complexity and time needed to conduct such a study. The current thesis specifically focused on broad survey of possible effects to the exclusion of depth within any one area. The focus on general or generic aspects of the phenomena may have diffused the strength of some of the effects (e.g., the effect of genres may have washed out the effects of particular shows within a genre). However, now that the SSE-MS has been developed, each of these is easily tested. For example, it is possible to ask participants to think of their favorite show (or their favorite genre of shows) and to then base all of their responses on that show (or genre). One can easily ask about mobility or the size of the social network (This research asked about urbanization). These are all simple extensions of the current research. All of these factors might explain some of that 50 - 60% of variance that was not explained.

The expected distinction between Live TV and VoD did not emerge. If there is a distinction between Live TV and VoD, it had appeared to have minor, if any, effects. Initially, it was thought that Live TV would encourage more people to watch the same show at the same time, which would then facilitate synchronous discussion of the show over the internet. However, this did not seem to have a large effect on the gratifications obtained. Herein, the topic was addressed in a general, generic fashion (e.g., “watching at the time of broadcast” vs. “watching at the time of choice”). This topic needs to be approached more directly. For example, future work can specify particular shows or broadcast networks. There may be other issues. Live TV can be preceded with pre-release advertising (and hype) that encourages such discussion. It may also be that it is necessary for producers of Live TV to provide an online social conduit (e.g., social media sites, a twitter feed) to accompany the show. More research is needed to know precisely what viewers want in these conduits (e.g., producer/actor comments? backstory?).

While outside the scope of the current research, future work can use the SSE-MS to study existing online communities formed around a particular TV show or film series. Such communities often encourage viewers to engage with other fans, and create opportunities to interact with artists and producers (Baym, 2007). They have also shown to influence show’s direction and even with its renewal (Chonin, 2005; Makarechi, 2013).

On a related note, the current research demonstrated that the social context mattered to the SSE. It would therefore be interesting to examine a broader spectrum of social interactions in the physical space and/or in the virtual space. This could be extended to include the timeline of interactions — before viewing the show (Hess et al., 2011), during viewing the show (Doughty et al., 2011a), or after viewing the show (Castillo, 2013). Future studies might also compare how the dimensions change or mutate over time. For example, one might predict more Cognitive needs (seeking information about the show) before the show begins (i.e., before committing time to the show). Note that this would move the study away from the gratifications obtained through the SSE to the broader question of the use of Social Media to talk about TV.

While watching TV, the SS is often used for other activities (e.g., work, shopping, socializing in a manner unrelated to the show, browsing). There could be more detailed studies of what drives the use of a SS to talk about the TV show rather than these other activities. Is it because the show is exciting or because the show is boring? The current thesis suggests that the

SS is used more often when the show is boring, but that more gratifications are obtained from the SSE when the show is exciting.

More generally, TV viewing is just one form of entertainment and it competes with other forms (e.g., other internet activities, dining, sports, other leisure activities). Thus, the analysis of discussions on the SS could be useful to understand what TV needs to provide in order to pull people from these other activities. This is particularly relevant to the competition with other internet activities – which are very similar in structure to TV viewing.

7.7 Limitations

There were a number of limitations within the current study that can be addressed in future work. For the current thesis, recruitment was limited to people who currently used a SS to discuss TV while watching TV. This inclusion criterion was not rigidly enforced (the survey was anonymous and online) but was likely adhered to. This criterion was used to get a basic understanding of the phenomena. Nonetheless, given the selection criteria, the study does not represent the entire population. These people *likely* represent the future, but this cannot be guaranteed.

Additionally, self-selection bias —meaning participants select themselves— is a constraint that generally impacts social research. I tried to recruit broadly (and in two cities) within the constraint of the inclusion criteria. Many of the participants for this research were students. This is a limitation, as the results might not be generalizable to another population. The characteristics of students might affect the results (i.e., students are generally young, often living alone, not married, no children, and a lower income) in comparison to an older sample (i.e., living with children, higher income). The Dalhousie University sample added some additional breadth on the Demographics (see *Appendix C-Sample Analyses*). Still, an even broader base of participants is desirable, with a particular emphasis on lower socio-economic class (as generally defined by lower income, education, and less “prestigious” occupations), and higher ages.

There were practical limitations of the analyses. As described in the analysis, it is reasonable to believe that the gratifications received would be affected by literally hundreds of variables. As such, no one variable would be “critical” (e.g., $r^2 > .5$). That means that the analysis must deal with a large number of weak variables (e.g., $r^2 < .10$). Furthermore, such variables are invariably correlated (e.g., age is related to education and to occupation and to income and living arrangements). This makes the analysis complicated. In the current research,

the analysis was clarified by building from the simple correlations to the more complex nested hierarchical multiple regression. The variables were organized into sets (i.e., Demographics, TV Viewing Habits, SS Use), and each variable was characterized by one or more items. Even within the imposed structure, the analysis was still complicated. If more variables were to be added (e.g., personality, mood, additional Demographics, TV Viewing Habit or SS Use variables), it would become increasingly complicated. The analysis was kept to a minimum to help minimize the complications. For example, the interactions between variables were not explored. Simple effects were not explored. Analyses within subgroups of participants (those with different profiles for the four dimensions of the SSE-MS) were not conducted.

In addition, the fact that there are numerous small variables means that the analysis requires a large number of participants. The minimum is usually around five participants per variable. With 100 variables (about the number in this thesis) that is a minimum of 500 participants (about the number herein). To examine more variables or other effects (e.g., interactions), a much larger sample would be required.

The information contained within the current data has not yet been exhausted. There are potentially interesting relationships within the Demographic, TV Viewing Habits, and SS Use variables. This study did not attempt to analyze “everything.” The relationships between the Demographics, TV Viewing Habits and SS Use were considered secondary (the correlations were computed to establish independence of the three sets). Such analyses would have required a long diversion that would have detracted from and possibly confused the main analyses. The number of main analyses was already large. As previously mentioned, the number of basic variables also precluded consideration of interaction terms. For example, it may be that the gratifications varied as a function of the age and the gender of the participant (e.g., older females, younger females, older males and younger males seek different amounts or types of gratifications through the SSE)²⁸. Although of potential interest, these analyses would have over-extended the scope of the thesis. This type of analysis was simply not viable at this time. It was necessary to first reduce the set of variables to that which are most important (as discussed). However, the

²⁸ Each such interaction requires the creation of a new variable (e.g., the product of the gender and age variables). There are —quite literally— tens of thousands of potential interactions. There are $109 \times 108 = 11,772$ potential two-way interactions, though not all of those would be interesting. There are $109 \times 108 \times 107 = 1,259,604$ potential three-way interactions.

exploration of interactions is recommended to get a complete picture. Such would only be practical in a smaller study (i.e., fewer main variables).

Further, there are limitations in terms of analyses. This study contained a lot of variables. Those variables were a mix of binary, categorical, and ordinal data types. There are lots of ways one could analyze this data (e.g., two-group t-test for binary items, ANOVA for categorical items). This study focused on the use of correlations and multiple regression (MR) because that enabled a single tool for all analysis. The assumptions of MR were generally valid and the assumptions were carefully checked for all analysis (see the appendices). This made it easier to discuss the analysis in a general sense and to compare results across various measures. If different analysis had been used for different effects, it can be difficult to compare results (e.g., in the *Appendix C-Sample Analyses*, *chi-square* analyses and ANOVAs were used to compare the two samples; the different approaches produced complementary but not identical results).

Also, there are some limitations that cannot be surmounted in any reasonable research design, such as the fact that the design is correlational. As such, the design and analysis cannot directly assess causation. It is difficult to imagine a design that is not correlational for this research. It is not possible to randomly assign participants to different genders, ages, educations, income levels, degrees of urbanization, occupations, living arrangements, social situations, type of SS or any of the variables used in this research. Thus, it is not possible to assess the causal effects of these variables. Nonetheless, some sense of causation can be understood from the nature of the variables and the logic of temporal orders (e.g., education comes before the career occupation). Experimental designs can be applied in limited situations. For example, one could put one group of participants in one room using a split screen for a SS access and a second group of participants in a second room using two screens for SS access. However, most of the interesting variables used in this thesis are not amenable to this type of manipulation. Even if an experimental design were to be used, participants would have different prior experiences with any potential experimental variable, and that would need to be accommodated.

The “Living Arrangements” variables exhibited multicollinearity. The main concerns with multicollinearity are unstable and biased standard errors leading to unstable *p*-values for assessing the statistical significance of predictors, which might result in impractical and weak interpretations. Multicollinearity also can increase complexity that leads to major difficulties when it comes the interpretation of the results (Mela & Kopalle, 2002). Future work will need to

examine and address potential causes of the multicollinearity such as the limited sample size, unrepresentative sample, or whether the scale is missing some essential information that is not fully captured by the survey instrument (Vatcheva et al. 2016). For now, it is important to recognize and acknowledge the potential impact of multicollinearity on the study findings, which requires a more cautious interpretation of the results.

Finally, the current research used a self-administered anonymous survey because this is the only practical approach. It would be possible to use other techniques such as interviews, diaries or limited experimental manipulations. However, other techniques simply severely limits the number of participants. This in turn, limits the breadth and generalizability of the results. Admittedly, there is a place for other designs (e.g., soliciting opinions of subject matter experts as was done in Stage 1.1), but when trying to assess a large and geographically disperse heterogeneous population, large surveys are the only practical option (Kumar, 2014). The advantage of an online survey is the ability to collect data from a large number of participants, which provides breadth (at minimal expense and less time). Such surveys need not be anonymous nor online, though those options have advantages. For this type of research, this choice does not seem to impose many limitations. Viewers who use second screens (technology) to watch TV are likely able to answer the online survey easily and without help. However, participants can only answer the items as they are specified and most items provide a limited number options. Hence, the response options may not be the most accurate representation of the intent of the participants.

Self-administered surveys rarely provide the opportunity for follow-up (which is not possible if the survey is anonymous) that would allow participants to more carefully define their intended response. To address this concern, a few items did provide additional open-ended responses (e.g., the “other” categories).

In addition, in the current research, the items to be used in the final analysis were first tested in smaller samples. Nonetheless, for some research questions, it would be beneficial to have the option to follow-up with participants to obtain more details.

7.8 Summary

This is one of the early research studies that specifically ask what motivates TV viewers to use a SS to talk about the TV show while watching that show (SSE). The basic design used an online,

anonymous, self-administered survey. To assess the motivations, the SSE-MS was developed based on the U & G framework. This research clearly demonstrated that the SSE fulfills Cognitive, Personal Identity, Social Integration, and Diversion needs. It clearly shows that there are different type or groups of TV Viewers – some using the SS more for social needs, and others using the SS more for Cognitive or Diversion needs. However, most people used the SS for a number of different needs (i.e., a combination of needs). In addition, the analysis demonstrated that several background factors were also related to that use and thus to the SSE. In particular, the SSE was related to the social situation/context and Living Arrangement. It was also related to some TV Viewing Habits (e.g., the genre of TV consumption) and to factors related to the SS (e.g., the application used on the SS). However, the SSE was not strongly related to the demographics of TV viewers (the living situation was important).

CHAPTER 8 Conclusion

This dissertation has investigated the emerging phenomenon of the second screen experience (SSE): the use of a second screen (SS) to talk about TV shows while watching those shows on a first screen. The study focused on the motivations for this behavior. Herein, the focus is on the SSE in which the SS content is discussion of TV in the context of TV viewing. There were two research goals. The first research goal explored the motivations for, and gratifications obtained from, the SSE. The second research goal examined the relationship between those motivations and a number of background variables to better understand who engages in such behavior, as well as when and how they engage in such behavior. Both of these research goals required the development of the Second Screen Experience: Motivation Scale (SSE-MS).

This exploration was developed within the U & G framework (e.g., Katz, Blumler, & Gurevitch, 1973; Ruggiero, 2000) which has a long history of use. The framework has been applied to the study of mass media broadly defined (e.g., Bagdasarov, Greene, Banerjee, et al, 2010; Barton, 2009; Hanson & Haridakis, 2008; Papacharissi & Mendelson, 2007; Quan-Haase & Young, 2010; Roger & Tang, 2009), to the use of the internet (e.g., Lim & Ting, 2012; Lou & Remus, 2014; Roy, 2008), and particularly, to social media on the internet, (e.g., Ballard, 2011; Dolan, Conduit, Fahy & Goodman, 2016; Ishii, 2008; Johnson, 2014; Karimi, Khodabandelou, Ehsani & Ahmad, 2014; Lineberry, 2012; Leung, 2001; Tanta, Mihovilovic & Sablic, 2014) and social TV (Kim, 2013; Kramer, Winter, Benninghoff & Gallus, 2015). This framework considers the motivations to fall within four general dimensions of Cognitive, Personal Identity, Social Integration, and Diversion needs. This framework assumes that people have needs, and that they are motivated to gratify those needs. This framework assumes the people have some degree of control in selection of behaviors to meet those needs. Hence, the terms “needs”, “motivations”, and “gratifications” all refer to the same basic dimensions. Prior research has demonstrated the needs sought and gratifications obtained will typically align (see for example, Palmgreen et al. (1981) and Quan-Haase & Young (2010)). The rationale is that if a particular behavior fails to gratify a need, the person will stop that behavior and start some other behavior that does meet the need (Shade, Kornfield & Oliver, 2015), though there may be a transition period.

8.1 Main Findings

This thesis provides concrete information about the motivations for the use of a SS to talk about TV while watching TV (the SSE), and about some of the factors that are predictive of that use. The current thesis also provided a general-purpose tool – the Second Screen Experience: Motivations Scale (SSE-MS) – to assess those motivations within the four main U & G dimensions: Cognitive, Personal Identity, Social Integration and Diversion. The SSE-MS was shown to be reliable and valid.

This study has added to our understanding of why TV viewers would want to talk about TV using a SS while watching that TV. That is, such discussions are motivated by Cognitive, Personal Identity, Social Integration and Diversion needs, in approximately equal amounts. However, individual TV viewers had different combinations of motivations (i.e., different “profiles” of needs/gratifications).

This use of the SSE to talk about TV is special because it is the immediate discussion of TV shows – discussion when the emotions related to and generated by the show are new. This is an interesting phenomenon because, in some respects, it seems like a simple extension of what people have always done: Talk about TV shows. However, the use of a SS makes talking more difficult. Talking about TV through a SS requires more cognitive effort (splitting attention over two streams of information) and may actually distract from the TV viewing itself. Yet, this study has shown that TV viewers do receive some gratifications (Cognitive, Personal Identity, Social Integration and Diversion) from that extra effort.

This work is important because it provides additional information about who SS users are, as well as when, where, and why they use the SS to talk about TV while watching that TV. For example, the social situation of TV viewing predicted²⁹ gratification, but not in the most intuitive manner. That is, one would expect “being alone” to be the most important predictor, but other social situations were stronger. For example, “watching TV with children” was more predictive of SS Use than being alone. One could speculate that this happens because “being alone” is a choice (one could visit friends), whereas being with children is a responsibility. In particular, being with young children might fail to provide an adult level of stimulation and

²⁹ Predicted in the mathematical sense of significance in a regression equation using gratifications as the DV (criterion) and social situation as the IV (predictor).

hence the need for some online communication. In addition, the actions of other people who were in close physical proximity (e.g., "being ignored", "others were using SS", "others being annoying") also mattered to the amount and type of gratification received. Other predictive factors included the intensity of TV viewing (i.e., amount of TV viewing), the emotional connection to particular TV shows, the Social Media Outlets used on the SS (e.g., social media, blogs), and the timing of the show (e.g., when the show was exciting). It was also interesting that Demographic factors were not particularly predictive of the amount or type of gratification received. That is, all Demographic groups received the same degree of gratification from the SSE.

This knowledge is an important contribution to our understanding of people's use of second screens and the second screen experience (SSE). This thesis lies at the junction of the internet – particularly social media – and traditional TV. As such, this study represents an important first step in the study of the interaction of social media and TV. The effects of the internet on the distribution model for TV content are already evident (e.g., VoD and Live TV, cable cutting, closing down of video rental stores, Netflix as a content producer in addition to content provider). Some have argued that the internet will displace TV, but this is terminological confusion. 'Television' as a format for video content continues to proliferate, with the internet serving as a new conduit for dissemination. Despite other options on the internet, the amount of new scripted TV shows has continued to increase from just 182 in 2002 to 495 in 2018 (Goldberg, 2018; Rodriguez, 2018). Furthermore, the internet is displacing traditional methods of transmission; the number of new offerings on streaming services (160) exceeded that of cable (144 on basic cable, 45 on pay-for use cable) or broadcast (146 on broadcast) for the first time in 2018 (Otterson, 2018). The internet has not displaced TV, but it has had an effect on the distribution of TV content. There is a historical parallel (Bryant & Oliver, 2009; Glick & Levy, 2017; Livingstone et al., 1994; Mangan, 2013, pp. 71–143; Rosenberry & Vicker, 2017) TV did not displace live plays, operas, music concerts, public talks, public schools, or even movie theatres: Each of these was a predicted consequence when TV was first introduced (see King, 2019 for a parallel discussion of print media). The internet has forced a change in the model of TV production and distribution, but not in the content of TV.

The second part of the internet/TV junction is social media. Social media is a relatively new phenomenon. Platforms/companies such as Facebook (2004) and Twitter (2006) have been

in existence for less than 15 years. The use of social media is still evolving and as it evolves, as demonstrated by the rise for SSE, it is changing the way TV is consumed. I would predict that the junction between TV watching and social media will also contribute to the major shift in the way people watch and discuss TV.

Understanding the motivations for the SSE with TV viewing is important for its potential impact on the dissemination of TV shows. The SSE with social media provides a vastly expanded version of the water cooler effect (talking about TV around the water cooler at work; see Ray, 2014 for more detailed discussions). The SSE is the water-cooler effect that is faster and more immediate with far more potential audience. The SSE is the water cooler effect multiplied by the power of the internet. A comment shared around a water cooler is limited to those in the same physical space at the same time as the speaker whereas on social media (e.g., Facebook or Twitter) a single comment can reach thousands—even more if the commenter is an integral and respected part of an online community. As such, the SSE is an element of the word-of-mouth communication that is so important for the promotion of a TV show (see Cadario, 2015; Fossen & Schweidel, 2016). As such, social media has the potential to affect the success of a TV show, which in turn has an impact on culture, the careers of actors, directors and other staff, the evolution of the show and its derivatives, as well as revenue and profits from the show and from the commercialized products of the TV. At a general level, TV production is a winner-take-all phenomenon (Berkley, 2017; Farnam Street Media, 2019; Bury et al., 2013; McAlone, 2016). A very small percentage of all the TV shows, actors, directors, or producers take in the majority of rewards. There is some market segmentation, so the winner- take-all may be domain or genre specific (for example, although there are other television shows³⁰ in the same fantasy genre as *Game of Thrones* (Circa, 2018), the average viewer would be hard pressed to name them). The SSE may help be a part of the fan base of a show, and a fan base is critical to a show's success—even if the show is a niche player (revenues must still pay the bills). Numerous shows have been saved by direct fan intervention to go on to success (e.g., *Firefly* (Chonin, 2005), *Arrested Development* (Makarechi, 2013)). The SSE is an example of the way in which social media can serve that fan-base to promote the interests of that fan-base.

The junction of social media and TV needs to be a focus of continuing research. Because

³⁰ Examples: Rome, Vikings, The Tutors, Black Sails, The Last Kingdom, Spartacus, Merlin, Penny Dreadful, Marco Polo.

of the reach of the internet (e.g., multi-lingual, international, crossing all SES, all ages, all genders), this research will be far more complex than similar research on the dissemination of TV has been in the past. In the past, a TV station or show, or a radio show, was monolingual and confined to a particular geographical region. For example, in Canada, shows produced in Quebec rarely made it to the rest of Canada. Despite—or perhaps because of—these complexities, future research in this area has an exciting opportunity to study social change from its inception.

8.2 Limitations of the Study

In this research, the primary limitation was the type of sample. Though an attempt to recruit a broad sample was made, the sample was skewed to the younger, university-educated Demographic. Recruitment was limited to people who currently used a SS to discuss TV while watching TV though this inclusion criterion was not rigidly enforced (the scale as anonymous and online). Such procedures always have unanswerable questions about a self-selection bias. Thus, broader sampling should be attempted in future work.

The potential for bias in self-selection is a constraint that generally impacts social research. I tried to recruit broadly within the constraint of the inclusion criteria. Nonetheless, many of the participants for the current thesis were students. This is a limitation as the results might not be generalizable to another population. The characteristics of students might affect the results (i.e., students are generally young, often living alone, not married, no children and a low income) in comparison to an older sample (i.e., living with children and higher income). The Dalhousie University sample added some additional breadth on the Demographics (see *Appendix C-Sample Analyses*). Still, an even broader base of participants is desirable, with a emphasis on perhaps higher ages.

On the other hand, it must be acknowledged that, at this time, the Demographic for the use of the SS (or the SSE) is simply not well-characterized (the IAB, 2017 provides some metrics, but for a US sample of 821; see also (Marinelli & Andò, 2014; Vanattenhoven & Geerts, 2018). It is therefore difficult to assess the quality of the sampling. The SSE is an emerging phenomena, and it is possible that its use is predominantly confined to the Demographic found herein (which is broadly similar to that of IAB, 2017). It is also possible that it is not. The sample composition likely had little effect on the development of the SSE-MS. The sample contained sufficient breadth to assess the validity and reliability of the SSE-MS (i.e., the full range for age,

sufficient contribution from both genders, a good range of educational achievement, occupations and living arrangements). The sample composition may have an impact on the assessment of which motivations for the SSE are most prevalent, and the level of endorsement for each motive. The sample composition would also have had an impact on the existence of groups of participants with different profiles of motivations (e.g., high on Cognitive, low on others; high on Personal Identity and Social Integration and low on Cognitive and Diversion). A broader sample might find more profiles, different profiles, or different proportions of the sample (hence, population) to be associated with each profile. This was one of the reasons the analysis of subgroups of the sample was not pursued in detail. Nonetheless, the current research demonstrates that TV viewers used the SSE to meet needs, and that there are likely groups of people who use the SSE for different reasons. Further explorations of the profiles for groups of TV viewers would be an interesting avenue for future work.

A second limitation is the number and type of variables. In the current thesis, there was an intentional focus on breadth. As a result, background questions were generic – they were not tied to any particular TV shows, TV genres, TV times, or the like. For example, the role of TV genres was weak, but that may be due to the fact that most people have a few favorite genres, with most genres not producing much of an emotional response. Thus, the role of specific genres (or particular TV shows or episodes within a genre) with TV viewers who prefer those genres could be explored in more detail.

Finally, the current thesis used a self-administered anonymous scale. This was considered the only practical approach. There are research designs such as interviews, diaries or limited experimental manipulations. However, pragmatically, each of these is not as beneficial. Research methods like interviews and diaries require a lot of time per participant, which severely limits the number of participants. This in turn, limits the breadth and generalizability of the results. The primary advantage of an online scale is the ability to collect data from a large number of participants, which provides breadth at minimal expense. However, such scales need not be anonymous nor online, although both of these choices have advantages and few disadvantages. Viewers who use second screens (technology) to watch TV are likely able to answer the online scale easily and without help. Online presentations increase breadth and numbers of respondents. Anonymity provides participants with a sense of security. On the other hand, one issue with self-administered scales is that there is no follow-up. Participants can only answer the items as they

are specified and most items provided a limited number options. Hence, the response options may not be the most accurate representation of the intent of the participants. To address this, a few items did provide additional open-ended responses (e.g., the “other” categories).

8.3 Future Work

Future work is often the reflection of limitations (i.e., the need for a broader sample), but there are some additional considerations. Firstly, the information contained within the current data has not been exhausted. There are many other interesting questions that could be asked. Most of these involve “interaction analyses” (the interaction between age and gender on the gratifications received) or “special effects analyses” (e.g., the gratifications received by TV viewers who selected the action genre). These were not pursued because the number of participants was not truly sufficient for the examination of interactions on top of the main effects. However, one could judiciously select some for further analyses. There are numerous potentially interesting interactions to be explored. These include Demographics by TV Viewing Habits (e.g., age by genre) and Demographics by SS Use (e.g., age by SS applications). Similarly, there are numerous simple effects that could be considered. This would include various analysis within specific subgroups of participants based on the gratifications profile (e.g., a separate analysis for those who used the SS only for Cognitive needs). As noted, these were not pursued at this time because there were copious main effects and the questionnaire development to consider.

Using the SSE-MS, one could study the evolution of the discussion about the TV show from the pre-release period, through the initial launch, to the post launch period. The evolution of discussion could then be related to other important indices such as the number of viewers, or the amount of sales of associated paraphernalia.

In addition, the SSE-MS could be incorporated with other research to assess the effect of personality or mood on the willingness to use a SS to talk about TV while watching that TV. That is, the current set of variables only explained about 40 - 50% of the gratifications received through the use of the SSE. Hence, there may be other variables that could explain the remaining 50 - 60%. Personality is likely a major factor for seeking gratifications (even gratifications related to TV shows). For example, the five-factor model of personality includes openness and extraversion/introversion which would seem to be related to the need to for social interaction (Costa & McCrae, 1992). Other models include concepts like “sensation seeking” (the need for

entertainment), or anxiety (perhaps leading one to prefer to converse online from the safety of the home). The current thesis did not attempt to include personality factors because that would have required yet another questionnaire, and because the study of personality is an entire field of psychology (see Gleitman et al., chap 15, 2011); it would not have been practical to review and include all of that research within the current study. Nonetheless, the SSE-MS developed herein could be used in future studies that involved personality. A scale would need to include the SSE-MS and some personality questionnaires (e.g., the Five Factor personality assessment, the Minnesota Multiphasic Personality Inventory, Sensation Seeking Scale, the Beck Anxiety Inventory), so to assess the link between personality and the type of gratifications sought.

Related to personality is the issue of mood. Personality is considered a relatively stable aspect of a person. Mood is the moment-by-moment affective state of a person which is distinguished from emotion³¹ (see Gleitman, Gross & Reisberg, chap 12, 2011). Undoubtedly, mood is related to the gratification sought and received. A person who is content or happy likely has different needs from one who is discontent or melancholic or romantic. Mood can determine receptivity (consider trying to talk to someone who is happy vs. depressed vs. discontent). Exploring this issue would have led to a very complex study. Mood is variable, not easily controlled by a researcher (experimental manipulation), hard to define (even for participants), and affected by personality. It is recommended that such work only be contemplated after many other studies (including personality) have been conducted. It would likely require a different approach than the current scale design (e.g., it would likely require a diary approach in which the gratifications sought on a particular day were tied to the reported mood of the day).

The current research demonstrated that the social context mattered. It would therefore be interesting to examine a broader spectrum of social interactions in the physical space and/or in the virtual space. This could be extended to include the timeline of interactions — before viewing the show (Hess et al., 2011), during viewing the show (Doughty et al., 2011a), or after viewing the show (Castillo, 2013). Future studies might also compare how the needs change or mutate over time. For example, one might predict more Cognitive needs (seeking information about the show) before the show begins (i.e., before committing time to the show). Note that this

³¹ Moods are “Affective responses that are typically longer-lasting than emotions, and less likely to have a specific object” (Gleitman, Gross & Reisberg, 2011, p. 491)

would move the study away from the use of the SS to talk about TV while watching TV to the broader question of the use of Social Media to talk about TV.

Further, with the emergence of the coronavirus disease 2019 (COVID-19) (WHO, 2020), needs that result from using second screens while watching TV might be different. Governments have imposed voluntary and sometimes compulsory restrictions, and people are spending most of their times at home. People are not spending time in close proximity to each other in efforts to stop the spread of the disease (social distancing). One of the main findings of this thesis was that the Social Situation, Social Context, and Social Situation is tightly related to gratifying needs related to SSE, but under the effect of this pandemic, most people are not able to spend time together (i.e., watch TV with friends in the same physical space). Therefore, this change in the social situation is likely to have changed the use of second screens while watching TV. Further, since the time spent indoors increased, the time spent watching TV and using social media outlets might increase as well, and the usage of the two might overlap. This overlap might change second screen usage while watching TV. A contemporary study examined the role of social media outlets in information dissemination (Cinelli et al., 2020), but still no studies have examined SSE under the effect of this pandemic. For future work, under the influence of this pandemic, it would be interesting to examine the habits of viewers to learn if people would use second screens to extend their living rooms, to avoid being alone, to recreate previous physical settings, or for other needs. It would be interesting to learn what kind of needs are attained by using second screens while watching TV. I think that the major changes will be related to Cognitive needs (i.e., seeking and providing information about COVID-19), Social Integration needs (to spend time with others), Diversion needs (i.e., to pass time). With some modifications, the SSE-MS can be used to examine if needs would be different under this unprecedented circumstance.

Finally, the development of the SSE-MS can be continued. Questionnaire development is usually a long process (e.g., the development of the UES initially formulated by O'Brien and Toms in 2008 has taken at least 10 years). The current SSE-MS is reliable and valid. Nonetheless, there are some remaining questions. For example, the Diversion subscale might be better expressed as two separate subscales: one for Emotional Arousal (i.e., entertainment, excitement) and one for Emotional Abatement (e.g., diversion, distraction from work or other stressors, tension release, escape, ritual or habitual viewing). The U & G framework is flexible,

and there is precedent for using separate subscales for emotional arousal and abatement. In fact, it is likely that most people use the SS for both arousal and abatement in the general sense, but there may be particular situations (e.g., within particular genres or TV shows; at particular times of the day), only one aspect applies. Separate subscales for Emotional Arousal and Abatement might be more appropriate for general research. This can be explored in more detail as more studies use the SSE-MS (i.e., do people ever endorse just the abatement or arousal items?)

8.4 Summary

In summary, this thesis investigated the emerging phenomenon of the use of a SS to talk about TV shows while simultaneously watching those TV shows. This thesis identified several background factors that are associated with the use of a SS to talk about TV shows while simultaneously watching those shows. Finally, the current thesis developed a new questionnaire (the SSE-MS) which will be of great utility in any future research into the SSE phenomenon.

BIBLIOGRAPHY

- Abreu, J., Almeida, P., Silva, T., & Oliveira, R. (2015). Discovering TV Contents in a Second Screen App: Perspectives from Portuguese and Brazilian Markets. *Procedia Computer Science*, 64, 1240–1247. <https://doi.org/10.1016/j.procs.2015.08.508>
- Ahmed, M., Spagna, S., Huici, F., & Niccolini, S. (2013). A Peek into the Future: Predicting the Evolution of Popularity in User Generated Content. *Proceedings of the Sixth ACM International Conference on Web Search and Data Mining*, 607–616. <https://doi.org/10.1145/2433396.2433473>
- Almeida, P., Ferraz, J., Pinho, A., & Costa, D. (2012). Engaging Viewers Through Social TV Games. *Proceedings of the 10th European Conference on Interactive Tv and Video*, 175–184. <https://doi.org/10.1145/2325616.2325651>
- Andrew, P. (2015). *Social Media Usage: 2005-2015* (pp. 52–68). Pew Research Center. <https://www.pewresearch.org/internet/2015/10/08/social-networking-usage-2005-2015/>
- Auverset, Lauren A., & Billings, A. C. (2016). Relationships Between Social TV and Enjoyment: A Content Analysis of The Walking Dead’s Story Sync Experience. *Social Media + Society*, 2(3), 2056305116662170. <https://doi.org/10.1177/2056305116662170>
- Auverset, Lauren Anderson. (2017). *Social TV is the New Digital Watercooler: Personality Traits, Behaviors, and Trends in Second-Screen Media Activity* [Ph.D., The University of Alabama]. <https://search.proquest.com/docview/1917495184/abstract/65457C2364844D72PQ/1>
- Ballard, C. (2011). What’s Happening” @Twitter: A Uses and Gratifications Approach. *University of Kentucky Master’s Theses*. https://uknowledge.uky.edu/gradschool_theses/155
- Bandura, A. (2001). Social Cognitive Theory of Mass Communication. *Media Psychology*, 3(3), 265–299. https://doi.org/10.1207/S1532785XMEP0303_03
- Banhawi, F., Ali, N. M., & Judi, H. M. (2011). Measuring user engagement levels in social networking application. *2011 International Conference on Electrical Engineering and Informatics (ICEEI)*, 1–6. <https://doi.org/10.1109/ICEEI.2011.6021638>
- Barkhuus, L. (2009). Television on the Internet: New Practices, New Viewers. *CHI '09 Extended Abstracts on Human Factors in Computing Systems*, 2479–2488. <https://doi.org/10.1145/1520340.1520351>

- Barton, K. M. (2009). Reality Television Programming and Diverging Gratifications: The Influence of Content on Gratifications Obtained. *Journal of Broadcasting & Electronic Media*, 53(3), 460–476. <https://doi.org/10.1080/08838150903102659>
- Basapur, S., Harboe, G., Mandalia, H., Novak, A., Vuong, V., & Metcalf, C. (2011). Field Trial of a Dual Device User Experience for iTV. *Proceedings of the 9th International Interactive Conference on Interactive Television*, 127–136. <https://doi.org/10.1145/2000119.2000145>
- Basapur, S., Mandalia, H., Chaysinh, S., Lee, Y., Venkitaraman, N., & Metcalf, C. (2012). FANFEEDS: Evaluation of Socially Generated Information Feed on Second Screen As a TV Show Companion. *Proceedings of the 10th European Conference on Interactive Tv and Video*, 87–96. <https://doi.org/10.1145/2325616.2325636>
- Baym, N. K. (2007). *The New Shape of Online Community: The Example of Swedish Independent Music Fandom*. <https://doi.org/10.5210/fm.v12i8.1978>
- Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology*, 56(6), 893–897. <https://doi.org/10.1037/0022-006X.56.6.893>
- Ben-Porath, Y. S., Sellbom, M., & Suhr, J. A. (2019, December). *Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF)*. The Cambridge Handbook of Clinical Assessment and Diagnosis; Cambridge University Press. <https://doi.org/10.1017/9781108235433.016>
- Blake, J. (2017). *Television and the Second Screen: Interactive TV in the age of social participation* (1 edition). Routledge.
- Bogart, L., & Orenstein, F. E. (1965). Mass media and community identity in an inter-urban setting. *Journalism Quarterly*, 42(2), 179–188. <https://doi.org/10.1177/107769906504200201>
- Bradburn, N. M., Sudman, S., & Wansink, B. (2004). *Asking Questions: The Definitive Guide to Questionnaire Design -- For Market Research, Political Polls, and Social and Health Questionnaires* (Revised Edition edition). Jossey-Bass.
- Brasel, S. A., & Gips, J. (2011). Media Multitasking Behavior: Concurrent Television and Computer Usage. *Cyberpsychology, Behavior, and Social Networking*, 14(9), 527–534. <https://doi.org/10.1089/cyber.2010.0350>
- Bryant, J., & Oliver, M. B. (2009). *Media Effects: Advances in Theory and Research*. Routledge.

- Bryant, J., & Zillmann, D. (2013). *Responding To the Screen: Reception and Reaction Processes*. Routledge.
- Buerkel-Rothfuss, N. L., & Mayes, S. (1981). Soap Opera Viewing: The Cultivation Effect. *Journal of Communication, 31*(3), 108–115. <https://doi.org/10.1111/j.1460-2466.1981.tb00433.x>
- Bulterman, D. C. A. (2014). Interacting with Third-party Content: Is a Second Screen Enough? *Proceedings of the 2014 ACM International Conference on Interactive Experiences for TV and Online Video*, 1–2. <https://doi.org/10.1145/2602299.2603000>
- Bumgarner, B. A. (2007). You have been poked: Exploring the uses and gratifications of Facebook among emerging adults. *First Monday, 12*(11). <https://doi.org/10.5210/fm.v12i11.2026>
- Burgess-Limerick, R., Plooy, A., Ankrum, D. R., Malhotra, M., & Grover, V. (1998). An Assessment of Survey Research in POM: From Constructs to Theory. *Journal of Operations Management, 16*. [https://doi.org/10.1016/S0272-6963\(98\)00021-7](https://doi.org/10.1016/S0272-6963(98)00021-7)
- Bury, R., Deller, R., Greenwood, A., & Jones, B. (2013). *From Usenet to Tumblr: The changing role of social media. 10*(1), 20.
- Bury, R., & Li, J. (2015). Is it live or is it timeshifted, streamed or downloaded? Watching television in the era of multiple screens. *New Media & Society, 17*(4), 592–610. <https://doi.org/10.1177/1461444813508368>
- Buser, T., & Peter, N. (2012). Multitasking. *Experimental Economics, 15*(4), 641–655. <https://doi.org/10.1007/s10683-012-9318-8>
- Bussey, K., & Bandura, A. (1999). Social cognitive theory of gender development and differentiation. *Psychological Review, 106*(4), 676–713. <https://doi.org/10.1037/0033-295X.106.4.676>
- Buttle, F. (1996). SERVQUAL: Review, critique, research agenda. *European Journal of Marketing, 30*, 8–32. <https://doi.org/10.1108/03090569610105762>
- Cadario, R. (2015). The impact of online word-of-mouth on television show viewership: An inverted U-shaped temporal dynamic. *Marketing Letters, 26*(4), 411–422.
- Case, D. O. (2012). *Looking for Information: A Survey of Research on Information Seeking, Needs and Behavior*. Emerald Group Publishing.
- Castillo, J. (2013). The Rise of the Second Screen. *Streaming Media Magazine, 56-58,60,62-63*.

- Cavalcanti de Oliveira, C., & Marquioni, C. E. (2017). On the constitution of the televisual frame (or Analyzing conceptually the reconfigurations on the ways of watching TV). *Comunicacao, Midia e Consumo; Sao Paulo, 14*(41), 195–214.
<http://dx.doi.org/10.18568/cmc.v14i41.1444>
- Cesar, P., Bulterman, D. C. A., & Jansen, A. J. (2007). Social Sharing of Television Content: An Architecture. *Ninth IEEE International Symposium on Multimedia Workshops, 2007. ISMW '07*, 145–150. <https://doi.org/10.1109/ISM.Workshops.2007.34>
- Cesar, Pablo, Bulterman, D. C. A., & Jansen, A. J. (2008). Usages of the Secondary Screen in an Interactive Television Environment: Control, Enrich, Share, and Transfer Television Content. In M. Tscheligi, M. Obrist, & A. Lugmayr (Eds.), *Changing Television Environments* (pp. 168–177). Springer Berlin Heidelberg.
http://link.springer.com/chapter/10.1007/978-3-540-69478-6_22
- Cesar, Pablo, & Chorianopoulos, K. (2008). Interactivity and user participation in the television lifecycle: Creating, sharing, and controlling content. *Proceedings of the 1st International Conference on Designing Interactive User Experiences for TV and Video*, 125–128.
<https://doi.org/10.1145/1453805.1453830>
- Cha, J. (2016). Television use in the 21st century: An exploration of television and social television use in a multiplatform environment. *First Monday*.
<https://doi.org/10.5210/fm.v21i2.6112>
- Chen, G. M. (2011). Tweet this: A uses and gratifications perspective on how active Twitter use gratifies a need to connect with others. *Computers in Human Behavior, 27*(2), 755–762.
<https://doi.org/10.1016/j.chb.2010.10.023>
- Chonin, N. (2005). *When Fox canceled “Firefly,” it ignited an Internet fan base whose burning desire for more led to “Serenity.”* <https://www.sfgate.com/entertainment/article/When-Fox-canceled-Firefly-it-ignited-an-2628890.php>
- Chulkov, D., & Nizovtsev, D. (2015). Bundling, Cord-Cutting and the Death of Tv as We Know It. *Journal of the International Academy for Case Studies; Arden, 21*(6), 57–64.
- Cinelli, M., Quattrocioni, W., Galeazzi, A., Valensise, C. M., Brugnoti, E., Schmidt, A. L., Zola, P., Zollo, F., & Scala, A. (2020). The COVID-19 Social Media Infodemic. *ArXiv:2003.05004 [Nlin, Physics:Physics]*. <http://arxiv.org/abs/2003.05004>
- Cohen, R. J., & Swerdlik, M. E. (1999). *Psychological testing and assessment: An introduction to tests and measurement*. Mountain View, Calif. : Mayfield Pub.
<http://archive.org/details/psychologicaltes00cohe>

- Cohen, R. J., Swerdlik, M. E., & Phillips, S. M. (1996). *Psychological testing and assessment: An introduction to tests and measurement (3rd ed.)* (Vol. xxviii). Mayfield Publishing Co.
- Cook, D. A., & Beckman, T. J. (2006). Current Concepts in Validity and Reliability for Psychometric Instruments: Theory and Application. *The American Journal of Medicine*, *119*(2), 166.e7-166.e16. <https://doi.org/10.1016/j.amjmed.2005.10.036>
- Cooper, R., & Tang, T. (2009). Predicting Audience Exposure to Television in Today's Media Environment: An Empirical Integration of Active-Audience and Structural Theories. *Journal of Broadcasting & Electronic Media*, *53*(3), 400.
- Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, *78*(1), 98–104. <https://doi.org/10.1037/0021-9010.78.1.98>
- Costa, P. T., & McCrae, R. R. (1992). The five-factor model of personality and its relevance to personality disorders. *Journal of Personality Disorders*, *6*(4), 343–359. <https://doi.org/10.1521/pedi.1992.6.4.343>
- Courtois, C., & D'heer, E. (2012). Second Screen Applications and Tablet Users: Constellation, Awareness, Experience, and Interest. *Proceedings of the 10th European Conference on Interactive Tv and Video*, 153–156. <https://doi.org/10.1145/2325616.2325646>
- Crawford, J. (2016). Cutting the Cord—A Marketing Case: An Examination of Changing TV Viewership. *Atlantic Marketing Journal*, *5*(2). <https://digitalcommons.kennesaw.edu/amj/vol5/iss2/11>
- Creswell, J. W. (2008). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (3rd edition). SAGE Publications, Inc.
- Cruickshank, L., Tseklevs, E., Whitham, R., Hill, A., & Kondo, K. (2007). Making Interactive TV Easier to Use: Interface Design for a Second Screen Approach. *The Design Journal*, *10*(3), 41–53. <https://doi.org/10.2752/146069207789271920>
- Csikszentmihalyi, M. (1993). *The Evolving Self*. <https://www.amazon.ca/Evolving-Self-Mihaly-Csikszentmihalyi/dp/0060921927>
- Cunningham, N. R., & Eastin, M. S. (2017). Second Screen and Sports: A Structural Investigation Into Team Identification and Efficacy. *Communication & Sport*, *5*(3), 288–310. <https://doi.org/10.1177/2167479515610152>

- Cusumano, M. A., Mylonadis, Y., & Rosenbloom, R. S. (1992). Strategic Maneuvering and Mass-Market Dynamics: The Triumph of VHS over Beta. *Business History Review*, 66(1), 51–94. <https://doi.org/10.2307/3117053>
- DeFleur, M. L., & Ball-Rokeach, S. (1982). *Theories of Mass Communication*. Longman.
- DeVellis, R. F. (2016). *Scale Development: Theory and Applications*. SAGE Publications.
- D’heer, E., Courtois, C., & Paulussen, S. (2012). Everyday Life in (Front of) the Screen: The Consumption of Multiple Screen Technologies in the Living Room Context. *Proceedings of the 10th European Conference on Interactive Tv and Video*, 195–198. <https://doi.org/10.1145/2325616.2325654>
- Dias, P. (2016). Motivations for multi-screening: An exploratory study on motivations and gratifications. *European Journal of Communication*, 31(6), 678–693. <https://doi.org/10.1177/0267323116674111>
- Dimaggio, P., Hargittai, E., Celeste, C., & Shafer, S. (2004). Digital inequality: From unequal access to differentiated use. *Social Inequality*, 355–400.
- Dixon, M. A., & Warner, S. (2016). *Connecting It All: Creating Community in Sport and Entertainment*. <https://www.semanticscholar.org/paper/Connecting-It-All%3A-Creating-Community-in-Sport-and-Dixon-Warner/965777507a7bd8864f5e29f5aed33940890f9153>
- Dolan, R., Conduit, J., Fahy, J., & Goodman, S. (2016). Social media engagement behaviour: A uses and gratifications perspective. *Journal of Strategic Marketing*, 24(3–4), 261–277. <https://doi.org/10.1080/0965254X.2015.1095222>
- Doughty, M., Rowland, D., & Lawson, S. (2011). Co-viewing Live TV with Digital Backchannel Streams. *Proceedings of the 9th International Interactive Conference on Interactive Television*, 141–144. <https://doi.org/10.1145/2000119.2000147>
- Doughty, M., Rowland, D., & Lawson, S. (2012). Who is on Your Sofa?: TV Audience Communities and Second Screening Social Networks. *Proceedings of the 10th European Conference on Interactive Tv and Video*, 79–86. <https://doi.org/10.1145/2325616.2325635>
- Eighmey, J., & McCord, L. (1998). Adding Value in the Information Age: Uses and Gratifications of Sites on the World Wide Web. *Journal of Business Research*, 41(3), 187–194. [https://doi.org/10.1016/S0148-2963\(97\)00061-1](https://doi.org/10.1016/S0148-2963(97)00061-1)
- Elliot, P. (1999). Uses and Gratifications Research: A Critique. In *Media Studies: A Reader* (2nd ed.). NYU Press.

- Es, K. van. (2016). *The Future of Live* (1 edition). Polity.
- Falk, C. F., & Savalei, V. (2011). The relationship between unstandardized and standardized alpha, true reliability, and the underlying measurement model. *Journal of Personality Assessment, 93*(5), 445–453. <https://doi.org/10.1080/00223891.2011.594129>
- Fang, X., Zhang, J., & Chan, S. S. (2013). Development of an Instrument for Studying Flow in Computer Game Play. *International Journal of Human–Computer Interaction, 29*(7), 456–470. <https://doi.org/10.1080/10447318.2012.715991>
- Ferguson, C. J. (2009). An effect size primer: A guide for clinicians and researchers. *Professional Psychology: Research and Practice, 40*(5), 532–538. <https://doi.org/10.1037/a0015808>
- Field, A. (2009). *Discovering Statistics Using SPSS*. SAGE Publications.
- Fogg, B. J., Marshall, J., Laraki, O., Osipovich, A., Varma, C., Fang, N., Paul, J., Rangnekar, A., Shon, J., Swani, P., & Treinen, M. (2001). What Makes Web Sites Credible?: A Report on a Large Quantitative Study. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 61–68. <https://doi.org/10.1145/365024.365037>
- Forza, C. (2002). Survey research in operations management: A process-based perspective. *International Journal of Operations & Production Management, 22*(2), 152–194. <https://doi.org/10.1108/01443570210414310>
- Fossen, B. L., & Schweidel, D. A. (2016). Television Advertising and Online Word-of-Mouth: An Empirical Investigation of Social TV Activity. *Marketing Science, 36*(1), 105–123. <https://doi.org/10.1287/mksc.2016.1002>
- Fowler, F. J. (2009). *Survey research methods* (4th ed.). Sage Publications.
- Furneaux, B. (2012). Task-Technology Fit Theory: A Survey and Synopsis of the Literature. In *Information Systems Theory* (pp. 87–106). Springer, New York, NY. https://doi.org/10.1007/978-1-4419-6108-2_5
- Furr, M., & Bacharach, V. R. (2007). Psychometrics: An Introduction. In *SAGE Publications (CA)*. SAGE Publications.
- Geerts, D., Cesar, P., & Bulterman, D. (2008). The implications of program genres for the design of social television systems. *Proceeding of the 1st International Conference on Designing Interactive User Experiences for TV and Video - Uxtv '08*, 71. <https://doi.org/10.1145/1453805.1453822>

- Geerts, D., Leenheer, R., De Grooff, D., Negenman, J., & Heijstraten, S. (2014). In Front of and Behind the Second Screen: Viewer and Producer Perspectives on a Companion App. *Proceedings of the 2014 ACM International Conference on Interactive Experiences for TV and Online Video*, 95–102. <https://doi.org/10.1145/2602299.2602312>
- Geier, M. J. (2003). Lights, camera, controls! [DVD copying prevention]. *IEEE Spectrum*, 40(5), 28–31. <https://doi.org/10.1109/MSPEC.2003.1197474>
- Gerbner, G., Gross, L., Morgan, M., Signorielli, N., & Shanahan, J. (2002). Growing up with television: Cultivation processes. In *Media effects: Advances in theory and research*, 2nd ed (pp. 43–67). Lawrence Erlbaum Associates Publishers.
- Giglietto, F., & Selva, D. (2014). Second Screen and Participation: A Content Analysis on a Full Season Dataset of Tweets. *Journal of Communication*, 64(2), 260–277. <https://doi.org/10.1111/jcom.12085>
- Gil de Zúñiga, H., Garcia-Perdomo, V., & McGregor, S. C. (2015). What Is Second Screening? Exploring Motivations of Second Screen Use and Its Effect on Online Political Participation. *Journal of Communication*, 65(5), 793–815. <https://doi.org/10.1111/jcom.12174>
- Gleitman, H., Gross, J. J., & Reisberg, D. (2011). *Psychology* (8th ed). W. W. Norton & Co.
- Glick, I. O., & Levy, S. J. (2017). *Living with Television*. Transaction Publishers.
- Goldberg, L. (2018). *There were nearly 500 scripted TV shows on US TV in 2017—Quartz*. <https://qz.com/999827/the-end-of-peak-tv-must-finally-mercifully-be-nigh/>
- Gómez Aguilar, M., Paniagua Rojano, F., & Farias Batlle, P. (2015). *The behaviour of the television audience on social networks. An approach to its profile and the most talked-about programmes* (70th ed.). Revista Latina de Comunicación Social. <https://doi.org/10.4185/RLCS-2015-1058en>
- Goodhue, D. L., & Thompson, R. L. (1995). Task-Technology Fit and Individual Performance. *MIS Quarterly*, 19(2), 213–236. <https://doi.org/10.2307/249689>
- Government of Canada, S. C. (2016, October 5). *National Occupational Classification (NOC) 2016 Version 1.0*. <https://www23.statcan.gc.ca/imdb/p3VD.pl?Function=getVD&TVD=314243>
- Government of Canada, S. C. (2019, March 6). *Living alone in Canada*. <https://www150.statcan.gc.ca/n1/pub/75-006-x/2019001/article/00003-eng.htm>

- Graham, M., & Dutton, W. H. (2019). *Society and the Internet: How Networks of Information and Communication are Changing Our Lives*. Oxford University Press.
- Greenberg, B. (1974). *Gratifications of Television Viewing and Their Correlates for British Children* | *BibSonomy*.
<https://www.bibsonomy.org/bibtex/2a16693bedb9a9b121aa16e1ab577cc52/tobidiplom>
- Greer, C. F., & Ferguson, D. A. (2015). Tablet computers and traditional television (TV) viewing Is the iPad replacing TV? *Convergence: The International Journal of Research into New Media Technologies*, 21(2), 244–256. <https://doi.org/10.1177/1354856514541928>
- Gregory, R. J. (2004). *Psychological testing: History, principles, and applications* (pp. xxv, 694). Allyn & Bacon.
- Gruzd, A., Wellman, B., & Takhteyev, Y. (2011). Imagining Twitter as an Imagined Community. *American Behavioral Scientist*, 55(10), 1294–1318.
<https://doi.org/10.1177/0002764211409378>
- Guin, T. D.-L., Baker, R., Mechling, J., & Ruyle, E. (2012). Myths and Realities of Respondent Engagement in Online Surveys: *International Journal of Market Research*.
<https://doi.org/10.2501/IJMR-54-5-613-633>
- Hanson, G., & Haridakis, P. (2008). YouTube Users Watching and Sharing the News: A Uses and Gratifications Approach. *Journal of Electronic Publishing*, 11(3).
<http://dx.doi.org/10.3998/3336451.0011.305>
- Harrington, S., Highfield, T., & Bruns, A. (2012). More than a Backchannel: Twitter and Television. Audience Interactivity and Participation. *Journal of Computer-Mediated Communication*, 13–17.
- Harrison, C., & Amento, B. (2007). *CollaboraTV: Using Asynchronous Communication to Make TV Social Again*. 5.
- Harwood, J. (1999). Age identification, social identity gratifications, and television viewing. *Journal of Broadcasting & Electronic Media*, 43(1), 123–136.
<https://doi.org/10.1080/08838159909364479>
- Heeringa, S. G., West, B. T., & Berglund, P. A. (2017a). *Applied survey data analysis*. Chapman and Hall/CRC.
- Heeringa, S. G., West, B. T., & Berglund, P. A. (2017b). *Applied survey data analysis*. Chapman and Hall/CRC.

- Herdem, K. C. (2014). Detection of Predictability Ratings of Live Events on TV by Use of Second Screens. *Proceedings of the 2014 ACM International Conference on Interactive Experiences for TV and Online Video*, 39–46. <https://doi.org/10.1145/2602299.2602314>
- Hess, J., Ley, B., Ogonowski, C., Wan, L., & Wulf, V. (2011). Jumping Between Devices and Services: Towards an Integrated Concept for Social Tv. *Proceedings of the 9th International Interactive Conference on Interactive Television*, 11–20. <https://doi.org/10.1145/2000119.2000122>
- Hinkin, T. R., Tracey, J. B., & Enz, C. A. (1997). Scale Construction: Developing Reliable and Valid Measurement Instruments. *Journal of Hospitality & Tourism Research*, 21(1), 100–120. <https://doi.org/10.1177/109634809702100108>
- Hinkle, D. E., Wiersma, W., & Jurs, S. G. (2002). *Applied Statistics for the Behavioral Sciences* (5 edition). Houghton Mifflin.
- Hoerger, M. (2010). Participant dropout as a function of survey length in internet-mediated university studies: Implications for study design and voluntary participation in psychological research. *Cyberpsychology, Behavior and Social Networking*, 13(6), 697–700. <https://doi.org/10.1089/cyber.2009.0445>
- Holmes, M. E., Josephson, S., & Carney, R. E. (2012). Visual Attention to Television Programs with a Second-screen Application. *Proceedings of the Symposium on Eye Tracking Research and Applications*, 397–400. <https://doi.org/10.1145/2168556.2168646>
- Howell, D. C. (2002). *Statistical Methods for Psychology*. Duxbury/Thomson Learning.
- Howell, D. C. (2016). *Fundamental Statistics for the Behavioral Sciences*. Cengage Learning.
- Hsu, L.-C., Wang, K.-FY., Chih, W.-H., & Lin, K.-Y. (2015). Investigating the ripple effect in virtual communities: An example of Facebook Fan Pages. *Computers in Human Behavior*, 51, Part A, 483–494. <https://doi.org/10.1016/j.chb.2015.04.069>
- Hu, H., Wen, Y., Luan, H., Chua, T.-S., & Li, X. (2014). Toward Multiscreen Social TV with Geolocation-Aware Social Sense. *IEEE MultiMedia*, 21(3), 10–19. <https://doi.org/10.1109/MMUL.2014.2>
- Ifinedo, P. (2016). Applying uses and gratifications theory and social influence processes to understand students' pervasive adoption of social networking sites: Perspectives from the Americas. *International Journal of Information Management*, 36(2), 192–206. <https://doi.org/10.1016/j.ijinfomgt.2015.11.007>

- Is the Future of TV Connected?* (2017). YuMe. https://yumevideo.lpages.co/2018-ctv-fastforward/?utm_source=social&utm_content=download_research&utm_campaign=2018_research_Q1_nielsen
- Ishii, K. (2008). Uses and Gratifications of Online Communities in Japan. *Observatorio (OBS*)*, 2(3). <https://doi.org/10.15847/obsOBS232008176>
- Jacques, R. D. (1996). *The nature of engagement and its role in hypermedia evaluation and design*. [Ph.D., South Bank University]. <http://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.336369>
- Jenkins, H. (2006). *Convergence culture: Where old and new media collide*. New York University Press.
- Jenner, M. (2014). Is this TVIV? On Netflix, TVIII and binge-watching. *New Media & Society*, 1461444814541523. <https://doi.org/10.1177/1461444814541523>
- Johnson, P. R. (2014). *Toward a uses and gratifications model of Twitter* [M.S., Syracuse University]. <https://search.proquest.com/docview/1615884122/abstract/4BE7FE1419A84332PQ/1>
- Jolliffe, I. T. (2002). *Principal Component Analysis* (2nd ed.). Springer-Verlag. <https://www.springer.com/gp/book/9780387954424>
- Kahneman, D. (1973). *Attention and Effort*. Prentice-Hall.
- Karimi, L., Khodabandelou, R., Ehsani, M., & Ahmad, M. (2014). *Applying the Uses and Gratifications Theory to Compare Higher Education Students' Motivation for Using Social Networking Sites: Experiences from Iran, Malaysia, United Kingdom, and South Africa*. 20.
- Karnik, M., Oakley, I., Venkatanathan, J., Spiliotopoulos, T., & Nisi, V. (2013). Uses & Gratifications of a Facebook Media Sharing Group. *Proceedings of the 2013 Conference on Computer Supported Cooperative Work*, 821–826. <https://doi.org/10.1145/2441776.2441868>
- Katz, E., Blumler, J. G., & Gurevitch, M. (1973). Uses and Gratifications Research. *The Public Opinion Quarterly*, 37(4), 509–523.
- Katz, E., Haas, H., & Gurevitch, M. (1973). On the Use of the Mass Media for Important Things. *American Sociological Review*, 38(2), 164–181. <https://doi.org/10.2307/2094393>

- Kaye, B. K. (1998). Uses and gratifications of the World Wide Web: From couch potato to web potato. *New Jersey Journal of Communication*, 6(1), 21–40.
<https://doi.org/10.1080/15456879809367333>
- Keane, M. (2016). Online Entertainment| Disconnecting, Connecting, and Reconnecting: How Chinese Television Found Its Way Out of the Box. *International Journal of Communication*, 10(0), 18.
- Kelley, K., Clark, B., Brown, V., & Sitzia, J. (2003). Good practice in the conduct and reporting of survey research. *International Journal for Quality in Health Care*, 15(3), 261–266.
<https://doi.org/10.1093/intqhc/mzg031>
- Kerlinger, F. N., & Lee, H. B. (2000). *Foundations of Behavioral Research*. Harcourt College Publishers.
- Kim, H. (2013). *Uses and Gratification of Sports Media Audiences*.
<http://digital.library.temple.edu/cdm/ref/collection/p245801coll10/id/216550>
- Kim, S., & Baek, T. H. (2018). Examining the antecedents and consequences of mobile app engagement. *Telematics and Informatics*, 35(1), 148–158.
<https://doi.org/10.1016/j.tele.2017.10.008>
- Kippax, S., & Murray, J. P. (1980). Using the Mass Media: Need Gratification and Perceived Utility. *Communication Research*, 7(3), 335–359.
<https://doi.org/10.1177/009365028000700304>
- Krämer, N. C., Winter, S., Benninghoff, B., & Gallus, C. (2015). How “social” is Social TV? The influence of social motives and expected outcomes on the usage of Social TV applications. *Computers in Human Behavior*, 51, Part A, 255–262.
<https://doi.org/10.1016/j.chb.2015.05.005>
- Kumar, R. (2014). *Research Methodology* (4 edition). Sage Publications.
- Lakes, K. D. (2013). Restricted Sample Variance Reduces Generalizability. *Psychological Assessment*, 25(2), 643–650. <https://doi.org/10.1037/a0030912>
- Langstedt, E. R., & Atkin, D. J. (2013). An Examination of Personality Traits and Television Viewing Motives Using Patterns of Interrelation and Quadratic Analysis. *Atlantic Journal of Communication*, 21(5), 278–293.
<https://doi.org/10.1080/15456870.2013.842571>

- LaRose, R., & Eastin, M. S. (2004). A Social Cognitive Theory of Internet Uses and Gratifications: Toward a New Model of Media Attendance. *Journal of Broadcasting & Electronic Media*, 48(3), 358–377. https://doi.org/10.1207/s15506878jobem4803_2
- Larsson, M., & Lundkvist, F. (2019). *Interactive TV and group viewing: A qualitative study of companion apps and viewer engagement during group TV viewing*. <http://urn.kb.se/resolve?urn=urn:nbn:se:kth:diva-253648>
- Laursen, D., & Sandvik, K. (2014). Talking with TV shows: Simultaneous conversations between users and producers in the second-screen television production Voice. *Northern Lights*, 12(1), 141–160. https://doi.org/10.1386/nl.12.1.141_1
- Lee, R. M. (2000). *Unobtrusive Methods in Social Research* (1 edition). Open University Press.
- Lee, S.-H., & Workman, J. E. (2013). Gossip, Self-Monitoring, and Fashion Consumer Groups. *Clothing and Textiles Research Journal*, 31(2), 67–80. <https://doi.org/10.1177/0887302X13481262>
- Leung, L. (2001). College Student Motives for Chatting on ICQ. *New Media & Society*, 3(4), 483–500. <https://doi.org/10.1177/14614440122226209>
- Levine, L. E., Waite, B. M., & Bowman, L. L. (2012). Mobile Media Use, Multitasking and Distractibility: *International Journal of Cyber Behavior, Psychology and Learning*, 2(3), 15–29. <https://doi.org/10.4018/ijcbpl.2012070102>
- Levy, M. R. (1978). *The audience experience with television news*. Lexington, Ky. : Association for Education in Journalism. <https://trove.nla.gov.au/version/9927363>
- Lim, J.-S., Al-Aali, A., Heinrichs, J. H., & Lim, K.-S. (2013). Testing alternative models of individuals' social media involvement and satisfaction. *Computers in Human Behavior*, 29(6), 2816–2828. <https://doi.org/10.1016/j.chb.2013.07.022>
- Lin, C. A. (1996). Standpoint: Looking back: The contribution of Blumler and Katz's uses of mass communication to communication research. *Journal of Broadcasting & Electronic Media*, 40(4), 574–581. <https://doi.org/10.1080/08838159609364379>
- Lin, J.-S., Sung, Y., & Chen, K.-J. (2016). Social television: Examining the antecedents and consequences of connected TV viewing. *Computers in Human Behavior*, 58, 171–178. <https://doi.org/10.1016/j.chb.2015.12.025>
- Lin, N. (1999). Social Networks and Status Attainment. *Annual Review of Sociology*, 25(1), 467–487. <https://doi.org/10.1146/annurev.soc.25.1.467>

- Livingstone, S., Wober, M., & Lunt, P. (1994). Studio Audience Discussion Programmes: An Analysis of Viewers' Preferences and Involvement. *European Journal of Communication*, 9(4), 355–379. <https://doi.org/10.1177/0267323194009004001>
- Lochrie, M., & Coulton, P. (2011). Mobile Phones As Second Screen for TV, Enabling Inter-audience Interaction. *Proceedings of the 8th International Conference on Advances in Computer Entertainment Technology*, 73:1–73:2. <https://doi.org/10.1145/2071423.2071513>
- Lopez, S. J., & Snyder, C. R. (2002). *Handbook of Positive Psychology*. Oxford University Press. <http://ezproxy.library.dal.ca/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=140528&site=ehost-live>
- Luo, M. M., & Remus, W. (2014). Uses and gratifications and acceptance of Web-based information services: An integrated model. *Computers in Human Behavior*, 38, 281–295. <https://doi.org/10.1016/j.chb.2014.05.042>
- Makarechi, K. (2013). *Save Steve Holt: "Arrested Development" Fans Rally Around Actor Justin Grant Wade* | *HuffPost*. https://www.huffpost.com/entry/save-steve-holt-arrested-development-justin-grant-wade_n_1382265
- Malhotra, M. K., & Grover, V. (1998). An assessment of survey research in POM: From constructs to theory. *Journal of Operations Management*, 16(4), 407–425. [https://doi.org/10.1016/S0272-6963\(98\)00021-7](https://doi.org/10.1016/S0272-6963(98)00021-7)
- Mangan, J. A. (2013). *The Games Ethic and Imperialism: Aspects of the Diffusion of an Ideal*. Routledge.
- Marinelli, A., & Andò, R. (2014). Multiscreening and Social TV: The Changing Landscape of TV Consumption in Italy. *VIEW Journal of European Television History and Culture*, 3(6), 24–36. <https://doi.org/10.18146/2213-0969.2014.jethc067>
- Martinescu, E., Janssen, O., & Nijstad, B. A. (2014). Tell Me the Gossip: The Self-Evaluative Function of Receiving Gossip About Others. *Personality and Social Psychology Bulletin*, 40(12), 1668–1680. <https://doi.org/10.1177/0146167214554916>
- Mazurek, G., & Tkaczyk, J. (2016). *The Impact of the Digital World on Management and Marketing*. Poltext.
- McAndrew, F. (2016). *Humans evolved to gossip because it's a necessary social skill*. Quartz. <https://qz.com/600240/humans-evolved-to-gossip-because-its-a-necessary-social-skill/>

- McAndrew, F. T. (2014). The “sword of a woman”: Gossip and female aggression. *Aggression and Violent Behavior, 19*(3), 196–199. <https://doi.org/10.1016/j.avb.2014.04.006>
- McAndrew, F. T., Bell, E. K., & Garcia, C. M. (2007). Who do we tell and whom do we tell on? Gossip as a strategy for status enhancement. *Journal of Applied Social Psychology, 37*(7), 1562–1577. <https://doi.org/10.1111/j.1559-1816.2007.00227.x>
- McBride, J. (2015). Social Media & Audience Participation in Regard to Television. *Williams Honors College, Honors Research Projects*. https://ideaexchange.uakron.edu/honors_research_projects/6
- McCay-Peet, L., & Quan-Haase, A. (2016). A Model of Social Media Engagement: User Profiles, Gratifications, and Experiences. In *Why Engagement Matters* (pp. 199–217). Springer, Cham. https://doi.org/10.1007/978-3-319-27446-1_9
- McGhee, P. E., & Frueh, T. (1980). Television viewing and the learning of sex-role stereotypes. *Sex Roles, 6*(2), 179–188. <https://doi.org/10.1007/BF00287341>
- McPherson, K., Huotari, K., Cheng, F. Y.-S., Humphrey, D., Cheshire, C., & Brooks, A. L. (2012). Glitter: A Mixed-methods Study of Twitter Use During Glee Broadcasts. *Proceedings of the ACM 2012 Conference on Computer Supported Cooperative Work Companion, 167–170*. <https://doi.org/10.1145/2141512.2141569>
- McQuail, D. (2010). *McQuail’s Mass Communication Theory*. SAGE.
- McQuail, D., Blumler, J. G., & Brown, J. R. (1972). The television audience: A revised perspective. *Media Studies: A Reader, 271, 284*.
- Mehrens, W. A., & Lehmann, I. J. (1984). *Measurement and evaluation in education and psychology*. Holt, Rinehart, and Winston.
- Mela, C. F., & Kopalle, P. K. (2002). The impact of collinearity on regression analysis: The asymmetric effect of negative and positive correlations. *Applied Economics, 34*(6), 667–677. <https://doi.org/10.1080/00036840110058482>
- Midha, A. (2014, November 4). *New Nielsen Research: Twitter drives +7 audiences*. Twitter Blogs. <https://blog.twitter.com/2014/new-nielsen-research-twitter-drives-7-audiences>
- Miller, L. J. (1995). Family togetherness and the suburban ideal. *Sociological Forum, 10*(3), 393–418. <https://doi.org/10.1007/BF02095828>

- Morris, M. G., & Venkatesh, V. (2006). Age Differences in Technology Adoption Decisions: Implications for a Changing Work Force. *Personnel Psychology*, 53(2), 375–403. <https://doi.org/10.1111/j.1744-6570.2000.tb00206.x>
- Mukherjee, P., & Jansen, B. J. (2014). Social TV and the Social Soundtrack: Significance of Second Screen Interaction during Television Viewing. In W. G. Kennedy, N. Agarwal, & S. J. Yang (Eds.), *Social Computing, Behavioral-Cultural Modeling and Prediction* (pp. 317–324). Springer International Publishing. http://link.springer.com/chapter/10.1007/978-3-319-05579-4_39
- Nakamura, J., & Csikszentmihalyi, M. (2014). The Concept of Flow. In *Flow and the Foundations of Positive Psychology* (pp. 239–263). Springer, Dordrecht. https://doi.org/10.1007/978-94-017-9088-8_16
- Nielsen. (2019, Q2). *The Nielsen Total Audience Report: Q2 2018*. <http://www.nielsen.com/us/en/insights/reports/2018/q2-2018-total-audience-report>
- O'Brien, H. (2012). Exploring user engagement in online news interactions. *Proceedings of the American Society for Information Science and Technology*, 48(1), 1–10. <https://doi.org/10.1002/meet.2011.14504801088>
- O'Brien, H., & Cairns, P. (2015). An empirical evaluation of the User Engagement Scale (UES) in online news environments. *Information Processing & Management*, 51(4), 413–427. <https://doi.org/10.1016/j.ipm.2015.03.003>
- O'Brien, H., & Cairns, P. (Eds.). (2016). *Why Engagement Matters: Cross-Disciplinary Perspectives of User Engagement in Digital Media*. Springer International Publishing. [//www.springer.com/gp/book/9783319274447](http://www.springer.com/gp/book/9783319274447)
- O'Brien, H. L., Cairns, P., & Hall, M. (2018). A practical approach to measuring user engagement with the refined user engagement scale (UES) and new UES short form. *International Journal of Human-Computer Studies*, 112, 28–39. <https://doi.org/10.1016/j.ijhcs.2018.01.004>
- O'Brien, H. L., & Lebow, M. (2013). Mixed-methods approach to measuring user experience in online news interactions. *Journal of the American Society for Information Science and Technology*, 64(8), 1543–1556. <https://doi.org/10.1002/asi.22871>
- O'Brien, H. L., & Toms, E. G. (2008). What is user engagement? A conceptual framework for defining user engagement with technology. *Journal of the American Society for Information Science and Technology*, 59(6), 938–955. <https://doi.org/10.1002/asi.20801>

- O'Brien, H., & Toms, E. G. (2010a). The development and evaluation of a survey to measure user engagement. *Journal of the American Society for Information Science and Technology*, *61*(1), 50–69. <https://doi.org/10.1002/asi.21229>
- O'Brien, H., & Toms, E. G. (2010b). Is There a Universal Instrument for Measuring Interactive Information Retrieval?: The Case of the User Engagement Scale. *Proceedings of the Third Symposium on Information Interaction in Context*, 335–340. <https://doi.org/10.1145/1840784.1840835>
- O'Donohoe, S. (n.d.). *Advertising Uses and Gratifications*. 24.
- Ofcom. (2019, August 7). *Media Nations 2019*. Ofcom. <https://www.ofcom.org.uk/research-and-data/tv-radio-and-on-demand/media-nations-2019>
- Oliveira, C. C. de, & Marquioni, C. E. (2017). Sobre a constituição da noção de frame televisual (ou Analisando conceitualmente as reconfigurações nos modos de assistir TV). *Comunicação Mídia e Consumo*, *14*(41), 195–214. <https://doi.org/10.18568/cmc.v14i41.1444>
- Oliver, M. B., & Raney, A. A. (2011). Entertainment as Pleasurable and Meaningful: Identifying Hedonic and Eudaimonic Motivations for Entertainment Consumption. *Journal of Communication*, *61*(5), 984–1004. <https://doi.org/10.1111/j.1460-2466.2011.01585.x>
- Otterson, J. (2018). *Number of Streaming Shows Overtakes Basic Cable, Broadcast – Variety*. <https://variety.com/2018/tv/news/number-of-streaming-shows-basic-cable-broadcast-fx-report-1203089218/>
- Palmgreen, P., & Rayburn. (1982). GRATIFICATIONS SOUGHT AND MEDIA EXPOSURE An Expectancy Value Model. *Communication Research*, *9*(4), 561–580. <https://doi.org/10.1177/009365082009004004>
- Palmgreen, P., & Rayburn, J. D. (1979). Uses and Gratifications and Exposure To Public Television: A Discrepancy Approach. *Communication Research*, *6*(2), 155–179. <https://doi.org/10.1177/009365027900600203>
- Palmgreen, P., Wenner, L. A., & Rayburn, J. D. (1981). Gratification Discrepancies and News Program Choice. *Communication Research*, *8*(4), 451–478. <https://doi.org/10.1177/009365028100800404>
- Papacharissi, Z., & Mendelson, A. L. (2007). An Exploratory Study of Reality Appeal: Uses and Gratifications of Reality TV Shows. *Journal of Broadcasting & Electronic Media*, *51*(2), 355–370. <https://doi.org/10.1080/08838150701307152>

- Park, N., Kee, K. F., & Valenzuela, S. (2009). Being Immersed in Social Networking Environment: Facebook Groups, Uses and Gratifications, and Social Outcomes. *CyberPsychology & Behavior, 12*(6), 729–733. <https://doi.org/10.1089/cpb.2009.0003>
- Park, S., Xu, X., Rourke, B., & Bellur, S. (2019). Do You Enjoy TV, while Tweeting? Effects of Multitasking on Viewers' Transportation, Emotions and Enjoyment. *Journal of Broadcasting & Electronic Media, 63*(2), 231–249. <https://doi.org/10.1080/08838151.2019.1622340>
- Perks, L. G. (2014). *Media Marathonning: Immersions in Morality*. Lexington Books.
- Phua, J., Jin, S. V., & Kim, J. (Jay). (2017). Gratifications of using Facebook, Twitter, Instagram, or Snapchat to follow brands: The moderating effect of social comparison, trust, tie strength, and network homophily on brand identification, brand engagement, brand commitment, and membership intention. *Telematics and Informatics, 34*(1), 412–424. <https://doi.org/10.1016/j.tele.2016.06.004>
- Pittman, M., & Sheehan, K. (2015). Sprinting a media marathon: Uses and gratifications of binge-watching television through Netflix. *First Monday, 20*(10). <https://doi.org/10.5210/fm.v20i10.6138>
- Pramatari, K., A. Papakyriakopoulos, D., Lekakos, G., & Mylonopoulos, N. (2001). Personalized Interactive TV Advertising: The iMEDIA Business Model. *Electronic Markets, 11*, 17–25. <https://doi.org/10.1080/10196780122859>
- Prudon, P. (2015). Confirmatory Factor Analysis as a Tool in Research Using Questionnaires: A Critique. *Comprehensive Psychology, 4*, 03.CP.4.10. <https://doi.org/10.2466/03.CP.4.10>
- Qualtrics (Version 2018). (2018). [Computer software]. Qualtrics. <https://www.Qualtrics.com>
- Quan-Haase, A., & Young, A. L. (2010). Uses and Gratifications of Social Media: A Comparison of Facebook and Instant Messaging. *Bulletin of Science, Technology & Society, 30*(5), 350–361. <https://doi.org/10.1177/0270467610380009>
- Quan-Haase, A., & Young, A. L. (2014). The Uses and Gratifications (U&G) Approach as a Lens for Studying Social Media Practice. In R. S. Fortner & P. rk Fackler (Eds.), *The Handbook of Media and Mass Communication Theory* (pp. 269–286). John Wiley & Sons, Inc. <http://onlinelibrary.wiley.com/doi/10.1002/9781118591178.ch15/summary>
- Renz, S. M., Carrington, J. M., & Badger, T. A. (2018). Two Strategies for Qualitative Content Analysis: An Intramethod Approach to Triangulation. *Qualitative Health Research, 28*(5), 824–831. <https://doi.org/10.1177/1049732317753586>

- Riddell, W. C., & Song, X. (2017). The Role of Education in Technology Use and Adoption: Evidence from the Canadian Workplace and Employee Survey. *ILR Review*, 70(5), 1219–1253. <https://doi.org/10.1177/0019793916687719>
- Rodriguez, A. (2018). *The end of “peak TV” must finally, mercifully be nigh*. Quartz. <https://qz.com/999827/the-end-of-peak-tv-must-finally-mercifully-be-nigh/>
- Rogers, W. A., Mitzner, T. L., Boot, W. R., Charness, N. H., Czaja, S. J., & Sharit, J. (2017). UNDERSTANDING INDIVIDUAL AND AGE-RELATED DIFFERENCES IN TECHNOLOGY ADOPTION. *Innovation in Aging*, 1(Suppl 1), 1026. <https://doi.org/10.1093/geroni/igx004.3733>
- Rosenberry, J., & Vicker, L. A. (2017). *Applied Mass Communication Theory: A Guide for Media Practitioners*. Routledge, Taylor & Francis Group.
- Rose-Wiles, L. M. (2013). Are Print Books Dead? An Investigation of Book Circulation at a Mid-Sized Academic Library. *Technical Services Quarterly*, 30(2), 129–152. <https://doi.org/10.1080/07317131.2013.759496>
- Roy, S. (2008). *Determining Uses and Gratifications for Indian Internet Users*.
- Rubin, A. M. (1977). Television Usage, Attitudes and Viewing Behaviors of Children and Adolescents Television and Children. *Journal of Broadcasting*, 21, 355–370.
- Rubin, A. M. (1983). Television uses and gratifications: The interactions of viewing patterns and motivations. *Journal of Broadcasting*, 27(1), 37–51. <https://doi.org/10.1080/08838158309386471>
- Rubin, A. M., & Rubin, R. B. (1985). Interface of personal and mediated communication: A research agenda. *Critical Studies in Mass Communication*, 2(1), 36–53. <https://doi.org/10.1080/15295038509360060>
- Rubin, R. B., Perse, E. M., & Barbato, C. A. (1988). Conceptualization and Measurement of Interpersonal Communication Motives. *Human Communication Research*, 14(4), 602–628. <https://doi.org/10.1111/j.1468-2958.1988.tb00169.x>
- Ruggiero, T. E. (2000). Uses and Gratifications Theory in the 21st Century. *Mass Communication and Society*, 3(1), 3–37. https://doi.org/10.1207/S15327825MCS0301_02
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *The American Psychologist*, 55(1), 68–78.

- Saunders, S. A., & Munro, P. (2000). The construction and validation of a consumer orientation questionnaire (SCOI) designed to measure Fromm's (1955) "Marketing Character" in Australia. *Social Behavior and Personality*, 28(3), 219–240. <https://doi.org/10.2224/sbp.2000.28.3.219>
- Schirra, S., Sun, H., & Bentley, F. (2014). Together Alone: Motivations for Live-tweeting a Television Series. *Proceedings of the 32Nd Annual ACM Conference on Human Factors in Computing Systems*, 2441–2450. <https://doi.org/10.1145/2556288.2557070>
- Schmierbach, M., Chung, M.-Y., Wu, M., & Kim, K. (2014). No One Likes to Lose. *Journal of Media Psychology*, 26(3), 105–110. <https://doi.org/10.1027/1864-1105/a000120>
- Shade, D. D., Kornfield, S., & Oliver, M. B. (2015). The Uses and Gratifications of Media Migration: Investigating the Activities, Motivations, and Predictors of Migration Behaviors Originating in Entertainment Television. *Journal of Broadcasting & Electronic Media*, 59(2), 318–341. <https://doi.org/10.1080/08838151.2015.1029121>
- Shamma, D. A., Bastea-Forte, M., Joubert, N., & Liu, Y. (2008). Enhancing Online Personal Connections Through the Synchronized Sharing of Online Video. *CHI '08 Extended Abstracts on Human Factors in Computing Systems*, 2931–2936. <https://doi.org/10.1145/1358628.1358786>
- Shao, G. (2009). Understanding the Appeal of User-Generated Media: A Uses and Gratification... *Internet Research*, 19(1), 7–25. <https://doi.org/10.1108/10662240910927795>
- Sherry, J. L., Lucas, K., Greenberg, B. S., & Lachlan, K. (2006). Video Game Uses and Gratifications as Predicators of Use and Game Preference. In *Playing video games: Motives, responses, and consequences* (pp. 213–224). Lawrence Erlbaum Associates Publishers.
- Shim, H., Shin, E., & Lim, S. (2017a). What makes us two-screen users? The effects of two-screen viewing motivation and psychological traits on social interactions. *Computers in Human Behavior*, 75, 339–346. <https://doi.org/10.1016/j.chb.2017.05.019>
- Shim, H., Shin, E., & Lim, S. (2017b). What makes us two-screen users? The effects of two-screen viewing motivation and psychological traits on social interactions. *Computers in Human Behavior*, 75, 339–346. <https://doi.org/10.1016/j.chb.2017.05.019>
- Shin, D.-H. (2013). Defining sociability and social presence in Social TV. *Computers in Human Behavior*, 29(3), 939–947. <https://doi.org/10.1016/j.chb.2012.07.006>

- Shultz, K. S., & Whitney, D. J. (2005). *Measurement Theory in Action: Case Studies and Exercises*. SAGE Publications.
- Sigerson, L., & Cheng, C. (2018). Scales for measuring user engagement with social network sites: A systematic review of psychometric properties. *Computers in Human Behavior*, 83, 87–105. <https://doi.org/10.1016/j.chb.2018.01.023>
- Simons, N. (2009). *Me TV: Towards changing TV viewing practices?* 219–222. <https://doi.org/10.1145/1542084.1542128>
- Sloan, L., & Quan-Haase, A. (2017). *The SAGE Handbook of Social Media Research Methods*. SAGE.
- Soskic, N., Kuzmanovic, N., Vidakovic, M., & Miljkovic, G. (2014). Second screen user experience: A new digital television frontier. *2014 37th International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO)*, 1057–1060. <https://doi.org/10.1109/MIPRO.2014.6859725>
- Sruoginis, K., Zhang, M., & Shane, R. (2017). *The Changing TV Experience: 2017 | WARC*. http://origin.warc.com/content/paywall/article/iab/the_changing_tv_experience_2017/120418
- Stavros, C., Meng, M. D., Westberg, K., & Farrelly, F. (2014). Understanding fan motivation for interacting on social media. *Sport Management Review*, 17(4), 455–469. <https://doi.org/10.1016/j.smr.2013.11.004>
- Steiner, E., & Xu, K. (2018). Binge-watching motivates change: Uses and gratifications of streaming video viewers challenge traditional TV research. *Convergence*, 26(1), 82–101. <https://doi.org/10.1177/1354856517750365>
- Suhr. (2006). *Exploratory or Confirmatory Factor Analysis Proceedings of the 31st Annual SAS Users Group International Conference. Cary, NC SAS Institute Inc., Paper Number 200-31. - References—Scientific Research Publishing*. [https://www.scirp.org/\(S\(i43dyn45teexjx455qlt3d2q\)\)/reference/ReferencesPapers.aspx?ReferenceID=1328769](https://www.scirp.org/(S(i43dyn45teexjx455qlt3d2q))/reference/ReferencesPapers.aspx?ReferenceID=1328769)
- Swanson, D. L. (1977). THE USES AND MISUSES OF USES AND GRATIFICATIONS. *Human Communication Research*, 3(3), 214–221. <https://doi.org/10.1111/j.1468-2958.1977.tb00519.x>
- Swanson, D. L. (1979). Political Communication Research and the Uses and Gratifications Model a Critique. *Communication Research*, 6(1), 37–53. <https://doi.org/10.1177/009365027900600103>

- Sweller, J., Ayres, P., & Kalyuga, S. (2011). Measuring Cognitive Load. In J. Sweller, P. Ayres, & S. Kalyuga (Eds.), *Cognitive Load Theory* (pp. 71–85). Springer.
https://doi.org/10.1007/978-1-4419-8126-4_6
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using Multivariate Statistics* (6th ed.). Pearson Education.
- Tanta, I., Mihovilović, M., & Sablić, Z. (2014). *Uses and gratification theory—Why adolescents use facebook?* *20*, 85–110.
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach’s alpha. *International Journal of Medical Education*, *2*, 53–55. <https://doi.org/10.5116/ijme.4dfb.8dfd>
- The Communications Market 2017*. (2017, August 3). Ofcom.
<https://www.ofcom.org.uk/research-and-data/multi-sector-research/cmr/cmr-2017>
- Thomas, L. C., & Wickens, C. D. (1999). Immersion and Battlefield Visualization: Frame of Reference Effects on Navigation Tasks and Cognitive Tunneling. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, *43*(3), 153–157.
<https://doi.org/10.1177/154193129904300305>
- Thompson, B., & Daniel, L. G. (1996). Factor Analytic Evidence for the Construct Validity of Scores: A Historical Overview and Some Guidelines. *Educational and Psychological Measurement*, *56*(2), 197–208. <https://doi.org/10.1177/0013164496056002001>
- Tinsley, H. E. A., & Brown, S. D. (2000). *Handbook of Applied Multivariate Statistics and Mathematical Modeling*. Academic Press.
- Towers, W. M. (1987). Radio listenership and uses and gratifications: A replication. *Communication Research Reports*, *4*(1), 57–64.
- Tupes, E. C., & Christal, R. E. (1961). *Recurrent Personality Factors Based on Trait Ratings*. Personnel Laboratory, Aeronautical Systems Division, Air Force Systems Command, United States Air Force.
- Unglesbee, B. (2019). *Who really killed Blockbuster?* Retail Dive.
<https://www.retaildive.com/news/who-really-killed-blockbuster/564314/>
- Valentine, A. (2011, August). *Uses and Gratifications of Facebook Members 35 Years and Older* [Thesis or Dissertation]. Digital Library.
<https://digital.library.unt.edu/ark:/67531/metadc84293/>

- Valiant, G. L. (1978). *The role of the mass media among Muslim and white adolescents: A study of media use and gratification as it relates to cultural, social and psychological background* [Phd, University of Leeds]. <http://etheses.whiterose.ac.uk/5365/>
- Valkenburg, P. M., Peter, J., & Walther, J. B. (2016). Media Effects: Theory and Research. *Annual Review of Psychology*, 67(1), 315–338. <https://doi.org/10.1146/annurev-psych-122414-033608>
- Valuch, C., Ansorge, U., Buchinger, S., Patrone, A. R., & Scherzer, O. (2014). The Effect of Cinematic Cuts on Human Attention. *Proceedings of the 2014 ACM International Conference on Interactive Experiences for TV and Online Video*, 119–122. <https://doi.org/10.1145/2602299.2602307>
- Van Cauwenberge, A., Schaap, G., & van Roy, R. (2014). “TV no longer commands our full attention”: Effects of second-screen viewing and task relevance on cognitive load and learning from news. *Computers in Human Behavior*, 38, 100–109. <https://doi.org/10.1016/j.chb.2014.05.021>
- Vanattenhoven, J., & Geerts, D. (2017). Social experiences within the home using second screen TV applications. *Multimedia Tools and Applications*, 76(4), 5661–5689. <https://doi.org/10.1007/s11042-016-3646-1>
- Vanattenhoven, J., & Geerts, D. (2018). Synchronization for Secondary Screens and Social TV: User Experience Aspects. In M. Montagud, P. Cesar, F. Boronat, & J. Jansen (Eds.), *MediaSync: Handbook on Multimedia Synchronization* (pp. 271–294). Springer International Publishing. https://doi.org/10.1007/978-3-319-65840-7_10
- Vatavu, R.-D. (2013). There’s a World Outside Your TV: Exploring Interactions Beyond the Physical TV Screen. *Proceedings of the 11th European Conference on Interactive TV and Video*, 143–152. <https://doi.org/10.1145/2465958.2465972>
- Vatavu, R.-D., & Mancas, M. (2014). Visual attention measures for multi-screen TV. *Proceedings of the ACM International Conference on Interactive Experiences for TV and Online Video*, 111–118. <https://doi.org/10.1145/2602299.2602305>
- Veaux, R. D. D., Velleman, P. F., & Bock, D. E. (2017). *Intro Stats* (5 edition). Pearson.
- Weaver, D., Wilhoit, G. C., & Bock, H. D. (1980). Personal Needs and Media Use in the Netherlands and the United States. *Gazette (Leiden, Netherlands)*, 26(3), 171–194. <https://doi.org/10.1177/001654928002600302>

- WHO. (2020). *Naming the coronavirus disease (COVID-19) and the virus that causes it*.
[https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it)
- Williams, B., Brown, T., Onsman, A., Williams, A. B., Onsman, A., Brown, T., Williams, M. B.,
Onsman, A. A., & Brown, A. T. (2010). *EDUCATION Exploratory factor analysis: A
five-step guide for novices*.
- Williams, D., Ursu, M. F., Cesar, P., Bergström, K., Kegel, I., & Meenowa, J. (2009). An
Emergent Role for TV in Social Communication. *Proceedings of the Seventh European
Conference on European Interactive Television Conference*, 19–28.
<https://doi.org/10.1145/1542084.1542088>
- Wilson, S. (2016). In the Living Room: Second Screens and TV Audiences. *Television & New
Media*, 17(2), 174–191. <https://doi.org/10.1177/1527476415593348>
- Wohn, D. Y., & Na, E.-K. (2011). Tweeting about TV: Sharing television viewing experiences
via social media message streams. *First Monday*, 16(3).
<http://firstmonday.org/ojs/index.php/fm/article/view/3368>
- Worthington, R. L., & Whittaker, T. A. (2006). Scale Development Research: A Content
Analysis and Recommendations for Best Practices. *The Counseling Psychologist*, 34(6),
806–838. <https://doi.org/10.1177/0011000006288127>
- Zadra, J. R., & Clore, G. L. (2011). Emotion and perception: The role of affective information.
WIREs Cognitive Science, 2(6), 676–685. <https://doi.org/10.1002/wcs.147>
- Zuckerman, M., Kolin, E., Price, L., & Zoob, I. (1964). Development of a sensation-seeking
scale. *Journal of Consulting Psychology*, 28(6), 477–482.

APPENDICES

Appendix A-1 Dimensions of Studies that Explored the U & G Framework

Authors	Classified and Labeled Needs As...
McQuail, Blumler, & Brown (1972)	diversion (emotional release, escapism), personal relationships (companionship), personal identity (reference, values), and surveillance (information)
Greenberg (1974)	habit, relaxation, companionship, passing time, learning, arousal, and escape
Rubin (1977)	learning, passing time/habit, companionship, escape, arousal, and relaxation
Levy (1978)	surveillance/reassurance, cognitive orientation, dissatisfactions, affective orientation, and diversion * limited to TV news watching
Valiant (1978) Ph.D. Thesis	learning about life and the world, diversion, personal identity seeking, and family integration-social utility
Weaver, Wilhoit, & Bock (1980)	cognitive, diversion and personal identity needs
Palmgreen & Rayburn (1979)	relaxing, learning about things, communication utility, forgetting, passing time, companionship, and entertainment
Kippax & Murray (1980)	personal identity and social contact, information, hedonistic, self-gratification and stimulation needs
Rubin (1983)	pass time/habit, information/learning, entertainment, companionship, and escape
Harwood (1999a)	social identity, entertainment/amusement, habit, learning, relaxation, excitement, alleviating loneliness, keeping up with the news, escape, and providing material for talking with friends * the diversion/tension release dimension of others was split into habit, relaxations, and excitement
Lin (1999)	surveillance, escape/companionship and personal identity * comparing TV viewing and the emerging world of the internet
Papacharissi & Mendelson (2007)	reality entertainment, relaxation, habitual pass time, companionship, social interaction, and voyeurism * study focused on reality TV watching
Hanson & Haridakis (2008)	leisure entertainment, interpersonal expression, information seeking, and companionship * news on YouTube comparing traditional vs. comedy and satire
Cooper & Tang (2009)	instrumental (includes Cognitive, Affective, Integrative, and Integrative 2 motives), ritualistic (includes Tension-Release)
Barton (2009)	vicarious participation, perceived reality, pass time, personal utility, and social utility * study of the distinction between gratifications sought and gratification obtained from reality TV
Langstedt & Atkin (2013)	entertainment, habit, companionship, camaraderie, relaxation/escape, and information/stimulation
Shade, Kornfield, & Oliver (2015)	entertainment, escape, enlightenment and content-congruent exposure *study of media migration (i.e., following particular TV shows on television, and then following that show in other domains such as the internet)

Appendix A-2 Stages of Questionnaire Design (variations)

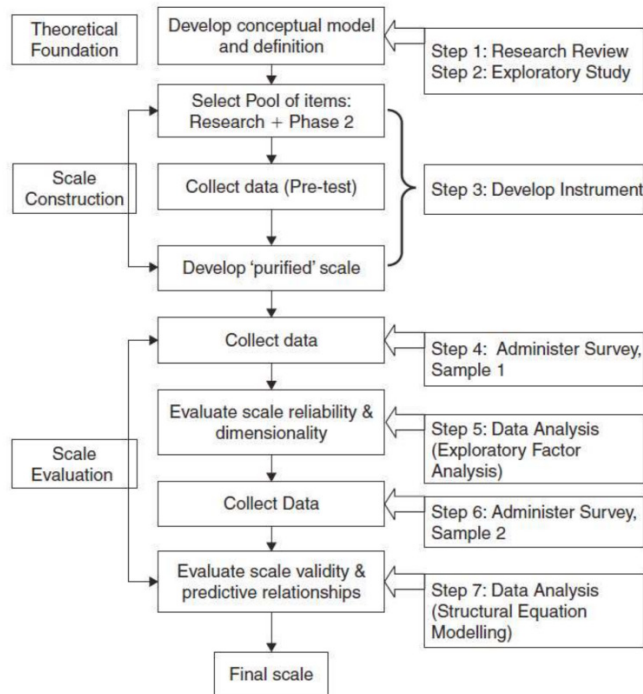


Figure: Stages of Questionnaire Design - O'Brien & Toms (2010a)

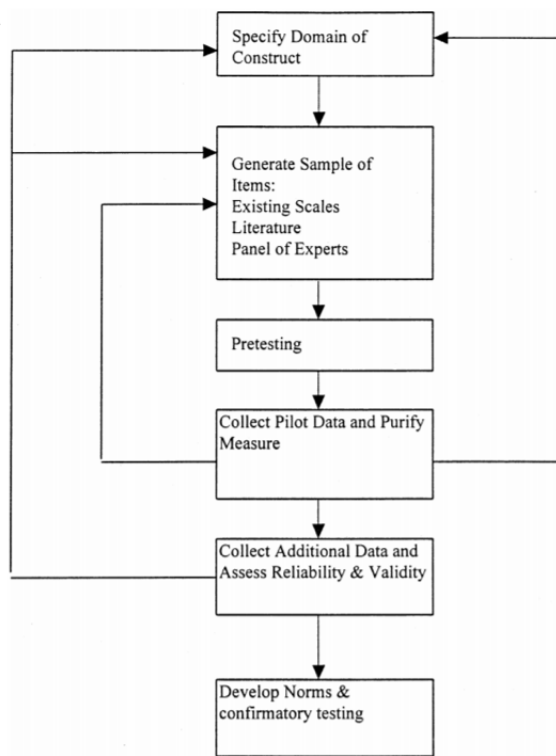


Figure: Stages of Questionnaire Design - Malhotra & Grover (1998)

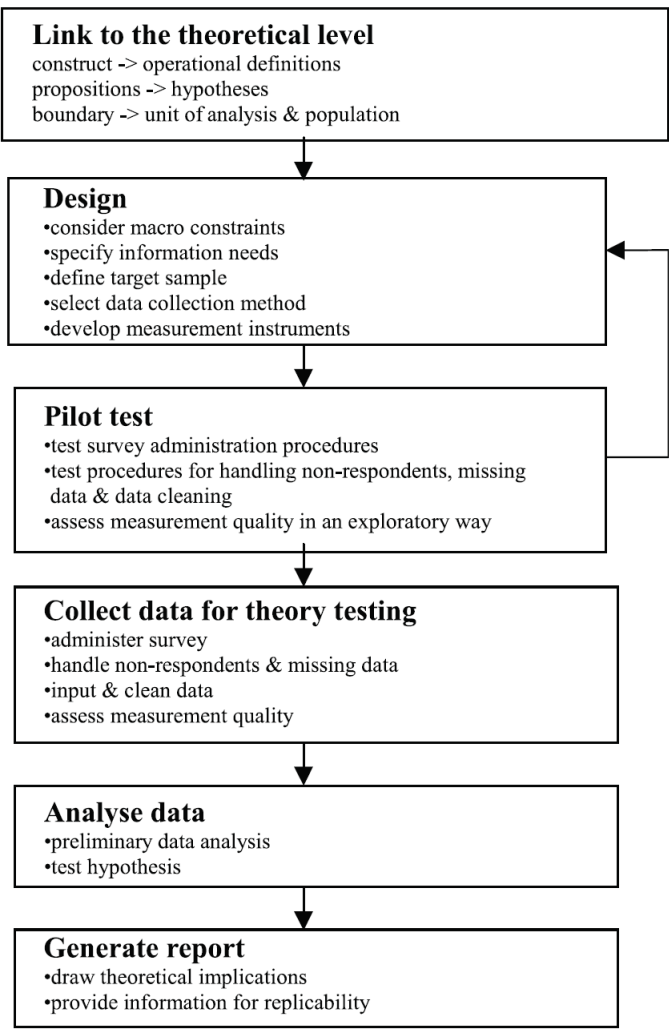


Figure: Stages of Questionnaire Design - Forza (2002)

Guidelines for Scale Development and Analysis

Step 1: Item Generation

Create Items

Step 2: Content Adequacy Assessment

Test for conceptual consist of items

Step 3: Questionnaire Administration

Determine the scale for items

Determine an adequate sample size

Administer questions with other established measures

Step 4: Factor analysis

Exploratory to reduce set of items

Confirmatory to test the significance of the scale

Step 5: Internal Consistency Assessment

Determine the reliability of the scale

Step 6: Construct Validity

Determine the reliability of the scale

Step 7: Replication

Repeat the scale-testing process with a new data set

Figure: Stages of Questionnaire Design – Hinkin et al. (2006)

Appendix A-3 Mehrens & Lehmann (1984) Guidelines of Creating Items for a Questionnaire

- 1) The stem should contain the main concepts
- 2) The option should complete the sentence. (The option should not present the beginning or middle of a sentence.)
- 3) The options should not repeat words (from the stem, or other options.)
- 4) Options should be of the same length.
- 5) The stem and options should avoid superfluous wording.
- 6) Options should avoid technical terms.
- 7) Options should be plausible and homogeneous. They should also be mutually exclusive and exhaustive.
- 8) Options should be arranged as simply as possible (e.g., the ordered list).
- 9) Options should not make one response seem more appropriate through the use of accidental or incidental cues (e.g., bad grammar or spelling in some options).
- 10) Options should consider the inclusion of “Don’t know” or “Not applicable” choice.
- 11) Options should not include “All of the above” or “None of the above”. The “none of the above” is confusable with “Don’t know” or “Not applicable” if a “not applicable” is not.
- 12) Options should provide three to five options.

Appendix A-4 Pool of Items from Item Generation

Cognitive Items
While watching TV, I use a second screen to look up information (e.g., Wikipedia, IMDb, Rotten Tomatoes) about the show.
While watching TV, I use a second screen to check the background for the plot.
While watching TV, I use a second screen to check prior episodes for the plot.
While watching TV, I use a second screen to look up information about the future story or future plot (“spoilers”) of the show.
While watching TV, I use a second screen to see where the plot is going.
While watching TV, I use a second screen to see is the plot is worth watching.
While watching TV, I use a second screen to understand the plot.
While watching TV, I use a second screen to gather information about the show because it makes the show more interesting.
While watching TV, I use a second screen to gather information about the show because it makes the show more engaging.
While watching TV, I use a second screen to look up information about the show when the show is moving too slowly.
While watching TV, I use a second screen to look up information about the show when the show has gone too quickly.
While watching TV, I use a second screen to look up information about the actors of the show.
While watching TV, I use a second screen to learn what the actors thought of the plot.
While watching TV, I use a second screen to learn what the actors thought of the show (i.e., execution, acting).
While watching TV, I use a second screen to know what else the actors have done.
While watching TV, I use a second screen to look up the actors because it makes the show more interesting.
While watching TV, I use a second screen to look up the actors because it makes the show more engaging.
While watching TV, I use a second screen to look up the actors when the show moves too slowly.
While watching TV, I use a second screen to look up information about the director or producer (or other production staff) of the show.
While watching TV, I use a second screen to learn what the director or producer thought of the plot.
While watching TV, I use a second screen to learn what the director or producer thought of the show (i.e., execution, acting).
While watching TV, I use a second screen to understand why the production staff did what they did.
While watching TV, I use a second screen to know what else the director or producer have done.
While watching TV, I use a second screen to check on the production location (e.g., because it is interesting or familiar).
While watching TV, I use a second screen to check on the production methods because I want to know how it was done.
While watching TV, I use a second screen to look up information about the production (cost, location, etc) of the show.
While watching TV, I use a second screen to look up information about the production because it makes the show more interesting.
While watching TV, I use a second screen to look up information about the production because it makes the show more engaging.
While watching TV, I use a second screen to look up information about the production when the show is moving too slowly.

While watching TV, I use a second screen to look up information about the production when the show has gone too quickly.
While watching TV, I use a second screen to learn the opinions of others about the current show.
While watching TV, I use a second screen to learn the opinions of others about the back story for the current show.
While watching TV, I use a second screen to learn the opinions of friends about the current show.
While watching TV, I use a second screen to learn the opinions of friends about the back story for the current show.
While watching TV, I use a second screen to learn the opinions of strangers about the current show.
While watching TV, I use a second screen to learn the opinions of strangers about the back story for the current show.
While watching TV, I use a second screen to learn the opinions of the production staff (actors, directors, producers, others) about the current show.
While watching TV, I use a second screen to learn the opinions of the production staff (actors, directors, producers, others) about the back story for the current show.
While watching TV, I use a second screen to read reviews to better understand the show.
While watching TV, I use a second screen to read reviews to see if the show is worth watching.
While watching TV, I use a second screen to read reviews to see what others thought of the show.
While watching TV, I use a second screen to find merchandise that is about the show.
While watching TV, I use a second screen to understand what other social groups or cultures thought of the show.

Personal Identity Items
While watching TV, I use a second screen so to present my attitudes about the show.
While watching TV, I use a second screen to see if others share my attitudes about the show.
While watching TV, I use a second screen to let people know what I am watching.
While watching TV, I use a second screen to let people know what I like.
While watching TV, I use a second screen to help other people understand the show.
While watching TV, I use a second screen to help understand the show.
While watching TV, I use a second screen because explaining things to others helps me to better understand those things
While watching TV, I use a second screen because talking about the show can help me to figure out who I am.
While watching TV, I use a second screen because talking about the show help me to figure out what I like.
While watching TV, I use a second screen because talking about the show might help me to be noticed by others.
While watching TV, I use a second screen because talking about the show might help me to get noticed by a person I like.
While watching TV, I use a second screen because I like to talk about the characters I like.
While watching TV, I use a second screen because I like to talk about the characters I hate.
While watching TV, I use a second screen because talking about the characters can help to sort out my life.
While watching TV, I use a second screen because talking about the show can help to sort out my life.
While watching TV, I use a second screen to discuss the characters because the characters I like are so different from me.
While watching TV, I use a second screen to discuss the characters because the characters I like are the same as me.

While watching TV, I use a second screen to discuss the characters because the characters I hate are so different from me.
While watching TV, I use a second screen to discuss the characters because the characters I hate are the same as me.
While watching TV, I use a second screen analyze the characters.
While watching TV, I use a second screen to discuss the personalities of the characters.
While watching TV, I use a second screen to discuss the morality of the characters.
While watching TV, I use a a second screen to talk about the show because TV shows cover so many important questions about personal development.
While watching TV, I use a a second screen to talk about the show because TV shows cover so many important questions about morality and behavior.
While watching TV, I use a a second screen to talk about the show because my own life is not so exciting.
While watching TV, I use a a second screen to talk about the show because my own life is pretty empty and boring.
While watching TV, I use a second screen to follow celebrities.
While watching TV, I use a second screen because talking about the show might help me to be noticed by important people.
While watching TV, I use a second screen to post comments about the show because the production staff (director, producer, actors, other) might notice.
While watching TV, I use a second screen to talk about the show because things need to fixed in the show.
While watching TV, I use a a second screen to read comments posted by production staff about the show because it makes me feel connected to something important.
While watching TV, I use a second screen to express my discontent with the show.
While watching TV, I use a second screen to point out the stupid comments by other viewers about the show.
While watching TV, I use a second screen to discuss the personalities of the other viewers (who make comments)..
While watching TV, I use a second screen to discuss the morality of other viewers.
While watching TV, I use a second screen to discuss the show because these discussions bring out the best in other viewers.
While watching TV, I use a second screen to discuss the show because these discussions bring out the worst in other viewers
While watching TV, I use a second screen to discuss the show because these discussions show me what others are really like.
While watching TV, I use a second screen to talk about the show so that other people can see the person I want to be.
While watching TV, I use a second screen to talk about the show because it keeps me thinking.
While watching TV, I use a second screen to talk about the show because it makes me feel alive.
While watching TV, I use a second screen because I can post anonymously without worrying about feedback.
While watching TV, I use a second screen because I can find people who are like me.
While watching TV, I use a second screen because I can find people who think like me.
While watching TV, I use a second screen so that people can see the real me.
While watching TV, I use a second screen because it helps to share who I am.
While watching TV, I use a second screen because it hearing what others say about me (or to me) can be a learning experience.

While watching TV, I use a second screen because I can quickly recommend a show (even if currently on air) to others who might like it.

Social Integration Items

While watching TV, I use a second screen simply to have conversations about the current show.

While watching TV, I use a second screen simply to have conversations about the back story for the current show.

While watching TV, I use a second screen to find new friends with similar interests.

While watching TV, I use a second screen to keep in touch with friends.

While watching TV, I use a second screen so that others can keep in touch with me.

While watching TV, I use a second screen to have a shared experience with friends.

While watching TV, I use a second screen simply to have conversations with friends about the current show.

While watching TV, I use a second screen simply to have conversations with friends about the back story for the current show.

While watching TV, I use a second screen to have a shared experience with strangers.

While watching TV, I use a second screen to have a shared experience with strangers because they do not judge me.

While watching TV, I use a second screen to have a shared experience with strangers so that we may become friends.

While watching TV, I use a second screen to have conversations with strangers about the current show to get new perspectives.

While watching TV, I use a second screen to have conversations with strangers about the back story for the current show to get new perspectives.

While watching TV, I use a second screen to find out what my friends are thinking (saying) about the show.

While watching TV, I use a second screen to find out what strangers are thinking (saying) about the show.

While watching TV, I use a second screen to find out what strangers are thinking (saying) about the show because they have a different perspective.

While watching TV, I use a second screen for discussions because it makes the show more enjoyable.

While watching TV, I use a second screen to read posts of others because it makes the show more enjoyable.

While watching TV, I use a second screen to posts comments of others because it makes the show more enjoyable.

While watching TV, I use a second screen just to hang out with my friends

While watching TV, I use a second screen just to hang out with strangers.

While watching TV, I use a second screen to find out what my friends are doing.

While watching TV, I use a second screen to find out what strangers are doing.

While watching TV, I use a second screen because the discussion makes the show more intense.

While watching TV, I use a second screen because I cannot be with my friends in person.

While watching TV, I use a second screen to avoid the feeling of being alone.

While watching TV, I use a second screen to let my friends know what I like.

While watching TV, I use a second screen to let strangers know what I like.

While watching TV, I use a second screen because it helps me to better understand my social circle.

While watching TV, I use a second screen because we can have great discussions about the show.

While watching TV, I use a second screen because we can have great discussions about ideas that are inspired by the show.

While watching TV, I use a second screen because we can have great discussions about society.

While watching TV, I use a second screen because we can have great discussions about science and technology.
While watching TV, I use a second screen because it helps me to feel connected.
While watching TV, I use a second screen to read comments posted by production staff about the show because it makes me feel connected to a bigger community.
While watching TV, I use a second screen because it is good that other people know that you are still alive.
While watching TV, I use a second screen because I can have talks with friends without having to leave my place.
While watching TV, I use a second screen because I can have talks with strangers without having to leave my place.
While watching TV, I use a second screen because I can have talks with strangers and still feel safe and secure.
While watching TV, I use a second screen so I feel like I can fit in.
While watching TV, I use a second screen because I can have talks with friends or strangers without having to invite people over (e.g., cleaning, space).
While watching TV, I use a second screen because I can have talks with friends or strangers without having to get properly dressed.
While watching TV, I use a second screen because I can have talks with friends or strangers without feeling pressured.
While watching TV, I use a second screen because I feel like my friends expect me to.
While watching TV, I use a second screen because I feel like I would lose friends if I did not.
While watching TV, I use a second screen because I feel like I would be alone if I did not.
While watching TV, I use a second screen simply to let people know what I think about the current show.
While watching TV, I use a second screen simply to let people know what I think about the back story for the current show.
While watching TV, I use a second screen to have conversations with production staff (e.g., actors, directors, producers, production staff) about the current show.
While watching TV, I use a second screen to have conversations with production staff (e.g., actors, directors, producers, production staff) about back story for the current show.
While watching TV, I use a second screen to have conversations with production staff (e.g., actors, directors, producers, production staff) because I feel connected to a bigger world.
While watching TV, I use a second screen to have conversations with production staff (e.g., actors, directors, producers, production staff) because I feel more important when I do.
While watching TV, I use a second screen to have conversations with production staff (e.g., actors, directors, producers, production staff) because I feel more important when they listen to me.

Diversion items
While watching TV, I use a second screen because shows are not always interesting .
While watching TV, I use a second screen because shows are often boring (in parts).
While watching TV, I use a second screen to add to the entertainment.
While watching TV, I use a second screen to increase my focus on the show.
While watching TV, I use a second screen because it help me to stop thinking about work.
While watching TV, I use a second screen because it helps to distract me from my life.
While watching TV, I use a second screen because it helps to distract me from my problems.
While watching TV, I use a second screen to fill in the free time during the show (or commercials).
While watching TV, I use a second screen out of habit.
While watching TV, I use a second screen to ridicule the show.

While watching TV, I use a second screen because it helps me to escape to a better world.
While watching TV, I use a second screen because it is fun.
While watching TV, I use a second screen to increase the intensity of the show.
While watching TV, I use a second screen to avoid having to go to other peoples' homes.
While watching TV, I use a second screen to avoid inviting people to my home.
While watching TV, I use a second screen to more often when the show is boring or slow.
While watching TV, I use a second screen more often when the show is exciting or interesting.
While watching TV, I use a second screen because it allows me to vent.
TV watching habits Items
I watch TV shows (cable or internet-streaming services or pre-recorded media).
I typically watch TV on standard broadcast networks (e.g., NBC, CBS, ABC, Fox, PBS, HBO, CBC, CTV, SRC, Global) using cable, "over the air", or internet streaming services at the time of broadcast.
I watch TV on streaming-media services (e.g., Netflix, Amazon, Hulu, Crave, Showtime, HBO Now).
I watch TV on pre-recorded services (e.g., DVD rentals/purchases).
I watch TV on streaming-media services (e.g., Netflix, Amazon, Hulu, Crave, Showtime, HBO Now) as soon as the shows are available.
I watch TV on pre-recorded media (e.g., DVD rentals/purchase) as soon as the shows are available.
I plan my free time around my TV shows.
I watch a large number of episodes of a TV show (or a series of movies) on streaming-media services (e.g., Netflix, Amazon, Hulu, Crave, Showtime, HBO Now) or pre-recorded media (e.g., DVD rentals/purchase) in one sitting.
I watch an entire season of a TV show (or a series of movies) on streaming-media services (e.g., Netflix, Amazon, Hulu, Crave, Showtime, HBO Now) or pre-recorded media (e.g., DVD rentals/purchase) in one sitting.
I watch an entire season of a TV show (or a series of movies) on streaming-media services (e.g., Netflix, Amazon, Hulu, Crave, Showtime, HBO Now) or pre-recorded media (e.g., DVD rentals/purchase) over several adjacent days (e.g., evenings, days, weekends).
The number of different TV shows or movies that I watch in a given week is:
The number of shows I watch regularly (or follow) is:
The number of shows I "never" miss (unless unavoidable) is:
The number of shows I "make time for" (never miss) is:

Second Screen Use Items
While watching TV, I use a second screen to look up information (e.g., Wikipedia, IMDb, Rotten Tomatoes) about the show.
While watching TV, I use a second screen to check the background for the plot.
While watching TV, I use a second screen to check prior episodes for the plot.
While watching TV, I use a second screen to look up information about the future story or future plot ("spoilers") of the show.
While watching TV, I use a second screen to see where the plot is going.
While watching TV, I use a second screen to see is the plot is worth watching.
While watching TV, I use a second screen to understand the plot.
While watching TV, I use a second screen to gather information about the show because it makes the show more interesting.
While watching TV, I use a second screen to gather information about the show because it makes the show more engaging.

While watching TV, I use a second screen to look up information about the show when the show is moving too slowly.
While watching TV, I use a second screen to look up information about the show when the show has gone too quickly.
While watching TV, I use a second screen to look up information about the actors of the show.
While watching TV, I use a second screen to learn what the actors thought of the plot.
While watching TV, I use a second screen to learn what the actors thought of the show (i.e., execution, acting).
While watching TV, I use a second screen to know what else the actors have done.
While watching TV, I use a second screen to look up the actors because it makes the show more interesting.
While watching TV, I use a second screen to look up the actors because it makes the show more engaging.
While watching TV, I use a second screen to look up the actors when the show moves too slowly.
While watching TV, I use a second screen to look up information about the director or producer (or other production staff) of the show.
While watching TV, I use a second screen to learn what the director or producer thought of the plot.
While watching TV, I use a second screen to learn what the director or producer thought of the show (i.e., execution, acting).
While watching TV, I use a second screen to understand why production staff did what they did.
While watching TV, I use a second screen to know what else the director or producer have done.
While watching TV, I use the “internet” on a second screen.
While watching TV, I use social media (e.g., Facebook) as a second screen.
While watching TV, I use blogs (e.g., Tumblr) as a second screen.
While watching TV, I use microblogs (e.g., Twitter) as a second screen.
While watching TV, I use emails (i.e., continuously sending/receiving) as a second screen.
While watching TV, I use online forums as a second screen.
While watching TV, I use chat (e.g., Instant Messaging) as a second screen.
While watching TV, I use video conferencing (e.g., Skype) as a second screen.
While watching TV, I use the internet to gather information about the show.
While watching TV, I use a second screen to have conversations with other people about the show.
While watching TV, I use a second screen to post comments about the show.
While watching TV, I use a second screen only to reply to posted comments about the show.
While watching TV, I use a second screen to post comments, or to reply to posted comments, about the show.
While watching TV, I use a second screen to read comments posted by friends or family about the show.
While watching TV, I use a second screen to read comments posted by strangers about the show.
While watching TV, I use a second screen to read comments posted by reviewers or movie critics about the show.
While watching TV, I use a second screen to read comments posted by actors about the show.
While watching TV, I use a second screen to read comments posted by production staff (e.g., directors, producers, production staff) about the show.

Appendix A-5 General Guidelines for Generating Items

Short and simple items	<ul style="list-style-type: none"> • Items should consist of a single clause (simple sentences).
Avoid compound sentences	<ul style="list-style-type: none"> • Sentences with two or more independent clauses, joined by • conjunctions (“and” as in “Clause A and Clause B”), • inclusive disjunctions (the standard “or”) • exclusive disjunctions (exclusive or; “A or B but not both”, “A but not B”, “either A or B”)
Avoid compound-complex sentences	Sentences with one or more independent clauses plus one or more dependent clauses
Avoid conditionals	<ul style="list-style-type: none"> • If conditionals are needed., be clear about the conditional • express as a conditional “if A then B” • avoid “A so B”, “A and then B” • human reasoning is poor about conditions, particularly when the antecedent is false (“if A then B”, when A is false)
Avoid bi-conditionals	<ul style="list-style-type: none"> • If bi-conditionals are needed, be clear about the bi-conditional • express as a bi-conditional “A if and only if B”
Avoid double-barreled items	<ul style="list-style-type: none"> • Items that ask two questions but only allow one answer e.g., “I support A and B” • What if the participant supports A but not B? • express as two items “I support A” and “I support B” • note that this is related to the use of conjunctions, and the use of more than one clause • simple “natural” language
Avoid negative constructions	Use the polar opposite instead (use “sad” in place of “not happy”) “Not going to not do X” should be “going to do X”
Avoid acronyms	spell out the terms
Avoid ambiguous terms or phrases	modifying adjectives and adverbs like usually, often, many, most, numerous, sometimes, occasionally, seldom, rarely, few, a minority, almost all, and almost none (all or none) are fine
Avoid overloaded words	<ul style="list-style-type: none"> • words that have different meaning in general use • words that have different meanings depending on domain of application

Adherence to these rules should improve both validity and reliability. In addition to issue of clear communication, there are additional points about language that are related to validity and/or reliability. The items should:

Avoid of various forms of bias due to language or structure	<ul style="list-style-type: none"> • leading questions • hidden assumptions <ul style="list-style-type: none"> ○ leading questions often contain hidden assumptions about behaviors, attitudes or cognitions • self-presentation bias or prestige bias or embarrassment bias <ul style="list-style-type: none"> ○ some response options may cast the participant is an undesirable light or in a more desirable light
---	--

	<ul style="list-style-type: none"> ○ item stems may be too embarrassing to consider response options ● political correctness bias <ul style="list-style-type: none"> ○ items may contain a pc bias in the stem or the options
<p>include provisions for all appropriate response options</p>	<ul style="list-style-type: none"> ● option list should encompass all the possible preferences of all members of the population <ul style="list-style-type: none"> ○ this is called “exhaustive” ○ failure to include all possible option is a form of hidden assumption or leading question ● option list should have reasonable discrimination between options <ul style="list-style-type: none"> ○ respondent should be able to select one clearly ○ options should not overlap ○ this is called mutually exclusive ○ depends on the content of the item ● be careful about the use of bipolar vs unipolar scales <ul style="list-style-type: none"> ○ negative to positive vs neutral to positive (or negative) ○ a bipolar scale must have ends that are mutually exclusive <ul style="list-style-type: none"> ▪ e.g., “I enjoy (going to the theater ... tv at home)” ○ this is related to the notion of disjunctions ● provide neutral points if possible <ul style="list-style-type: none"> ○ if there are more than 3 options, the presence/absence of a neutral point is not important (see (Bradburn et al., 2004)) ● use anchors <ul style="list-style-type: none"> ○ define the scale points ● avoid the “not applicable” or “no response” options

Appendix A-6 Ethics Approval Dalhousie – Stage 1



**Social Sciences & Humanities Research Ethics Board
Amendment Approval**

September 26, 2017

Lama Khoshaim
Management\Information Management

Dear Lama,

REB #: 2016-3951

Project Title: The Development, Evaluation, and Implementation of a User Engagement Scale in the Context of Second Screening

The Social Sciences & Humanities Research Ethics Board has reviewed your amendment request and has approved this amendment request effective today, September 26, 2017.

Sincerely,



Dr. Karen Beazley, Chair

Appendix A-7 Letter to Moderators - Recruitment Material for Stage 1-3

Email to listserv's moderators

Dear [Name],

I am a third year ID PhD candidate. I am writing to ask if you can send the attached invitation, seeking faculty and students' participation [*name of the listserv*] listserv.

Participation in this study is completely voluntary and will contribute to a better understanding of human behaviour in the increasingly rising phenomenon of the usage of multiple devices when watching Television (Tablet, smartphone, laptop, etc.).

Please let me know if you have any questions. Thanks for your help.

Regards,

[Text of the email invitation, see Appendix A-7 and]

Appendix A-8 Recruitment Material for Stage 1 – Posted Recruitment

Dear Students and faculty

I am an ID PhD student studying the second screen experience (SSE). SSE is an emerging trend, in which people watch TV (the first screen) and use social media platforms on a second screen (i.e., tablets, smartphones etc...). The second screen is used to communicate with friends, or to follow conversations, or to look up information, about that TV show.

We are looking for experts in the field of social media and/or survey design to help with the creation of an online survey. Your role would be to review the questionnaire and provide us with feedback. Our definition of an expert includes those who have conducted studies related to social media, and/or internet use, and/or created and used online questionnaires.

As a token of appreciation, you be presented with a \$25 gift card from Amazon.ca

If you are interested, or have any questions, please contact Lama Khoshaim: email Lama.shk@dal.ca

Appendix A-9 Informed Consent for Stage 1



CONSENT FORM

Project title: The Development, Evaluation, and Implementation of a User Motivations Scale in the Context of Second Screening

Lead researcher: Lama Khoshaim, ID PhD department, Lama.shk@dal.ca

Introduction

We invite you to take part in a research study being conducted by Lama Khoshaim, an ID PhD candidate at Dalhousie University. Choosing whether or not to take part in this research is entirely your choice. Your decision will have no impact on your studies, your employment, your performance evaluation, and the services you receive.

The information below describes the purpose of the research, what you will be asked to do, and about any benefits, risks, inconvenience or discomfort that you might experience.

You should discuss any questions you have about this study with Lama Khoshaim. Please ask as many questions as you like. If you have questions later, please contact the lead researcher.

Purpose and Outline of the Research Study

The second screen experience (SSE) is an emerging trend in which users watch TV on a first screen (a TV or computer, tablet or smartphone) and also use a second screen (i.e., other computers, tablets, smartphones, etc.) to communicate or follow conversations, or to look up information about what they are watching on TV *while watching*.

The purpose of the study is to create and evaluate a User Motivations Scale (MS) in the context of second screening (SSE). This will be called the MS SSE.

To create a user motivations scale we need to create a survey that can measure user motivations while using a second screen. We need your help in the first step of survey creation.

Who Can Take Part in the Research Study?

You may participate in this study if you are an expert in survey design or/and the field of social media. You may participate if you already published research that required the creation of a survey.

What You Will Be Asked to Do

You will be provided with around 200 survey questions also called survey items. You will be asked to rate each item using a supplied scale, in a table format (Excel sheet) according to importance, potential validity, potential reliability, and language.

You will be provided with definitions, examples and other guidelines. You will be sent a package online that contains this consent form, instructions, and 200 survey items to rate. You will need

approximately .5 minutes for each item, which means that it would take about 100 minutes to complete this study. You will complete the study at your time and place. We would ask that you complete your ratings within 10 days of receiving your package.

Possible Benefits, Risks and Discomforts

Participating in the study might not benefit you, but we might learn things that will benefit others. The risks associated with this study are minimal, and there are no known risks for participating in this research beyond those encountered in daily life.

Compensation / Reimbursement

As a token of appreciation, you will be presented with a \$25 gift card to Amazon.ca

How your information will be protected:

All data will be treated as confidential.

We will not retain any personal data about you – just your level of expertise (for publication as aggregate data). The lead researcher will know your identity based on communications or questions related to the study, but your name will not be associated with the items you rated. Your information (email address or name) will not be disclosed in our study/reports. No one will know who you are. All electronic records will be kept secure in an encrypted file on the researcher's password-protected computer.

If You Decide to Stop Participating

You are free to leave the study at any time. If you decide to do so, you can contact the lead researcher and inform them that you would like to leave they study. Alternatively, you may inform the lead researcher at the time of follow-up.

How to Obtain Results

If you are interested in obtaining our final results, you must provide your email address so that we can send you a link/soft copy of the completed study. Alternatively, you may simply search the academic publications for articles associated with Lama Khoshaim

Questions

We are happy to talk with you about any questions or concerns you may have about your participation in this research study. Please contact Lama Khoshaim (Lama.shk@dal.ca) at any time with questions, comments, or concerns about the research study.

If you have any ethical concerns about your participation in this research, you may also contact Research Ethics, Dalhousie University at (902) 494-1462, or email: ethics@dal.ca (and reference REB file # 20XX-XXXX).

Signature Page

Project Title: The Development, Evaluation, and Implementation of a User Motivations scale in the Context of Second Screening

Lead Researcher: Lama Khoshaim, ID PhD department, Lama.shk@dal.ca

I have read the explanation about this study. I have been given the opportunity to discuss it and my questions have been answered to my satisfaction. I understand that I have been asked to take part item selection, and I can complete this task within 10 days in my own time and space. I agree to take part in this study. My participation is voluntary and I understand that I am free to withdraw from the study at any time by terminating the online survey without submitting.

Name

Signature

Date

I am interested in the final results of this study. I will provide my email address for the sole purpose of receiving the final results when the study is completed.

Name

Email address

Date

Appendix A-10 Stage 1: Instructions to Experts

Thank you for agreeing to help with this project. This document is intended to help you understand the project and your role within that project.

Background

The Second Screen Experience

We are interested in the role of *Second Screen Experience* while watching TV. The *Second screen Experience* is defined as the use of a second screen (hence the name) to use social media platforms in any fashion that is related to the TV show. The access could be:

- Social interactions over social media (e.g., Facebook), through blogs (e.g., WordPress, Tumblr), microblogs (e.g., Twitter), online forums (e.g., Movie Forums), or even through email
- Information seeking through websites like Wikipedia or movie review websites like IMDb and Rotten Tomatoes, or through social media (e.g., Facebook, Twitter)
- Opinion seeking through websites (e.g., Wikipedia) or movie review websites (e.g., IMDb, Rotten Tomatoes), or through social media (e.g., Facebook, Twitter)
- Information posting over social media (e.g., Facebook, WordPress, Tumblr, Twitter)
- Opinion posting over social media (e.g., Facebook, WordPress, Tumblr, Twitter)

Second Screen about TV Viewing

In this research, the use of a *second screen* is restricted to those interactions that are about the TV show. Hence, the use of a second screen to complete other tasks (e.g., email, work, social interactions) that are not related to the show is *not* considered second screen use (in the current research).

The Uses and Gratifications Framework

The current research is structured around the Uses and Gratifications Framework (U & G). The U & G posits four main reasons that drive the use of media (generally defined): Cognitive Needs, Personal Identity Needs, Social Integration Needs, and Diversion Needs.

Cognitive Needs encompass information seeking, learning, and seeking guidance or advice where the information is specific. That information could be needed to satisfy one of the other needs. Cognitive needs also encompass “surveillance” or general information acquisition that is not targeted; this would include curiosity and discovery.

Personal Identity Needs encompass personal growth which might include identity formation, social identity formation (social learning), the development of self-confidence, and personal validation. Personal Identity needs could also include character identification (for or against) with those characters, status (reputation or credibility) enhancement, and life-style expressions. Personal identity may also reflect the desire to be associated with celebrities as a means of seeking or enhancing status.

Social Integration Needs focus on the human need to belong to a social group. It is the basic social need for a sense of community and connectedness (group identification). It includes the maintenance of old ties and the creation of new ones. It also includes in-group out-group

identification. It may be manifest in the bonds formed *with* characters seen in the media (e.g., characters in shows), *with* personalities in the media (e.g., actors, commentators), or in the sense of belonging to a community that has a similar inclination (e.g., fan clubs). Similarly, it may be manifest in the bonds formed *against* characters seen in the media, *against* personalities in the media, s), or in the sense of belonging to a community that is similar. It includes the bonds that are formed or strengthened by the discussion of media characters within as social group (e.g., family, friends, and associates).

Diversion Needs are often cited as “tension release”. This is often called stress release, or escape, or reality escape. Such represent a “negative” drive away from the real world. A weaker version of this is the need for relaxation. Diversion often encompasses the avoidance of boredom, the need to pass time, or even “habit”.

Your Input is Requested

I currently request your input about the *content* of the items for the questionnaire. That includes the topic as well as diction (word choice), phrasing and punctuation. At this time, you do not need to worry about the final presentation format. The questionnaire will be posted online, using (Opinio).

Instructions

Rating Items

We ask that you help us to rate each item on a number of dimensions. Each rating can be “quick” or “off the top of your head”. We ask that you use a five-point scale (1 = bad, 2 = poor, 3 = neutral, 4 = good, 5 = excellent) as provided in the Excel sheet.

Main ratings	Importance	Your assessment, based on your knowledge. Is the item <i>central</i> or <i>important</i> to the construct?
	Potential Validity	Your assessment, based on your knowledge. Does the item truly share the construct of interest? Is it about (applicable to) “Motivations”? Is it about (applicable to) “second screen use”? Is it about (applicable to) “TV viewing”? Is it too general? Is it too peripheral?
	Potential Reliability	Your assessment, based on your knowledge. Would the item produce reliable responses? Two people with the same opinion would produce the same answer even if they had different life experiences. Would the item produce <i>stable</i> responses over time?

Content and language: For the content and Language ratings, we ask that you use a “check” *if the item needs work*. We will use your recommendations to refine the item. **Only check the item if it needs work.** We will assume that the unchecked items do not need work. Note that you will only need to consider the content and language issues if, in fact, you “feel” that there is something wrong with the item.

The content and language requirement can be summarized as “simple language”. The item

should be a single, simple, concept. However, at times more complex concepts need to be asked about. Nonetheless, the structure should be *as simple as possible*.

Content	too long	<ul style="list-style-type: none"> the item is too long the item is verbose some of the material in the item should be deleted the item contains too much information the item is too specific the item contains references that limit its applicability
	too short	<ul style="list-style-type: none"> the item is too short the item is unclear because it is too short the item is ambiguous. the item contains ambiguous references
	ambiguous	the items uses ambiguous qualifiers that are not necessary: usually, often, rarely, many, most, some.

Language	Simplicity	<ul style="list-style-type: none"> the item is verbose not all words are necessary the item is <i>not</i> Grade 8 reading level item should be a single clause (a simple sentence)
	Conditional Expressions	the item uses a complicated conditional expression
	Doubled Barreled	<ul style="list-style-type: none"> the item uses a complicated conjunction (i.e., A and B) disjunction (i.e., A or B or both) exclusive disjunction (i.e., A or B, and not both)
	Negative Phrasing	the item uses a complicated negative structure when a positive one will do use “A” in place of “not (opposite of A)”
	Overloaded words	<ul style="list-style-type: none"> the item uses words that have too many different meanings different people will interpret the item in different ways the item used ACRONYMS that may be ambiguous
	Leading question	<ul style="list-style-type: none"> the item leads the person to a particular answer the item does not allow a person the freedom to answer as they would like
	Hidden Assumptions	the item contains hidden assumptions or background knowledge that may be variable or unknown to the person
	Self-Presentation	<ul style="list-style-type: none"> the item asks about a topic that might produce biased responding responding to the item would cast the person in a negative light responding to the item would reveal illegal activities responding to the item would reveal personal embarrassment
	Political Correctness	the item is not politically correct

General Structure of Items

Items are designed as a common stem, with a different completion. Different sets may use different stems. For example:

Stem	Completions	Responses
While watching TV, I use a second screen:	to look up information about the show.	attitude scale
	to talk to friends about the show.	
	to post comments about the show.	
While watching TV, I use:	social media as a second screen.	frequency scale
	blogs as a second screen.	
	chat as a second screen.	
I typically watch TV on:	standard broadcast networks.	vague frequencies
	streaming-media services.	
	pre-recorded DVDs.	

Items that tap opinions or attitudes use a five-level response scale: (SA = strongly agree, A = agree, N = neutral, D = disagree, SD = strongly disagree).

Items that tap specific definable frequencies use a N-level response scale that tries to tap the actual frequency of behavior (e.g., ED = Everyday, 2/wk = at least twice a week, 2/mth = at least twice a month, 1/mth = at least once a month R = Rarely or less than once a month).

Items that tap vague frequencies use a five-level response scale that tries to encourage accuracy (e.g., A = always [always or close to 100% of the time], U = usually [about 75% of the time], F = frequently [about 50% of the time], S = sometimes [about 25% of the time], and N = never [never or close to 0% of the time]).

General Questions

Please consider those questions both before and after reviewing the items.

- 1) Is it necessary to ask about SSE for each social media platform separately?
- 2) Is it necessary to ask about SSE for each type of channel (e.g, social media such as Facebook vs information channels and forums) separately?

Is the type of data related to the type of channel (e.g., social interaction vs information seeking) so that so unique that it must be addressed separately?

- 3) Is it possible to refer to SSE “generically” (e.g., I use a second screen to find information.”) without loss of information?
- 4) Is the response options sufficient?

The current is a 5-point scale:

Would a two-point or a three-point or a seven-point scale be better?

Appendix A-11 Item Language Rating Scales

Item Evaluation and Selection – (Lee, 2000)

	Language Dimension	Comments
Sentence Structure	Simplicity	5 = simple single clauses 3 = simple compound sentences 1 = complex compound sentences
	Conditional Expressions	5 = no conditionals 3 = simple conditionals 1 = complex conditionals or bi-conditionals
	Double barreled	5 = not double barreled 3 = a simple conjunction that is likely to both true or both false 1 = unresolvable double-barreled items
Diction	Negative structures	5 = no issues 3 = some issues 1 = use a negative when a reasonable polar opposite is available
	Ambiguous words/phrases	5 = no issues 3 = some issues 1 = use of ambiguous words
	Overloaded words	5 = no issues 3 = some issues 1 = use of words with too many meanings, or meanings that change by domain.
Bias	Leading question	5 = no leading question 3 = some propensity to expected answer 1 = leading question
	Hidden Assumptions	5 = no hidden assumptions 3 = some hidden assumptions 1 = hidden assumption about behavior, attitude, or though
	Self-Presentation, Prestige, Personal Embarrassment	5 = no self-presentation bias 3 = some self-presentation bias 1 = self-presentation bias
	Political Correctness	5 = not 3 = some 1 = political correctness that hides the data
Response	All possible options	5 = options are exhaustive 3 = some missing 1 = many missing
	Discrimination	5 = options are mutually exclusive 3 = distinctions are not clear 1 = political correctness the hides the data
	Inappropriate bipolar or unipolar scale	5 = scale is fine 3 = some issues 1 = scale is wrong
	Anchors needed / not needed	5 = anchors are not needed (or are fine) 3 = anchors would help, need work 1 = anchors are need (or are interfering)

Appendix A-12 Background items

Demographics	
Gender	What is your gender?
	Female
	Male
Age Groups	Which category below includes your age?
	18 to 20
	21 to 24
	25 to 29
	30 to 39
	40 to 49
	50 to 59
	60 or greater
Education Groups	Which of the following best describes your current level of education?
	No schooling completed
	Some high school
	High school diploma /GED
	Some University or College
	Undergraduate Degree (e.g. BSc BA) or College Diploma
	Master's Degree (e.g. MSc MA)
	Doctorate Degree (e.g. PhD PsyD)
	Professional Degree (e.g. J.D, M.D., M.J., M.F.A., LLB)
	Doctorate and Professional Degrees
Relative Income	Relative to the rest of your country, what best describes your current average income?
	Higher than average
	Average
	Lower than average
Urbanization	Which of the following best describes your current residential area?
	City
	Suburban
	Rural
Living Arrangements	What is your marital status and/or living arrangements?
	In a relationship (married or cohabitating) with children at home
	In a relationship (married or cohabitating) with no children at home
	Living alone (house or apartment)
	Living with friends (house or apartment)
	Living with roommates (house or apartment)
	With Parents / Family
	Single Parent
Other	
Occupations	Which of the following best describes your current occupation (you may select multiple categories)?

	Professional (e.g., doctor, lawyer, dentist, physiotherapist)
	Technology and Research (e.g., engineer, scientist)
	Education (e.g., teacher, instructor, professor)
	Administrative (e.g., management, secretarial)
	Service (e.g., retail)
	Entertainment (e.g., performer, sports)
	Skilled trades
	Unskilled labor
	Student
	Parent

TV Viewing Habits Items	
TV Access device	I watch TV using:
	a TV connected to cable provider, antenna, or satellite
	a TV connected to a DVD player (or similar)
	a TV connected to internet (e.g., streaming TV)
	a computer or tablet connected to internet.
	a smartphone connected to internet
	Other
Genres Watched	I typically watch (select all that usually apply):
	Action
	Anime
	Children and Family
	Classics
	Comedy or Sitcom or Standup Comedy
	Documentaries
	Drama or Romantic or Musicals
	Faith and Spirituality
	Horror
	Independent or International
	Music
	Science Fiction or Fantasy
	Sports Movies or Fitness Shows (not including watching sports)
Thrillers	
Reality TV	
TV Mode of Access	I watch TV shows on:
	cable from TV stations
	streaming media from TV stations
	on demand streaming media
	DVDs and similar
Number of Shows Watched	The number of TV shows or movies that I:
	watch per week
	follow per week
	make time for per week

	follow on social media
Hours of TV Viewing per Day	The number of hours of TV shows or movies I watch:
	per day during the week (Monday to Friday)
	on Saturday
	on Sunday
Schedule for TV Viewing	I watch TV shows or movies:
	at the time of broadcast (on TV stations).
	at the time of my choosing (using recordings, DVDs, or streaming media).
Binge Watching	If watching on-demand streaming media (e.g., Netflix, Amazon) or DVDs
	I watch an entire season or a series of movies in one sitting.
	I watch several episodes (3 or more) or movies (2 or more) in one sitting.
	I only watch 1 or 2 episodes or a movie per day at most.
Schedule Planning	If using standard broadcast networks (e.g., BBC, CBC, ABC)
	I plan my day around the shows or episodes I want to watch.
	I get upset if I miss my show or episode.
Social Situation of TV Viewing	I watch TV with
	no one
	my children
	my partner
	my family
	my friends
	Roommates
	Colleagues
Others	

SS Use Items	
Type of SS	My second screen is (select all that usually apply):
	the same computer or tablet as the TV show (I flip back and forth or split the screen)
	a different computer from the TV show (including laptops and/or tablets)
	a smartphone
	some other device
Mode of SS Use	When using a second screen while watching TV, I (select all that usually apply):
	pause the TV show and focus on the second screen (possible with DVDs or on-demand streaming media)
	watch both the TV show and the second screen
	ignore the continuing TV (i.e., miss the show) while using the second screen
	do something else
	While watching TV, I use
	social media (e.g., Facebook)

Social media outlets Used on the SS	Blogs (e.g., WordPress, Tumblr)
	microblogs (e.g., Twitter)
	email conversations
	Forums
	chat (e.g., IM)
	information channels (e.g., Wikipedia)
Content of the SS	While watching TV, I use a second screen to:
	to work
	to shop online
	to socialize in a way that is NOT related to the show
	to simply surf the internet
Social Situation	While watching TV, I use a second screen
	when I am alone
	because the people beside me are using it.
	when the people beside me are annoying or bothersome.
	when the people beside me ignore me
	when family or friends (or roommates) do not want to watch TV with me.
	even if I am in a room with others people who are watching the same show
when I do not feel like inviting people to my home.	
when I do not feel like going to another person's home.	
Pace of the TV show	While watching TV, I use a second screen
	when the show moves slowly.
	when the show moves quickly.
	when the show moves <i>too</i> slowly.
	when the show moves <i>too</i> quickly.
	when the show is boring.
when the show is exciting.	
	to fill in the free time during the show (or during commercials).

Appendix A-13 Items after Items Selection

Cognitive items		
	Item Code	While watching TV, I use a second screen
Knowledge seeking	C01	to look up information (e.g., Wikipedia) about the show.
	C02	to look up information about the plot.
	C03	to check prior episodes of the show.
	C04	to look up information about the actors.
	C05	to look up information about the director, producer or other production staff.
	C06	to look up information about the production methods (e.g., sets, location, special effects).
	C07	to see if the show is honest in its presentation of the facts or opinions.
Knowledge providing	C08	to help others understand the show.
	C09	to help others understand the characters.
	C10	to help others understand the plot.
Opinion Seeking	C11	to learn the opinions of others about the show.
	C12	to learn the opinions of friends or family about the show.
	C13	to learn the opinions of strangers about the show.
	C14	to learn the opinions of the actors about the show.
	C15	to learn the opinions of the production staff (directors, producers, others) about the show.
	C16	to read reviews (e.g., IMDb, Rotten Tomatoes) of the show.
Opinion Providing	C17	to give my opinion of the show.
	C18	to give my opinion of the plot.
	C19	to give my opinion of the characters.
	C20	to give my opinion of the acting.
Information exchange	C21	to discuss the quality of acting.
	C22	to discuss the quality of the plot.
	C23	to discuss the quality of the production (e.g., sets, locations, special effects).
	C24	to have discussions about the show.
	C25	to have discussions inspired by the show.
Socially Relevant Information Exchange	C26	to discuss the characters of the show.
	C27	to discuss the actions of the characters of the show.
	C28	to discuss the motivations or morals of the characters of the show.
	C29	to discuss the motivations or morals of the producers or directors of the show
	C30	to understand what other social groups or cultures thought of the show.

Personal Identity items		
	Item Code	While watching TV, I use a second screen
Identity Formation / Life-style Expression	P01	as a way to present my attitudes.
	P02	to discuss the personalities of the characters.
	P03	to discuss the morality of the characters.
	P04	to discuss the motivations of the characters.
	P05	to discuss those characters who are the same as me.
	P06	to discuss those characters who are the opposite of me.
	P07	because the show is like my life.
	P08	because the show is so different from my life.
	P09	as a way to share my problems.
	P10	as a way to help others with their problems.
	P11	as a way to understand how others deal with problems
Character Identification	P12	to defend certain characters.
	P13	to defend the actions of certain characters.
	P14	to defend the morality of certain characters.
	P15	to defend the decisions of certain characters
	P16	to question certain characters.
	P17	to question the actions of certain characters.
	P18	to question the morality of certain characters.
	P19	to question the decisions of certain characters.
	P20	because I like to try to figure out weird characters.
Status	P21	because I feel important.
	P22	because others listen to me.
	P23	because others value my opinion.
	P24	because others value my knowledge of the show.
	P25	because others value my insights into the show.
	P26	because others want me to talk about the show.
Status Enhancement	P27	because the actors might join the discussion.
	P28	because the director or other staff might join the discussion.
	P29	because there are people I want to meet.
	P30	because there are people I want to be noticed by.

Social Integration Items		
	Item Code	While watching TV, I use a second screen
Maintenance of Old Ties	S01	as a way to keep in touch with family, friends, and other people I know.
	S02	because everyone else does.
	S03	because my family or friends expect me to.
	S04	because I would lose touch with family or friends if I did not.
	S05	as a way to keep doing things together with my family or friends.
	S06	as a way to closer to my family or friends.
	S07	as a way to let other people know what I like.
Creation of New Ties	S08	with strangers so I can find new friends with similar interests.
	S09	with strangers so I can become a part of their group.
	S10	with strangers as a way to do something new or different.
	S11	with strangers because it is a safe way to meet people.
	S12	with strangers because they are different from my family or friends.
	S13	because it is a way to meet people without traveling.
	S14	with strangers because strangers do not get too personal.
	S15	with strangers because strangers focus on the show.
	S16	with strangers because I can leave whenever I want.
Social Norms	S17	because I enjoy the insights of others.
	S18	because it is a good way to start discussions.
	S19	as a way to talk about life and society.
	S20	as a way to share my values.
	S21	as a way to learn the values of others.
	S22	as a way to learn about life and society.
	S23	with strangers as a way to learn about their lives and their society.
	S24	so I can fit in.
	S25	as a way to understand other people.
Connections	S26	as a way to bond.
	S27	so I can be a part of a group.
	S28	because I do not like to do things alone.
	S29	because it is like having people in the room with me.
	S30	because TV is better when shared.

Diversion items		
	Item Code	While watching TV, I use a second screen
Arousal	D01	to add to the fun.
	D02	to add to the enjoyment.
	D03	to add to the intensity.
	D04	to add to the excitement.
	D05	more often when the show is exciting or interesting.
	D06	because watching TV with others is better than watching TV alone.
	D07	because I like to talk about what I am watching.
	D08	because TV is more entertaining when we talk about the characters.
	D09	because TV is more entertaining when we talk about the show.
	D10	because I do not like to do things alone.
Diversion / Abeyance	D11	to help me relax.
	D12	out of habit.
	D13	to avoid boredom.
	D14	more often when the show is boring or slow.
	D15	because it helps me to forget my problems.
	D16	because it helps me to forget work.
	D17	because others like to talk about what they are watching.
	D18	when the show is annoying or idiotic.
	D19	when I have to say something about the show.
	D20	because I am alone.

Appendix A-14 Final Item Set

	Item Code	While watching TV, I use a second screen
Cognitive items	C01	to look up information (e.g., Wikipedia) about the show.
	C06	to look up information about the production (e.g., staff, set, effects).
	C07	to see if the show is honest in its presentation of the facts or opinions.
	C08	to help others understand the show.
	C11	to learn the opinions of others about the show.
	C15	to learn the opinions of production staff (e.g., actors, directors, producers)
	C16	to read reviews (e.g., IMDb, Rotten Tomatoes) of the show.
	C17	to give my opinion of the show.

Personal Identity items	P04	to discuss the motivations of the characters.
	P05	to discuss the characters who are like me.
	P06	to discuss the characters who are different from me.
	P09	as a way to share problems.
	P20	because I like to try to figure out weird characters.
	P23	because others value my opinion.
	P28	because the production staff (e.g., actors, directors) may join the discussion.
	P29	because there are people I want to meet.

Social Integration items	S01	as a way to keep in touch with family and friends.
	S03	because my family or friends expect me to.
	S08	to find new friends with similar interests.
	S15	with strangers because we focus on the show
	S18	to start discussions.
	S22	as a way to learn about life and society.
	S27	so I can be a part of a group.
	S29	because it is like having people in the room with me.

Diversion items	D01	to add to the fun.
	D05	when the show is exciting or interesting.
	D11	to help me relax.
	D12	out of habit.
	D19	when I have to say something about the show.
	D20	because I am alone.

Appendix A-15 Ethics Approval Dalhousie - Stage 2



**Social Sciences & Humanities Research Ethics Board
Annual Renewal - Letter of Approval**

November 17, 2017

Lama Khoshaim
Management\Information Management

Dear Lama,

REB #: 2016-3951

Project Title: The Development, Evaluation, and Implementation of a User Engagement Scale in the Context of Second Screening

Expiry Date: December 20, 2018

The Social Sciences & Humanities Research Ethics Board has reviewed your annual report and has approved continuing approval of this project up to the expiry date (above).

REB approval is only effective for up to 12 months (as per TCPS article 6.14) after which the research requires additional review and approval for a subsequent period of up to 12 months. Prior to the expiry of this approval, you are responsible for submitting an annual report to further renew **REB** approval. Forms are available on the Research Ethics website.

I am also including a reminder (below) of your other on-going research ethics responsibilities with respect to this research.

Sincerely,



Dr. Karen Beazley, Chair

Appendix A-16 Recruitment Material for Stage 2 – Posted Recruitment

Dear Students

Do you like to watch TV and communicate about that show through social media? Do you like to look up stuff about the show while watching the show? We are looking for people to help us learn more about this activity.

If you do, we would like to invite you to participate in our survey.

As a sign of our appreciation, we are offering a chance to win one of two \$25 gift cards to Amazon.ca

Please follow this link if you like to participate: (*LINK, TBA*)

If you have any questions, please contact Lama Khoshaim: email Lama.shk@dal.ca

Appendix A-17 Informed Consent for Stages 2, 3



CONSENT FORM

Project title: The Development, Evaluation, and Implementation of a User Motivations scale in the Context of Second Screening

Lead researcher: Lama Khoshaim, ID PhD department, Lama.shk@dal.ca

Introduction

We invite you to take part in a research study being conducted by Lama Khoshaim, an ID PhD candidate at Dalhousie University. Choosing whether or not to take part in this research is entirely your choice. Your decision will have no impact on your studies, your employment, your performance evaluation, and the services you receive.

The information below describes the purpose of the research, what you will be asked to do, and about any benefits, risks, inconvenience or discomfort that you might experience.

You should discuss any questions you have about this study with Lama Khoshaim. Please ask as many questions as you like. If you have questions later, please contact the lead researcher.

Purpose and Outline of the Research Study

The second screen experience (SSE) is an emerging trend in which users watch TV on a first screen (a TV or computer, tablet or smartphone) and also use a second screen (i.e., other computers, tablets, smartphones, etc.) to communicate or follow conversations, or to look up information about what they are watching on TV *while watching*.

The purpose of the study is to create and evaluate a User Motivations Scale (UES) in the context of second screening (SSE). This will be called the MS SSE.

To create a user motivations scale we need to create a survey that can measure user motivations while using a second screen. We need your help in the survey creation.

Who Can Take Part in the Research Study?

You may participate in this study if you watch TV and have used (or still use) a second screen to explore other aspects related to the TV show. This includes participating in, or simply following Facebook or Twitter discussions of the show, and looking up information about the show (or actors) on Wikipedia. You may do this “a lot” or “a little”. You need to be 18 or older to participate in this study.

What You Will Be Asked to Do

You will complete a survey package that contains a number of questions and some basic demographic data. The survey package will be completed online at the time and place of your convenience. We expect that it would take 15 – 20 minutes.

The main component is questions about your use of a second screen while watching TV. The demographic questions ask about gender, age *group*, income *group*, education level (in *groups*), relationships status or living arrangements (because such might be related to the use of second screens) and use of the internet and/or social media. You may skip questions that you do not want to answer.

Possible Benefits, Risks and Discomforts

Participating in the study might not benefit you directly, but we might learn things that will benefit others.

The risks associated with this study are minimal, and there are no known risks for participating in this research beyond those encountered in daily life.

Compensation / Reimbursement

As a token of appreciation, we are offering a chance to win 1 of 2 \$25 gift cards for Amazon. If you would like the chance to win, you will simply provide your email address. An Amazon gift card can be sent to an email address without knowing the name of the recipient.

How your information will be protected:

All data will be anonymous. There will be no questions that ask for identifying details such as your name.

You may provide your email address if you would like a chance to win a gift card (see Compensation) or if you would like to receive a copy of the results once completed (which will take some months). Your email will be kept in a separate file from your data (i.e., no one will be able to link the two).

Only my supervisor and I will have access to the survey results. All results will be presented in aggregate (combined) form in a thesis, various presentations and scientific publications. All electronic records will be kept secure in an encrypted file on the researcher's password-protected computer.

If You Decide to Stop Participating

Your participation in this research is entirely your choice.

You do not have to answer questions that you do not want to answer,

You may quit the survey at any time by simply closing your browser (you should clear your cache as well: see below). I will not include any incomplete surveys in my analyses.

However, if you do complete your survey, if you change your mind later, I will not be able to remove the information you provided because the surveys are completed anonymously, so I would not know which one is yours.

How to Obtain Results

If you are interested in obtaining our final results, you may provide your email address so that we can send you a link or soft copy of the completed study. Alternatively, you may simply search the academic publications for articles associated with Lama Khoshaim

Questions

We are happy to talk with you about any questions or concerns you may have about your participation in this research study. Please contact Lama Khoshaim (Lama.shk@dal.ca) at any time with questions, comments, or concerns about the research study.

If you have any ethical concerns about your participation in this research, you may also contact Research Ethics, Dalhousie University at (902) 494-1462, or email: ethics@dal.ca (and reference REB file # 20XX-XXXX).

Implied Consent

If you would like to continue to the survey, click on continue.

If you do not want to continue to the survey, click on quit.

CONTINUE

QUIT

To Clear Your Browser's Cache

Mozilla Firefox

- 1 From the History menu, select Clear Recent History. ...
- 2 From the Time range to clear: drop-down menu, select the desired range; to clear your entire cache, select Everything.
- 3 Next to "Details", click the down arrow to choose which elements of the history to clear; to clear your entire cache, select all items.

Internet Explorer.

- IE 8: From the Tools menu choose Internet Options.
 - IE 9: In the upper right corner, click the small gear icon (to the right of the star icon) and choose Internet Options
- 1 On the General tab, under Browsing history, click Delete.
 - 2 Un-check the Preserve Favorites website data box.
 - 3 Check the Temporary Internet files, Cookies, and History boxes.
 - 4 The Form data, Passwords, and in Private Filtering data boxes may be left unchecked. You can check them to delete this data if you so choose.
 - 5 Click Delete.
 - 6 When finished, click OK to return to your Internet Explorer window.
 - 7 Close the Internet Explorer window and reopen.

Appendix A-18 Recruitment Material for Stage 3

Dear Students

Do you like to watch TV and communicate about that show through social media? Do you like to look up stuff about the show while watching the show? We are looking for people to help us learn more about this activity.

If you do, we would like to invite you to participate in our survey.

As a sign of our appreciation, we are offering a chance to win one of two \$50 gift cards to Amazon.ca

Please follow this link if you like to participate: (*LINK, TBA*)

If you have any questions, please contact Lama Khoshaim: email Lama.shk@dal.ca

Tweet to public twitter users

The tweet/message will be tweeted or re-tweeted by the principal investigator.

The tweet/message:

Do you love watching TV and communicate about a show using social media? Participate in this questionnaire to help us understand this activity. You could win a \$50 gift card to Amazon.ca

HTTP: Link

@TVshowUserName

**Appendix A-19 Recruitment Material for Stage 3 – Posted Recruitment -
Ryerson sample**

Dear Students

Do you like to watch TV and communicate about that show through social media? Do you like to look up stuff about the show while watching the show? We are looking for people to help us learn more about this activity.

If you do, we would like to invite you to participate in our survey.

Please follow this link if you like to participate: (*LINK, TBA*)

If you have any questions, please contact Lama Khoshaim: email Lama.shk@dal.ca

Appendix A-20 Ethics Approval Dalhousie – Stage 3



**Social Sciences & Humanities Research Ethics Board
Amendment Approval**

February 09, 2018

Lama Khoshaim
Management\Information Management

Dear Lama,

REB #: 2016-3951

Project Title: The Development, Evaluation, and Implementation of a User Engagement Scale in the Context of Second Screening

The Social Sciences & Humanities Research Ethics Board has reviewed your amendment request and has approved this amendment request effective today, February 09, 2018.

Sincerely,



Dr. Karen Beazley, Chair

Appendix A-21 Ethics Approval Ryerson



To: Anatoliy Gruzd
Global Management Studies
Re: REB 2018-066: The Development, Evaluation, and Implementation of a User Engagement
scale in the Context of Second Screening
Date: February 26, 2018

Dear Anatoliy Gruzd,

The review of your protocol REB File REB 2018-066 is now complete. The project has been approved for a one year period. Please note that before proceeding with your project, compliance with other required University approvals/certifications, institutional requirements, or governmental authorizations may be required.

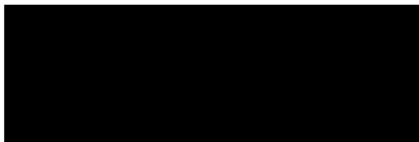
This approval may be extended after one year upon request. Please be advised that if the project is not renewed, approval will expire and no more research involving humans may take place. If this is a funded project, access to research funds may also be affected.

Please note that REB approval policies require that you adhere strictly to the protocol as last reviewed by the REB and that any modifications must be approved by the Board before they can be implemented. Adverse or unexpected events must be reported to the REB as soon as possible with an indication from the Principal Investigator as to how, in the view of the Principal Investigator, these events affect the continuation of the protocol.

Finally, if research subjects are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and approvals of those facilities or institutions are obtained and filed with the REB prior to the initiation of any research.

Please quote your REB file number (REB 2018-066) on future correspondence.

Congratulations and best of luck in conducting your research.



Dr. Patrizia Albanese, PhD
Chair, Ryerson University Research Ethics Board

The Following protocol attachments have been reviewed and approved.

- SONA Information.pdf (submitted on: 09 Feb 2018)
- REB-dal-approved.pdf (submitted on: 09 Feb 2018)
- REVISED- REB resubmission_Khoshaim_Feb26_2018.pdf (submitted on: 26 Feb 2018)

If any changes are made to the attached document throughout the course of the research, an amendment MUST be submitted to, and subsequently approved by the REB.

Appendix A-22 Ryerson University consent to participate in research
RYERSON UNIVERSITY | DALHOUSIE UNIVERSITY
Consent to Participate in Research

Project title: The Development, Evaluation, and Implementation of a User Motivations Scale in the Context of Second Screening

INTRODUCTION AND PURPOSE

The second screen experience (SSE) is an emerging trend in which users watch TV on a first screen (a TV or computer, tablet or smartphone) and also use a second screen (i.e., other computers, tablets, smartphones, etc.) to communicate or follow conversations, or to look up information about what they are watching on TV while watching.

The purpose of the study is to create and evaluate a User Motivations Scale (MS) in the context of second screening (SSE). This will be called the MS SSE.

To create a user motivations scale, we need to create a survey that can measure user motivations while using a second screen. We need your help in the survey creation.

WHAT YOU ARE BEING ASKED TO DO

We would like you to complete an online survey about using a second screen while watching TV. You will complete a survey package that contains a number of questions and some basic demographic data. The survey package will be completed online at the time and place of your convenience. We expect that it would take 15 – 20 minutes.

The main component is questions about your use of a second screen while watching TV. The demographic questions ask about gender, age *group*, income *group*, education level (in *groups*), relationships status or living arrangements (because such might be related to the use of second screens) and use of the internet and/or social media.

You may skip questions that you do not want to answer.

POTENTIAL BENEFITS

Participating in the study might not benefit you directly, but your participation in the study will contribute to building knowledge surrounding SSE, and understanding motivations while using a second screen. Participants will earn 0.25 credits, equivalent to 0.25% towards a maximum of 2% bonus in select courses.

WHAT ARE THE POTENTIAL RISKS TO YOU

The risks associated with this study are minimal, and there are no known risks for participating in this research beyond those encountered in daily life.

YOUR IDENTITY WILL BE CONFIDENTIAL

All data will be anonymous. There will be no questions that ask for identifying details such as your name.

You may provide your email address if you would like to receive a copy of the results once completed (which will take some months). Your email will be kept in a separate file from your data (i.e., no one will be able to link the two).

Only my supervisor and I will have access to the survey results. All results will be presented in aggregate (combined) form in a thesis, various presentations and scientific publications. All electronic records will be kept secure in an encrypted file on the researcher's password-protected computer.

HOW YOUR INFORMATION WILL BE PROTECTED AND STORED

This survey uses Opinio, that stores data in servers is based in Dalhousie.

To further protect your information, data stored by the researcher will be password protected. Only the researcher will have access to the data as collected. Any future publications will include collective information (i.e., aggregate data). Your individual responses (i.e. raw data) will not be shared with anyone outside of the research team.

INCENTIVE FOR PARTICIPATION

You will earn credit, equivalent to 1% towards a maximum of 2% bonus in select courses.

YOUR RIGHTS AS A RESEARCH PARTICIPANT

Participation in research is completely voluntary and you can withdraw your consent at any point up to clicking the submit button at the end of the survey. However, because the survey is anonymous, once you click the submit button at the end of the survey the researchers will not be able to determine which survey answers belong to you so your information cannot be withdrawn after that point.

Please note, that by clicking submit at the end of this page you are providing your consent for participation. By consenting to participate you are not waiving any of your legal rights as a research participant.

QUESTIONS

If you have any questions about this research, please feel free to contact one of the researchers:

Lama Khosahim Dalhousie univeristy
Email: lama.shk@dal.ca
Tel: 902 499 3397

Anatoliy Gruzd Ted Rogers School of Management, Ryerson University
350 Victoria Street, Toronto, Ontario, Canada M5B 2K3
Email: gruzd@ryerson.ca
Tel: 416-979-5000 ext. 7937

If you have any questions about your rights or treatment as a research participant in this study, please contact the Ryerson University Research Ethics Board at rebchair@ryerson.ca (416) 979-5042.

Please print a copy of this page for your future reference.

Appendix A-23 Stage 1.3 Descriptive Statistics for TV Viewing Habits and SS Use

TV Viewing Genres		
I typically watch (select all that usually apply):	N	Percentage
Action	52	53.6
Anime	27	27.8
Children and Family	35	36.0
Classics	26	26.8
Comedy or Sitcom or Standup Comedy	59	60.8
Documentaries	48	49.4
Drama or Romantic or Musicals	57	58.8
Faith and Spirituality	9	9.27
Horror	16	16.5
Independent or International	26	26.8
Music	27	27.8
Science Fiction or Fantasy	43	44.3
Sports Movies or Fitness Shows (not including watching sports)	8	8.24
Thrillers	25	25.8
Reality TV	2	2.06

Intensity of TV Viewing by Mode of Access						
I watch TV shows on:	everyday	≥ twice a week	≥ once a week	≥ twice a month	≥ once a month	≤ once a month
cable from TV stations	23	8	13	2	3	49
streaming media from TV stations	11	10	9	8	12	48
on demand streaming media	39	21	15	5	6	12
DVDs and similar	5	7	6	11	14	55

Intensity of TV Viewing by Number of Shows						
The number of TV shows or movies that I:	≤1 sh/wk	2-5 sh/wk	6-10 sh/wk	11-20 sh/wk	21-30 sh/wk	>30 sh/wk
watch per week	28	44	22	3	1	0
follow per week	42	42	12	2	0	0
make time for per week	54	32	9	3	0	0
follow on social media	63	18	8	5	0	4

Intensity of TV Viewing by Hours per Day						
The number of hours of TV shows or movies I watch:	less than 1 hr.	about 1 hr.	about 2 hrs.	about 3 to 4 hrs.	about 5 to 6 hrs.	more than 6
per day during the week (Monday to Friday)	15	30	30	20	3	0
on Saturday	16	16	30	25	9	2
on Sunday	21	18	25	23	8	3

Scheduling of TV Viewing					
I watch TV shows or movies:	1 Never	2 Rarely	3 Frequently	4 Usually	5 Always
at the time of broadcast (on TV stations).	38	37	14	3	6
at the time of my choosing (using recordings, DVDs, or streaming media).	12	10	12	25	39

Scheduling of TV Viewing by Binge Watching					
If watching on-demand streaming media (e.g., Netflix, Amazon) or DVDs	1 Never	2 Rarely	3 Frequently	4 Usually	5 Always
I watch an entire season or a series of movies in one sitting.	39	40	14	3	2
I watch several episodes (3 or more) or movies (2 or more) in one sitting.	16	33	23	19	7
I only watch 1 or 2 episodes or a movie per day at most.	15	26	23	25	9

Intensity by Scheduled Watching by Planning					
If using standard broadcast networks (e.g., BBC, CBC, ABC)	1 Never	2 Rarely	3 Frequently	4 Usually	5 Always
I plan my day around the shows or episodes I want to watch.	61	27	5	3	2
I get upset if I miss my show or episode.	65	20	6	6	1

Company While Watching TV					
I watch TV with	1 Never	2 Rarely	3 Frequently	4 Usually	5 Always
no one	6	24	21	35	12
my children	59	12	13	9	5
my partner	32	21	17	20	8
my family	19	40	23	14	0

Company While Watching TV					
I watch TV with	1 Never	2 Rarely	3 Frequently	4 Usually	5 Always
my friends	24	45	20	7	0
Roommates	82	4	6	5	0
Colleagues	83	6	5	3	0
Others	85	9	2	2	0

Second screen Device		
My second screen is (select all that usually apply):	N	Percentage
the same computer or tablet as the TV show (I flip back and forth or split the screen)	30	30.6
a different computer from the TV show (including laptops and/or tablets)	50	51.0
a smartphone	82	83.7
some other device	1	1.0

Methods of Access for the Second Screen		
When using a second screen while watching TV, I (select all that usually apply):	N	Percentage
pause the TV show and focus on the second screen (possible with DVDs or on-demand streaming media)	33	33.7
watch both the TV show and the second screen	66	67.3
ignore the continuing TV (i.e., miss the show) while using the second screen	36	36.7
do something else	6	6.1

Social Media Outlets Used on the Second Screen					
While watching TV, I use	1 Never	2 Rarely	3 Frequently	4 Usual ly	5 Always
social media (e.g., Facebook)	15	22	36	15	10
Blogs (e.g., WordPress, Tumblr)	60	21	11	5	1
microblogs (e.g., Twitter)	46	20	18	9	5
email conversations	29	26	29	11	0
Forums	58	27	11	1	0
chat (e.g., IM)	19	16	29	23	0
information channels (e.g., Wikipedia)	49	16	23	9	0
video conference	73	15	6	4	0

Content of the Second Screen					
While watching TV, I use a second screen to:	1 Never	2 Rarely	3 Frequently	4 Usually	5 Always
to work	23	36	22	11	6
to shop online	24	40	25	7	2
to socialize in a way that is NOT related to the show	8	21	45	17	7
to simply surf the internet	12	23	37	21	5
to do other tasks that are NOT related to the show	7	23	44	14	10

Social Situation for Second Screen Use					
While watching TV, I use a second screen	1 Never	2 Rarely	3 Frequently	4 Usually	5 Always
when I am alone	8	12	39	19	20
because the people beside me are using it.	46	20	24	8	0
when the people beside me are annoying or bothersome.	47	25	13	9	4
when the people beside me ignore me	56	18	18	4	2
when family or friends (or roommates) do not want to watch TV with me.	55	17	17	9	0
even if I am in a room with others people who are watching the same show	37	25	23	12	1
when I do not feel like inviting people to my home.	59	17	13	6	3
when I do not feel like going to another person's home.	55	15	17	7	0

TV Associations for the Use of Second Screens					
While watching TV, I use a second screen	1 Never	2 Rarely	3 Frequently	4 Usually	5 Always
when the show moves slowly.	7	17	40	24	10
when the show moves quickly.	33	48	9	6	2
when the show moves <i>too</i> slowly.	9	12	40	22	15
when the show moves <i>too</i> quickly.	41	42	12	2	1
when the show is boring.	8	9	35	26	20
when the show is exciting.	53	34	6	2	3
to fill in the free time during the show (or during commercials).	13	6	30	22	27

Appendix A-24 Considerations for the Examination of the Univariate Statistics

The first analysis considered the distribution of responses for each item so to identify the best items (Heeringa et al., 2017). The distributions for the individual items were examined. Items were flagged if they did not have a unimodal distribution, if they did not use the full range of the response scale (from SA to *SD*), or if they had more than 30% of all responses in one category even if skewed or wedge-shaped. Items that were flagged were not immediately discarded. They were deemed as items to watch in other analyses.

Hence, in this research, each item should produce a unimodal distribution of responses that peaks near the center of the scale (at response values 2, 3 or 4). For a five-point scale ranging from 1 to 5, this would imply a mean near 3.0. Pragmatically, the mean should be near 2, 3, or 4, but not 1 nor 5. The distribution should fall off on both sides of the mean. Said another way, distributions that are bimodal (two peaks) or in the shape of a wedge or exponential (highest response at 1 or at 5) are not ideal. Such imply that participants would have liked to respond with a lower (if the peak is 1) or higher (if the peak is 5) score. Uniform distributions (i.e., flat) are not as deleterious as wedge distributions, but still less than ideal. In addition, responses should use the full range of the scale (from 1 to 5). Assuming a normal distribution (or an approximately normal distribution), the standard deviation should be about 1/4 the range, which would be 1.25. Note that if the full range is used and the distribution is approximately normal, the standard deviation will be near 1.25.

Unfortunately, with only five response options, statistical tests of normality are not practical: The power to detect departures from normality is very low. That is, colloquially, “every” sample looks like it could have come from a normal population, or conversely, only the most extreme distributions result in a rejection of the hypothesis that the population is normal (see Frankland & Zumbo, 2001). Hence, the assessment of the shape of the distribution is somewhat qualitative.

Furthermore, the shape of the distribution is more an issue for subsequent statistical analyses than for “interpretation”. That is, normal, uniform, wedge, and exponential distributions can all be easily interpreted – they all model the population (the bimodal is a bit more difficult). They all provide useful information about the population distribution. Non-normal distributions are common in empirical work. Preferences (e.g., culinary, art, music, sports, entertainment, politics) often show a wedge or exponential distribution because most people do not share the

same aesthetics. Most physical or mental clinical scales are wedge shaped (or exponential) when sampling from the whole population because most people do not exhibit clinical symptoms. Nonetheless, all such distributions are interpretable. Assuming proper sampling, they are also generalizable. Despite that which is implied by many references (Heeringa et al., 2017; Veaux et al., 2017), one must remember that the point of inferential statistics is the proper characterization of a population -- the point is *not* to force the population distribution to be normal.

The problem with the distribution is not an issue for interpretation. It is an issue for the subsequent analyses. Most commonly used analyses “require” the assumption of normality (e.g., the general linear model, including *t*-tests and ANOVA, regression/correlation and multiple regression/correlation, factor analysis, reliabilities analysis). Fortunately, most techniques are relatively robust to moderate violations of that assumption: The main exception is the within-subjects ANOVA and its variants.

For the current research, each item was scored as on (Veaux et al., 2017):

- whether or not it was unimodal or approximately normal,
- had a mean near 3 (i.e., $2 \leq \mathbf{X} \leq 4$),
- a standard deviation between 1 and 2 ($2 \geq sd \geq 1$)
- and a range of 5 (i.e., $min = 1, max = 5$).

Table A.1 provides some hypothetical, but concrete, examples of acceptable and unacceptable distributions for data with the same sample size. Note that the first five represent samples (distributions) from different normal populations: All these populations have the same mean of 3.0, but the standard deviations were 1.0, 0.67, 1.50, 0.50, and 0.33 respectively.

Table A.1. Examples of Acceptable and Unacceptable Response Distributions.

Population Type	Score					Mean	SD	Flags				
	1	2	3	4	5			Shape	Mn	SD	Min	Max
NORMAL	5	17	26	17	5	3.00	1.04					
NORMAL	1	15	38	15	1	3.00	0.74					
NORMAL	16	12	14	12	16	3.00	1.48	x				
NORMAL	0	11	48	11	0	3.00	0.56			x	x	x
NORMAL	0	5	61	5	0	3.00	0.38			x	x	x
uniform	14	14	14	14	14	3.00	1.42	?				
uniform	16	13	14	15	12	2.91	1.42	?				
uniform	17	18	17	18	0	2.51	1.13	?				x
uniform	0	23	24	23	0	3.00	0.82	?		x	x	x
wedge	27	21	14	7	1	2.06	1.06	x				
wedge	34	23	12	1	0	1.71	0.80	x	x	x		
wedge	45	23	2	0	0	1.39	0.55	x	x			
exponential	37	18	9	5	1	1.79	1.02	x	x			
exponential	47	15	5	2	1	1.50	0.86	x	x			
exponential	52	13	4	1	0	1.34	0.66	x	x			
bimodal	6	24	10	24	6	3.00	1.18	x				
skewed	16	22	18	10	4	2.49	1.16					
skewed	21	26	17	5	1	2.13	0.98	?		x		
skewed	11	37	16	5	1	2.26	0.86	x		x		
skewed	10	40	16	4	0	2.20	0.75	x		x		x

Of these, only the first 2 are acceptable. The third is too wide and actually looks bimodal. Too wide is unacceptable because it implies that participants could not respond as desired (they would have liked to provide a lower or higher response): Participants who would be different are all lumped together in the tails. The fourth and fifth are too narrow. Too narrow is unacceptable because it fails to separate people who are different: Participants are all lumped together.

The wedge and exponential distributions are unacceptable for similar reasons: Participants cannot respond as desired. The bimodal is unacceptable because it implies that the one population contains two distinct subpopulations (see Frankland & Zumbo, 2001).

Skewed distributions are the most problematic. Some skew is acceptable and even expected. If the mean is not in the center, the distribution is automatically skewed. The question is where to draw the line. In this case the first two are likely fine, but the third and fourth are showing too much concentration within a single response category. Of course, real sample distributions are never as simple as these, so a judgment is required.

Appendix A-25 Stage 1.3 Descriptive Statistics for the SSE-MS Items

Distributions and Descriptive Statistics for the Cognitive Items.												
Group	Item Code	Response Option					Descriptive Statistics					Flag
		SA	A	N	D	SD	Mean	SD	Skew	Median	Mode	
Knowledge Seeking	C01	29	36	15	12	6	2.29	1.19	0.77	2.00	2.00	x
	C02	13	24	24	21	16	3.03	1.29	0.03	3.00	2.00	
	C03	12	29	25	18	14	2.93	1.25	0.20	3.00	2.00	
	C04	22	30	25	15	6	2.52	1.18	0.40	2.00	2.00	
	C05	9	22	18	23	26	3.36	1.33	-0.23	3.00	5.00	
	C06	10	23	21	17	27	3.29	1.36	-0.11	3.00	5.00	
	C07	10	25	27	17	19	3.10	1.27	0.08	3.00	3.00	
Knowledge Providing	C08	5	20	21	26	26	3.49	1.23	-0.30	4.00	4.00	x
	C09	4	18	24	26	26	3.53	1.19	-0.30	4.00	4.00	x
	C10	3	17	27	26	25	3.54	1.14	-0.25	4.00	3.00	
Opinion Seeking	C11	9	31	19	20	19	3.09	1.29	0.12	3.00	2.00	
	C12	5	32	17	23	21	3.23	1.26	0.05	3.00	2.00	x
	C13	6	28	19	20	25	3.31	1.30	-0.04	3.00	2.00	x
	C14	4	17	19	26	32	3.66	1.22	-0.48	4.00	5.00	x
	C15	2	13	21	26	36	3.83	1.13	-0.57	4.00	5.00	x
	C16	18	38	21	11	10	2.56	1.21	0.62	2.00	2.00	x
Opinion Providing	C17	4	15	19	29	31	3.69	1.19	-0.55	4.00	5.00	x
	C18	5	15	15	27	36	3.76	1.24	-0.67	4.00	5.00	x
	C19	2	18	18	24	36	3.76	1.19	-0.48	4.00	5.00	x
	C20	3	15	18	26	36	3.79	1.19	-0.59	4.00	5.00	x
Information Exchange	C21	5	15	18	28	32	3.68	1.22	-0.58	4.00	5.00	x
	C22	4	21	16	26	31	3.60	1.25	-0.40	4.00	5.00	
	C23	0	17	17	30	34	3.83	1.09	-0.47	4.00	5.00	x
	C24	5	21	19	24	29	3.52	1.26	-0.31	4.00	5.00	
	C25	4	20	23	24	27	3.51	1.21	-0.25	4.00	5.00	x
Socially Relevant Information Exchange	C26	2	25	17	24	30	3.56	1.23	-0.23	4.00	5.00	
	C27	4	23	19	23	29	3.51	1.25	-0.25	4.00	5.00	
	C28	3	23	16	26	30	3.58	1.23	-0.33	4.00	5.00	
	C29	1	14	21	24	38	3.86	1.12	-0.52	4.00	5.00	x
	C30	6	20	24	20	28	3.45	1.27	-0.22	3.00	5.00	

Distributions and Descriptive Statistics for the Personal Identity Items.												
Group		Response Option					Descriptive Statistics					Flag
		SA	A	N	D	SD	Mean	SD	Skew	Median	Mode	
Identity Formation / Life-style Expression	P01	6	16	28	23	25	3.46	1.21	-0.28	3.00	3.00	
	P02	6	20	22	23	27	3.46	1.26	-0.27	4.00	5.00	x
	P03	6	21	21	23	27	3.45	1.27	-0.25	4.00	5.00	x
	P04	6	25	20	21	26	3.37	1.29	-0.13	3.00	5.00	
	P05	6	14	22	26	30	3.61	1.23	-0.50	4.00	5.00	x
	P06	4	11	24	29	30	3.71	1.14	-0.57	4.00	5.00	x
	P07	4	12	20	29	33	3.77	1.16	-0.65	4.00	5.00	x
	P08	4	10	21	31	32	3.79	1.13	-0.69	4.00	5.00	x
	P09	3	8	17	34	36	3.94	1.07	-0.90	4.00	5.00	x
	P10	4	10	19	31	34	3.83	1.14	-0.76	4.00	5.00	x
	P11	3	15	23	20	37	3.74	1.20	-0.47	4.00	5.00	x
Character Identification	P12	3	22	18	26	29	3.57	1.22	-0.31	4.00	5.00	
	P13	4	19	19	27	29	3.59	1.22	-0.39	4.00	5.00	x
	P14	4	20	18	25	31	3.60	1.24	-0.39	4.00	5.00	
	P15	1	24	18	25	30	3.60	1.19	-0.23	4.00	5.00	
	P16	3	24	20	24	27	3.49	1.22	-0.18	4.00	5.00	
	P17	3	28	18	22	27	3.43	1.25	-0.09	3.00	2.00	x
	P18	3	23	20	23	29	3.53	1.23	-0.23	4.00	5.00	
	P19	2	25	22	21	28	3.49	1.21	-0.10	3.00	5.00	
	P20	8	19	20	21	30	3.47	1.33	-0.33	4.00	5.00	x
Status	P21	1	9	16	31	41	4.04	1.02	-0.85	4.00	5.00	x
	P22	2	9	18	30	39	3.97	1.07	-0.82	4.00	5.00	x
	P23	1	15	19	28	35	3.83	1.11	-0.52	4.00	5.00	x
	P24	3	14	16	27	38	3.85	1.18	-0.70	4.00	5.00	x
	P25	3	9	21	26	39	3.91	1.12	-0.75	4.00	5.00	x
	P26	6	13	15	27	37	3.78	1.26	-0.74	4.00	5.00	x
Status Enhancement	P27	3	3	18	28	46	4.13	1.02	-1.16	4.00	5.00	x
	P28	2	6	19	26	45	4.08	1.04	-0.95	4.00	5.00	x
	P29	2	11	18	23	44	3.98	1.13	-0.79	4.00	5.00	x
	P30	3	7	17	25	46	4.06	1.10	-1.02	4.00	5.00	x

Distributions and Descriptive Statistics for the Social Integration Items												
Group		Response Option					Descriptive Statistics					Flag
		SA	A	N	D	SD	Mean	SD	Skew	Median	Mode	
Maintenance of Old Ties	S01	9	32	14	19	24	3.17	1.36	0.05	3.00	2.00	x
	S02	1	10	25	25	37	3.89	1.06	-0.51	4.00	5.00	x
	S03	3	8	19	27	41	3.97	1.11	-0.87	4.00	5.00	x
	S04	2	11	17	27	41	3.96	1.11	-0.79	4.00	5.00	x
	S05	3	16	24	21	34	3.68	1.20	-0.39	4.00	5.00	
	S06	3	23	19	20	33	3.58	1.26	-0.27	4.00	5.00	
	S07	2	16	24	21	35	3.72	1.17	-0.38	4.00	5.00	
Creation of New Ties	S08	2	14	20	26	36	3.82	1.14	-0.56	4.00	5.00	x
	S09	2	9	18	29	40	3.98	1.07	-0.82	4.00	5.00	x
	S10	1	11	18	30	38	3.95	1.06	-0.69	4.00	5.00	x
	S11	0	6	21	30	41	4.08	0.94	-0.62	4.00	5.00	x
	S12	1	8	16	34	39	4.04	0.99	-0.85	4.00	5.00	x
	S13	2	13	16	28	39	3.91	1.13	-0.73	4.00	5.00	x
	S14	4	13	20	22	39	3.81	1.22	-0.64	4.00	5.00	x
	S15	7	15	16	22	38	3.70	1.32	-0.62	4.00	5.00	x
	S16	4	17	18	21	38	3.73	1.26	-0.53	4.00	5.00	x
Social Norms	S17	7	27	21	20	23	3.26	1.29	-0.02	3.00	2.00	
	S18	3	29	24	18	24	3.32	1.22	0.09	3.00	2.00	
	S19	5	23	25	17	28	3.41	1.27	-0.10	3.00	5.00	
	S20	5	19	24	21	29	3.51	1.25	-0.27	4.00	5.00	
	S21	2	25	21	21	29	3.51	1.22	-0.13	4.00	5.00	
	S22	6	23	23	15	31	3.43	1.32	-0.15	3.00	5.00	
	S23	4	19	18	19	38	3.69	1.28	-0.46	4.00	5.00	x
	S24	2	6	26	22	42	3.98	1.06	-0.69	4.00	5.00	x
	S25	0	12	23	25	38	3.91	1.06	-0.46	4.00	5.00	x
Connections	S26	6	19	22	17	34	3.55	1.31	-0.32	4.00	5.00	
	S27	4	14	18	29	33	3.74	1.19	-0.62	4.00	5.00	x
	S28	1	10	19	29	39	3.97	1.05	-0.70	4.00	5.00	x
	S29	2	11	16	32	37	3.93	1.09	-0.79	4.00	5.00	x
	S30	3	17	22	20	36	3.70	1.22	-0.42	4.00	5.00	x

Distributions and Descriptive Statistics for the Diversion Items.												
Group		Response Option					Descriptive Statistics					Flag
		SA	A	N	D	SD	Mean	SD	Skew	Median	Mode	
Arousal	D01	14	29	12	19	24	3.10	1.43	0.03	3.00	2.00	x
	D02	10	31	14	19	24	3.16	1.37	0.04	3.00	2.00	x
	D03	6	24	15	25	28	3.46	1.30	-0.28	4.00	5.00	
	D04	8	27	16	20	27	3.32	1.35	-0.11	3.00	2.00	
	D05	9	20	21	23	25	3.36	1.31	-0.24	3.00	5.00	x
	D06	11	14	25	20	28	3.41	1.34	-0.34	3.00	5.00	
	D07	7	20	23	20	28	3.43	1.29	-0.23	3.00	5.00	
	D08	9	20	22	24	23	3.33	1.29	-0.22	3.00	4.00	
	D09	8	23	22	22	23	3.30	1.29	-0.13	3.00	2.00	
	D10	6	10	18	27	37	3.81	1.22	-0.79	4.00	5.00	x
Abatement	D11	6	19	20	26	27	3.50	1.25	-0.35	4.00	5.00	x
	D12	11	30	19	17	21	3.07	1.34	0.13	3.00	2.00	x
	D13	10	23	21	20	24	3.26	1.33	-0.11	3.00	5.00	
	D14	17	31	11	17	22	2.96	1.45	0.18	3.00	2.00	x
	D15	9	13	18	24	34	3.62	1.33	-0.59	4.00	5.00	x
	D16	6	16	17	26	33	3.65	1.27	-0.55	4.00	5.00	x
	D17	4	13	21	27	33	3.73	1.18	-0.58	4.00	5.00	x
	D18	8	23	21	17	29	3.37	1.34	-0.15	3.00	5.00	
	D19	5	23	18	22	30	3.50	1.29	-0.27	4.00	5.00	
	D20	4	23	20	24	27	3.48	1.24	-0.22	4.00	5.00	x

Appendix A-26 Bivariate Statistics for the SSE-MS Items Cognitive Needs

As noted, there were 30 Cognitive items, organized into 6 groups. For the complete set of 435 correlations, the mean correlation was $r = .46$ ($SD: .21$), with a minimum of $r = .05$ (all were positive) and a maximum of $r = .96$. The average was as expected, and the highest values implied considerable overlap between items. In fact, 64 of the correlations exceeded a value of $r = .71$ implying more than 50% overlap.

The correlations tended to be higher within the designated groupings (see Table A.2). Within the first group (21 correlations), the mean correlation was $r = .46$ ($SD: .15$), with a minimum of $r = .16$ (all were positive) and a maximum of $r = .73$. Within the second group (3 correlations), the mean correlation was $r = .89$ ($SD: .02$), with a minimum of $r = .87$ and a maximum of $r = .91$. Within the third group (15 correlations), the mean correlation was $r = .53$ ($SD: .14$), with a minimum and a maximum of $r = .33$ and $r = .83$ respectively. Within the fourth group (6 correlations), the mean correlation was $r = .93$ ($SD: .03$), with a minimum of $r = .90$, and a maximum of $r = .96$. Within the fifth group (10 correlations), the mean correlation was $r = .82$ ($SD: .05$; minimum $r = .74$; maximum $r = .91$). Within the sixth group (10 correlations), the mean correlation was $r = .78$ ($SD: .10$; minimum $r = .63$; maximum $r = .95$).

Simplistically, to reduce the 30 down to 8 items, one could pick one or two items from each group. However, note that Groups 4, 2, and 5 contained items with higher correlations (see the min), while Groups 1 and 3 were much less related (lower means and minimums). As such, one might want to select only one item from the more homogeneous groups and two items from the less homogeneous groups. However, this simplistic approach ignores the correlation between the items of different groups.

Item C01 had relatively high correlations with Items C02, C03, and C04 (above .3 for C02, C03, C04, C06, C14 and C16) which implies that only one of these might be needed. Using the criterion of $r > .71$ (50% overlap), the sets (C02, C03), (C05, C06), (C08, C09, C10), (C11, C13), (C13, C14), (C14, C15), (C17, C18, C19, C20, C21, C22), (C21, C22, C23, C24, C25, C26, C27, C28, C29) and (C30 with C26, C27, C28) contain excessive redundancy. Note that different cutoffs (e.g., $r > .5$, $r > .8$) would produce different results but the pattern would be similar. This method of examining a correlation matrix is not efficient.

Table A.2. Correlations Between Cognitive Items

	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30						
C01																																				
C02	.64																																			
C03	.60	.73																																		
C04	.65	.57	.65																																	
C05	.30	.34	.41	.52																																
C06	.40	.39	.48	.52	.74																															
C07	.16	.42	.31	.21	.50	.49																														
C08	.17	.34	.30	.10	.38	.40	.50																													
C09	.17	.33	.32	.13	.36	.45	.44	.90																												
C10	.22	.42	.37	.18	.38	.45	.47	.86	.90																											
C11	.37	.56	.53	.37	.42	.41	.35	.32	.35	.38																										
C12	.18	.26	.30	.20	.32	.41	.22	.40	.46	.43	.67																									
C13	.29	.42	.46	.25	.40	.38	.34	.42	.55	.47	.81	.65																								
C14	.36	.38	.47	.36	.55	.51	.45	.34	.42	.41	.69	.61	.73																							
C15	.30	.33	.40	.24	.58	.49	.47	.34	.37	.42	.56	.56	.59	.78																						
C16	.46	.50	.56	.45	.33	.32	.30	.39	.42	.39	.49	.38	.49	.47	.38																					
C17	.03	.02	.03	-.01	.16	.26	.00	.25	.32	.28	.50	.50	.50	.54	.42	.23																				
C18	.12	.11	.15	.09	.20	.31	.06	.29	.38	.33	.52	.47	.54	.60	.45	.31	.95																			
C19	.14	.10	.16	.10	.22	.30	.07	.25	.36	.32	.53	.48	.56	.65	.49	.32	.92	.97																		
C20	.14	.07	.13	.09	.23	.31	.10	.28	.38	.33	.51	.48	.56	.65	.51	.32	.92	.95	.97																	
C21	.05	.06	.17	.16	.22	.30	.06	.38	.48	.42	.49	.57	.49	.56	.43	.31	.70	.76	.75	.74																
C22	.06	.13	.20	.16	.24	.26	.08	.37	.47	.45	.50	.59	.46	.54	.42	.31	.68	.72	.72	.70	.92															
C23	.06	.16	.23	.12	.33	.27	.24	.30	.40	.38	.52	.53	.52	.66	.55	.19	.64	.65	.69	.69	.76	.80														
C24	.03	.08	.10	.13	.24	.18	.08	.33	.39	.38	.49	.65	.39	.43	.34	.28	.61	.62	.65	.62	.72	.82	.76													
C25	-.06	-.04	.05	.09	.27	.22	.14	.39	.48	.41	.47	.59	.48	.46	.36	.32	.63	.66	.68	.67	.80	.78	.70	.88												
C26	.07	.14	.19	.18	.28	.24	.14	.29	.40	.36	.57	.59	.48	.52	.40	.29	.67	.69	.69	.69	.74	.83	.82	.89	.84											
C27	.09	.14	.16	.18	.23	.20	.05	.24	.37	.34	.55	.57	.45	.47	.33	.28	.63	.65	.67	.66	.71	.77	.76	.88	.83	.96										
C28	.09	.17	.15	.16	.27	.20	.12	.27	.40	.42	.51	.49	.41	.46	.43	.28	.55	.57	.61	.61	.64	.73	.74	.80	.74	.90	.92									
C29	-.05	.08	.11	.01	.35	.23	.30	.37	.41	.45	.46	.52	.41	.49	.62	.15	.52	.51	.55	.57	.60	.70	.81	.71	.63	.75	.69	.80								
C30	.26	.32	.32	.36	.37	.26	.22	.23	.31	.32	.66	.53	.53	.62	.44	.40	.50	.54	.58	.58	.60	.63	.66	.65	.63	.77	.75	.72	.56							

Exploratory Factor Analysis (EFA) was used to examine the correlation matrix (Williams et al., 2010). There are some other ways to accomplish this task. Instead of factor analysis, one could use cluster analysis. Cluster analysis is similar to, but simpler than, factor analysis. In a cluster analysis, items are put into groups based on their correlations (or other measures of association). Those items that are most related are put into one group; other items end up in other groups. The number of groups is determined empirically by manner in which the groups are formed. The problem with this approach is that it does not identify those items that are most central (representative) of a group – all items within a group are weighted equally. It is also labor intensive than EFA when dealing with the interpretation.

Another alternative is a procedure like Q-sorting (e.g., Nahm, Rao, Solis-Galvan & Ragu-Nathan, 2001). In such, multiple expert raters rank all the items according to relevance. The best are at the top. Then, inter-rater reliability is computed and disagreements in rank orderings are resolved. The best items are then selected. One problem is that this labor intensive. A second problem is that this procedure requires multiple experts who are willing to donate their time. I had difficulty finding people who would serve in Stage 1 which simply involved reading and rating individual items. This approach was not pursued.

At this stage, EFA is *not* being used to create subscales. It was only used to understand the relationships between items with the predefined subscale. EFA was simply used as a convenient tool to sort a large (30x30) correlation matrix – to find the groups of items that were most similar so that the best could be selected.

Exploratory factor analysis with an oblique rotation was used (EFA) to find groups of related items within the 30 Cognitive items (see Table A.3). An oblique rotation was used because the items were known to be related. For the Cognitive items, the KMO was .987, and Bartlett's test of Sphericity was $\chi^2(435) = 3629.817$ ($p < .0005$) implying that there was a valid factor solution (see 3.5.4 Stage 1.4 for criteria). That is, there are discernible groups of items, so the approach was viable. The six-factor solution for eigenvalues greater than 1 explained 82.0% of the variance. However, the aim was to reduce the number of Cognitive items to 7 or 8 so that the final questionnaire would contain about 30 items for all subscales. Therefore, an eight-factor solution (that explained 86.4% of the variance) was chosen. These eight factors implied eight distinct groups of items to maintain breadth in the final set, one item from each of the eight factors was selected.

The EFA did not *force* the previous groupings (the 6 conceptual groups of Table A.2) – items from different groups could fall into the same factor. However, by and large, the factors supported the conceptual structure.

Table A.3. Factor Loadings of Items for the Eight-Factor Solution for the Cognitive Items.

	MSA	Communalities	Factor							
			1	2	3	4	5	6	7	8
C01	.85	.77	-.08	.85	.00	-.12	.09	.10	.06	.04
C02	.80	.84	.07	.81	-.19	.10	-.18	-.12	-.08	.02
C03	.76	.79	.00	.77	-.12	.08	.03	.09	-.20	-.01
C04	.79	.86	.19	.60	.15	.11	.14	.52	.08	.20
C05	.76	.86	.10	-.03	-.02	.05	-.23	.83	-.05	-.02
C06	.76	.86	-.18	.09	-.17	-.15	.03	.81	-.05	-.04
C07	.72	.84	.05	-.07	-.29	.10	-.72	.28	.01	.01
C08	.81	.92	-.04	.00	-.94	.00	-.06	.04	.00	.05
C09	.78	.93	.01	.01	-.92	-.06	.01	.03	-.05	.05
C10	.84	.91	.08	.15	-.90	.01	-.03	.00	.02	-.07
C11	.80	.85	.20	.25	.09	-.11	-.19	-.04	-.63	.09
C12	.80	.88	.15	-.09	-.11	.11	.22	.12	-.86	-.02
C13	.78	.85	-.09	.10	-.12	-.24	-.16	-.07	-.71	.08
C14	.86	.84	.01	.17	.07	-.40	-.23	.23	-.41	-.13
C15	.88	.82	-.01	.14	.01	-.22	-.27	.25	-.39	-.39
C16	.87	.73	.04	.29	-.19	-.16	-.17	.01	-.20	.53
C17	.86	.92	.02	-.10	-.01	-.92	.06	-.02	-.06	-.01
C18	.88	.97	.04	.01	-.05	-.96	.03	.00	.03	.04
C19	.87	.97	.09	.02	.01	-.93	.00	.01	.01	.01
C20	.93	.97	.08	-.01	-.01	-.94	-.04	.02	.03	.00
C21	.77	.83	.34	-.04	-.21	-.41	.31	.10	-.15	-.05
C22	.83	.87	.55	.04	-.20	-.27	.27	.03	-.11	-.12
C23	.79	.87	.62	.08	-.03	-.24	-.05	.02	-.08	-.33
C24	.82	.89	.80	-.11	-.10	-.03	.16	.04	-.14	.06
C25	.86	.90	.63	-.33	-.17	-.17	.09	.14	-.16	.22
C26	.85	.95	.86	-.02	-.01	-.13	.01	.02	-.05	.04
C27	.90	.93	.89	.02	.01	-.10	.06	-.02	-.04	.08
C28	.85	.89	.93	.08	-.06	-.03	-.06	-.05	.07	-.07
C29	.81	.90	.70	-.05	-.14	-.01	-.16	.02	-.06	-.42
C30	.93	.79	.72	.16	.15	-.10	-.19	.04	-.14	.16

Personal Identity Needs

As noted, there were 30 Personal Identity items, organized into four groups. For the

complete set of 435 correlations (see Table A.4), the mean correlation was $r = .71$ ($SD: .11$), with a minimum of $r = .11$ (all were positive) and a maximum of $r = .97$. The average was a bit higher than expected, and in fact, 210 of the correlations exceeded a value of $r = .71$ implying more than 50% overlap.

The correlations tended to be higher within the designated groupings. Within the first group (55 correlations), the mean correlation was $r = .77$ ($SD: .07$), with a minimum of $r = .60$, and a maximum of $r = .93$. Within the second group (36 correlations), the mean correlation was $r = .85$ ($SD: .07$), with a minimum of $r = .67$ and a maximum of $r = .97$. Within the third group (15 correlations), the mean correlation was $r = .85$ ($SD: .04$), with a minimum of $r = .78$ and a maximum of $r = .96$. Within the fourth group (6 correlations), the mean correlation was $r = .89$ ($SD: .05$), with a minimum of $r = .82$, and a maximum of $r = .96$. Simplistically, to reduce the 30 down to 8 items, one could pick two items from each group. All the correlations are high, this shows that there are large clusters of redundant items.

The same EFA approach as was used for the Personal Identity items. For the Personal Identity items, the KMO was .847, and Bartlett's test of Sphericity was $\chi^2(435) = 4075.11$ ($p < .0005$) implying that there was a valid factor solution. That is, there were discernible groups of items, so the approach was viable. The three-factor solution for eigenvalues greater than 1 explained 85.0% of the variance, implying that the items were related. The aim was to reduce the number of Personal Identity items to 7 or 8 so an eight-factor solution (that explained 94.2% of the variance) was chosen (see Table A.5). These eight factors implied eight distinct groups of items to maintain breadth in the final set, one item from each of the eight factors was selected. The EFA did not *force* the previous groupings (the 4 conceptual groups of Table A.3) but, by and large, the factors supported the conceptual structure.

Table A.5. Factor Loadings of Items for the Eight-Factor Solution for the Personal Identity Items.

	MSA	Communalities	Factor							
			1	2	3	4	5	6	7	8
P01	.73	.95	.12	-.03	.09	.06	.02	-.12	.84	-.01
P02	.89	.96	.63	.24	.09	.00	.04	.01	.23	-.01
P03	.91	.97	.63	-.02	.09	-.31	-.09	-.17	.14	.01
P04	.82	.96	.54	-.01	.02	-.15	.19	-.08	.20	-.13
P05	.88	.93	.37	.03	.36	.02	.16	-.15	.00	-.35
P06	.85	.94	.19	.07	.09	-.05	.60	-.36	-.09	.01
P07	.78	.92	-.01	.00	.71	-.27	.06	.07	.18	-.07
P08	.92	.96	.08	.05	.62	-.09	.40	-.03	.03	.12
P09	.85	.92	.09	.15	.59	-.04	.05	-.32	.01	.22
P10	.72	.96	.12	.05	.79	.01	-.04	-.14	.03	-.11
P11	.84	.89	-.10	.20	.50	-.15	-.07	-.11	.20	-.33
P12	.86	.96	.01	.04	.14	-.70	.16	-.07	.10	-.02
P13	.87	.97	.06	.13	.08	-.67	.22	-.04	.07	.04
P14	.81	.97	.20	.10	.20	-.63	-.12	-.12	.04	-.09
P15	.82	.97	.18	.11	.09	-.70	.02	-.13	-.04	-.09
P16	.86	.94	.22	.15	-.09	-.33	.28	.08	.35	-.08
P17	.87	.95	.25	.10	-.07	-.29	.29	.09	.36	-.14
P18	.82	.93	.12	.10	.07	-.45	.30	.07	.09	-.28
P19	.91	.94	.31	.14	-.07	-.27	.35	.11	.25	-.10
P20	.89	.91	-.09	-.01	.11	-.11	.66	-.10	.25	-.10
P21	.87	.93	.03	.81	.20	-.06	-.02	-.03	.03	.24
P22	.87	.89	-.05	.80	.01	-.12	.02	-.04	.17	.10
P23	.86	.94	-.12	.69	-.11	-.28	-.04	-.18	.12	-.11

	MSA	Communalities	Factor							
			1	2	3	4	5	6	7	8
P24	.87	.96	.07	.76	-.01	-.07	-.02	-.20	-.06	-.12
P25	.91	.95	.06	.76	-.06	-.06	.04	-.23	-.09	-.14
P26	.91	.92	.14	.90	.08	.12	.09	.09	-.02	-.11
P27	.74	.96	.02	-.02	.01	-.05	.06	-.91	.03	-.07
P28	.90	.97	.03	.15	.07	-.05	.06	-.74	.10	.02
P29	.88	.92	.05	.39	.17	.24	.11	-.41	.24	-.10
P30	.79	.95	.05	.25	.11	-.07	-.01	-.65	.08	.05

Social Integration Needs

As noted, there were 30 Social Integration items, organized into 4 groups. For the complete set of 435 correlations, the mean correlation was $r = .65$ ($SD: .11$), with a minimum of $r = .37$ (all were positive) and a maximum of $r = .97$. The average was a bit lower than that of the Personal Identity items, and only 118 of the correlations exceeded a value of $r = .71$ implying more than 50% overlap.

Again, the correlations tended to be higher within the designated groupings (see Table A.6). Within the first group (21 correlations), the mean correlation was $r = .64$ ($SD: .10$), with a minimum of $r = .47$, and a maximum of $r = .87$. Within the second group (36 correlations), the mean correlation was $r = .82$ ($SD: .06$), with a minimum of $r = .75$ and a maximum of $r = .97$. Within the third group (36 correlations), the mean correlation was $r = .75$ ($SD: .11$), with a minimum of $r = .54$ and a maximum of $r = .93$. Within the fourth group (10 correlations), the mean correlation was $r = .63$ ($SD: .07$), with a minimum of $r = .54$, and a maximum of $r = .74$. Note that the minimums were always higher within the groups. To reduce the 30 down to 8 items, one could pick two items from each group. All the correlations are high – though not as high as for the Personal Identification items. There are large clusters of redundant items.

The same EFA approach was used for the Social Integration items, the KMO was .883, and Bartlett's test of Sphericity was $\chi^2(435) = 3235.15$ ($p < .0005$) implying that there was a valid factor solution. That is, there were discernible groups of items. The four-factor solution for eigenvalues greater than 1 explained 85.5% of the variance, implying that the factors captured most of the available information (see Table A.7). The aim was to reduce the number of Social Integration items to 7 or 8 so an eight-factor solution (that explained 90.9% of the variance) was chosen. To maintain breadth in the final set, one item from each of the eight factors was selected. The EFA did not *force* the previous groupings (the 4 conceptual groups of Table A.5) but, by and large, the factors supported the conceptual structure.

Table A.7. Factor Loadings of Items for the Eight-Factor Solution for the Social Integration Items

	MSA	Communalities	Factor							
			1	2	3	4	5	6	7	8
S01	.88	.84	-.25	.76	.05	.00	.09	.02	.05	.27
S02	.86	.89	-.10	.05	-.16	-.41	.33	-.21	-.30	.15
S03	.80	.93	.02	.11	.14	-.11	-.01	.03	-.79	.09
S04	.91	.88	.31	.61	.08	.01	.02	-.02	-.32	-.02
S05	.84	.91	.04	.73	.05	-.05	.12	-.14	-.19	-.11
S06	.87	.94	-.01	.74	.02	-.08	.09	-.18	-.18	-.08
S07	.96	.80	.09	.71	.17	-.04	-.01	-.16	.09	.00
S08	.91	.91	.19	.09	.11	-.08	.00	-.70	.01	.10
S09	.89	.93	.37	.03	.07	-.11	.07	-.57	-.05	.11
S10	.87	.93	.34	.04	.04	-.16	.09	-.58	.00	.12
S11	.88	.90	.16	-.07	-.02	-.26	.06	-.50	-.26	.14
S12	.86	.91	.21	.01	-.03	-.15	.03	-.53	-.27	.18
S13	.93	.91	.21	.08	-.01	.17	.10	-.81	-.10	.07
S14	.90	.95	-.15	.09	.11	-.07	.05	-.83	-.03	.03
S15	.89	.97	-.12	.09	.10	-.10	.07	-.84	.02	.02
S16	.92	.96	-.14	.12	.10	-.12	.05	-.84	.07	.02
S17	.88	.92	.06	.03	.32	-.06	.70	.08	-.04	.04
S18	.92	.92	-.03	.13	.20	.05	.70	-.19	.09	.04
S19	.89	.90	.00	.01	.77	-.03	.22	.01	-.03	.05
S20	.90	.90	.03	.12	.70	-.04	.02	-.15	-.15	.03
S21	.82	.93	-.02	.04	.73	-.09	.16	-.11	-.06	.02
S22	.81	.94	-.03	.07	.74	-.02	.17	.07	-.01	.21
S23	.89	.92	.12	-.04	.52	-.20	-.13	-.44	.14	.19
S24	.85	.94	.01	.25	.16	-.52	-.03	.13	-.40	.07

	MSA	Communalities	Factor							
			1	2	3	4	5	6	7	8
S25	.88	.90	-.01	.13	.21	-.67	-.11	-.06	-.12	.11
S26	.88	.88	.22	.60	-.11	-.30	.13	.11	.12	.26
S27	.92	.85	.42	.18	.06	-.35	.25	.09	-.05	.15
S28	.89	.92	.04	-.01	.03	-.86	.10	-.13	-.01	-.06
S29	.93	.92	-.08	-.13	-.11	-.10	.22	-.47	-.37	.34
S30	.92	.92	.02	.03	.21	.07	.05	-.08	-.08	.76

Diversion Needs

As noted, there were 20 Diversion items, organized into 2 groups. For the complete set of 190 correlations, the mean correlation was $r = .61$ ($SD: .13$), with a minimum of $r = .28$ (all were positive) and a maximum of $r = .94$. The average was comparable to the Social Integration items, and only 34 of the correlations exceeded a value of $r = .71$ implying more than 50% overlap.

Again, the correlations tended to be higher within the designated groupings. Within the first group (45 correlations), the mean correlation was $r = .76$ ($SD: .08$), with a minimum of $r = .61$, and a maximum of $r = .94$. Within the second group (45 correlations), the mean correlation was $r = .59$ ($SD: .11$), with a minimum of $r = .36$ and a maximum of $r = .90$. Note that the minimums were always higher within the groups (see Table A.8). For this subscale, the goal was to reduce the 20 down to 6 items, so one could pick three items from each group. All the correlations are high – though not as high as for the Personal Identification items. There are large clusters of redundant items.

Table A.8. Correlations Between Diversion Items

	D01	D02	D03	D04	D05	D06	D07	D08	D09	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20
D01																				
D02	.93																			
D03	.84	.83																		
D04	.84	.84	.92																	
D05	.79	.74	.71	.74																
D06	.63	.63	.63	.66	.76															
D07	.77	.80	.68	.66	.76	.67														
D08	.78	.80	.74	.79	.78	.75	.78													
D09	.76	.77	.73	.78	.77	.64	.81	.92												
D10	.67	.63	.65	.65	.64	.72	.64	.69	.63											
D11	.64	.61	.63	.70	.63	.52	.57	.64	.61	.53										
D12	.53	.54	.45	.51	.54	.46	.42	.47	.47	.34	.56									
D13	.59	.57	.47	.52	.57	.58	.48	.58	.50	.50	.63	.76								
D14	.54	.52	.50	.58	.46	.55	.37	.48	.48	.38	.52	.75	.73							
D15	.57	.53	.55	.49	.53	.50	.46	.48	.44	.60	.65	.53	.72	.51						
D16	.55	.53	.61	.56	.55	.48	.46	.47	.50	.57	.69	.54	.66	.49	.88					
D17	.63	.66	.64	.59	.59	.39	.70	.51	.58	.55	.60	.41	.51	.43	.57	.64				
D18	.43	.45	.47	.43	.30	.45	.29	.37	.34	.47	.31	.61	.61	.69	.54	.58	.40			
D19	.62	.60	.57	.52	.62	.50	.63	.47	.54	.47	.45	.48	.48	.57	.53	.55	.66	.53		
D20	.37	.40	.32	.32	.32	.41	.34	.41	.38	.42	.46	.56	.67	.50	.66	.53	.41	.51	.47	

The same EFA approach was used. For the Diversion items, the KMO was .849, and Bartlett's test of Sphericity was $\chi^2(435) = 1583.54$ ($p < .0005$) implying that there was a valid factor solution. That is, there were discernible groups of items. The three-factor solution for eigenvalues greater than 1 explained 75.5% of the variance. The aim was to reduce the number to 5 or 6 so a six-factor solution (that explained 86.7% of the variance) was chosen. To maintain breadth in the final set, one item from each of the six factors was selected (see Table A.9). Note that the EFA did not *force* the previous groupings (the 2 conceptual groups of Table A.8) but, by and large, the factors supported the conceptual structure.

Table A.9. Factor Loadings of Items for the Six-Factor Solution for the Diversion Items

	MSA	Communalities	Factor					
			1	2	3	4	5	6
D01	.87	.87	.33	.18	.09	.29	-.07	-.39
D02	.88	.86	.32	.19	.04	.34	-.07	-.37
D03	.91	.91	.26	.07	.23	.18	.09	-.59
D04	.89	.93	.32	.23	.17	.04	-.02	-.60
D05	.83	.81	.53	.12	.05	.27	-.22	-.13
D06	.77	.85	.90	.13	-.01	-.05	.10	.02
D07	.84	.89	.49	-.06	-.06	.59	-.23	-.03
D08	.86	.90	.74	.16	.00	.04	-.19	-.17
D09	.89	.84	.56	.14	-.03	.25	-.23	-.20
D10	.89	.86	.76	-.25	.34	.05	.23	-.06
D11	.90	.85	.06	.26	.62	-.04	-.36	-.22
D12	.82	.86	-.03	.88	.08	.05	-.07	.01
D13	.91	.86	.21	.61	.35	-.01	-.06	.17
D14	.77	.87	.03	.84	-.04	.08	.20	-.13
D15	.80	.90	.11	.06	.83	.09	.08	.10
D16	.80	.90	-.04	.05	.84	.13	.10	-.10
D17	.83	.85	-.14	-.08	.37	.75	-.07	-.12
D18	.82	.91	.09	.47	.13	.13	.64	-.09
D19	.88	.86	.02	.16	-.06	.87	.16	.06
D20	.80	.77	.24	.35	.37	.17	.00	.51

Appendix A-27 Opinio and Qualtrics survey package – stage 3

Demographic Information

The following questions collect basic background information (e.g., age, gender, education, occupation).

Feel free to skip questions that you do not wish to answer.

Note that some questions allow you to select multiple options.

Note that some questions allow you to add comments if desired.

1. What is your gender?
 - Female
 - Male
 - Other

2. Which category below includes your age?
 - 18 to 20
 - 21 to 24
 - 25 to 29
 - 30 to 39
 - 40 to 49
 - 50 to 59
 - 60 or greater

3. What is your marital status and/or living arrangements?
 - In a relationship (married, or co-habiting) with children at home
 - In a relationship (married, or co-habiting) with no children at home
 - Living alone (house or apartment)
 - Living with friends (house or apartment)
 - Living with roommates (house or apartment)
 - Other (please feel free to specify if you want to):

4. Which best represents the highest level of education you have completed?
 - No schooling completed
 - Some high school
 - High school diploma /GED
 - Some University or College
 - Undergraduate Degree (e.g., BSc, BA) or College Diploma
 - Master's Degree (e.g., MSc, MA)
 - Doctorate Degree (e.g., PhD, PsyD)
 - Professional Degree (e.g., J.D, M.D, M.J, M.F.A, LLB)
 - Both Doctorate and Professional Degrees

5. Relative to the rest of your country, what best describes your current average income?
 - Lower than average
 - Average
 - Higher than average

6. Which of the following best describes your current residential area?
 - City

Suburban
Rural

7. Which of the following best describes your current occupation (you may select multiple categories)?
- Professional (e.g., doctor, lawyer, dentist, physiotherapist)
 - Technology and Research (e.g., engineer, scientist, librarian)
 - Education (e.g., teacher, instructor, professor)
 - Administrative (e.g., management, secretarial, finance)
 - Service (e.g., retail)
 - Entertainment (e.g., performer, sports)
 - Skilled Trades
 - Unskilled Labor
 - Student
 - Homemaker/Parent
 - Job Seeker
 - Other (please feel free to specify if you want to):

TV Viewing Background Information

The following questions collect basic background information about your TV Viewing Habits. For this assessment, consider your viewing for the past month.

Note that we are only interested in TV shows and movies:

Do not include watching SPORTS in this assessment (we may do sports in the future).

For this, TV viewing does include reality TV, music videos, and documentaries.

Some questions allow you to select multiple options, some use a response scale from “never” to “always” (see later), and some allow you to add comments if desired.

8. I watch TV using: (select all that usually apply):
- a TV connected to cable provider, antenna, or satellite.
 - a TV connected to a DVD player (or similar).
 - a TV connected to internet (e.g., streaming TV).
 - a computer or tablet connected to internet.
 - a smartphone connected to internet.
 - Other (please specify if you want to):
9. I typically watch: (select all that usually apply): Sports is not considered in this study):
- Action
 - Anime
 - Children and Family
 - Classics
 - Comedy or Sitcom or Standup Comedy
 - Documentaries / News
 - Drama or Romantic or Musicals
 - Faith and Spirituality
 - Horror
 - Independent or International
 - Music
 - Science Fiction or Fantasy

Sports Movies or Fitness Shows (do not include watching sports)
 Thrillers
 Reality TV
 Other (please specify if you want to):

10. I watch TV shows on ...				
	Everyday	at least once a week	at least once a month	rarely or less than once a month
cable TV from TV stations (e.g., BBC, CBC, ABC).				
the internet (streaming media) from TV stations (e.g., BBC, CBC, ABC, HBO).				
the internet using an "on-demand" streaming-media services (e.g., Netflix, Amazon).				
pre-recorded media (e.g., DVD rentals or purchases).				

11. The number of TV shows or movies that I ...					
	1 or less shows/wk	2 - 5 shows/wk	6 - 10 shows/wk	11 - 20 shows/wk	more than 20 shows/wk
watch in a given week is					
watch regularly or "follow" in a given week is					
"make time for" in a given week is					
follow on social medial or fan sites is					

12. The number of hours of TV shows or movies I watch ...					
	less than 1 hr	about 1 hr.	about 2 hrs.	about 3 to 4 hrs.	more than 5 hrs.
per day during the week (Monday to Friday) is					
on Saturdays is					
on Sundays is					

For the following questions, please use the following response scale (where applicable):

Never = about 0% of the time

Rarely = about 25% of the time

Frequently = about 50% of the time

Usually = about 75% of the time

Always = about 100% of the time

13. I watch TV shows or movies ...					
	never	rarely	frequently	usually	always
at the time of broadcast (on TV stations).					
at the time of my choosing (using recordings, DVDs, or on-demand streaming media).					

14. If watching on-demand streaming media (e.g., Netflix, Amazon) or DVDs ...					
	never	rarely	frequently	usually	always
I watch an entire season or a series of movies in one sitting.					
I watch a several episodes (3 or more) or movies (2 or more) in one sitting.					
I only watch 1 or 2 episodes or a movie per day at most.					

15. If using standard broadcast networks (e.g., BBC, CBC, ABC) ...					
	never	rarely	frequently	usually	always
I plan my day around the shows or episodes I want to watch.					
I get upset if I miss my show or episode.					

16. I watch TV with ...	never	rarely	frequently	usually	always
no one.					
my children.					
my partner.					
my family.					
friends.					
roommates.					
colleagues.					
others.					

Second Screen Use Background Information

A second screen is any device that you may use to access the internet (in a general sense) while watching TV on a primary device.

The second screen *may* be a computer, a tablet, or a smartphone

The second screen *may* even be the same computer if you switch between screens while watching TV (e.g., watch TV on the computer and then switch to a new tab to look up material on the internet).

The internet may be used to look up information (about the show) or to socialize (about the show).

Again, some questions allow multiple selections some use a response scale, and some questions allow you to add comments.

17. My second screen is (select all the usually apply) ...

the same computer or tablet as the TV show (I flip back and forth or split the screen)

a different computer from the TV show (including laptops and/or tablets)

a smartphone

some other device (please specify if you want to):

18. When using a second screen while watching TV, I (select all the usually apply) ...

pause the TV show and focus on the second screen (only possible with DVDs or on-demand streaming media).

use the second screen during commercials or other breaks in the show.

use the second screen when the TV show is not demanding or interesting.

watch both the TV show and the second screen.

listen to the TV show while using the second screen.

ignore the TV (i.e., miss the show) while I use the second screen.

do something else (please specify if you want to):

Please use the following response scale for the following questions:

Never = about 0% of the time

Rarely = about 25% of the time

Frequently = about 50% of the time

Usually = about 75% of the time

Always = about 100% of the time

19. While watching TV, I use ...	never	rarely	frequently	usually	always
social networking sites (e.g., Facebook) on a second screen.					
blogs (e.g., Tumblr) on a second screen.					
microblogs (e.g., Twitter) on a second screen.					
email conversations on a second screen.					
online forums on a second screen.					
chat (e.g., Instant Messaging) on a second screen.					
information channels (e.g., wikis) on a second screen.					
video conferencing (e.g., Skype) on a second screen.					

20. While watching TV, I use a second screen...	never	rarely	frequently	usually	always
when I am alone.					
because the people beside me are using it.					
when the people beside me are annoying or bothersome.					
when the people beside me ignore me.					
when family or friends (or roommates) do not want to watch TV with me.					
even if I am in a room with others people who are watching the same show.					
when I want to talk to (socialize with) particular people.					
when I need a change from the current company.					
when I do not feel like inviting people to my home.					
when I do not feel like going to another person's home.					

21. While watching TV, I use a second screen..	never	rarely	frequently	usually	always
to work.					
to shop online.					
to talk about the TV show that I am watching					
to socialize in a way that is NOT related to the show.					
to simply surf the internet.					
to do other tasks that are NOT related to the show.					

22. While watching TV, I use a second screen ...	never	rarely	frequently	usually	always
when the show moves slowly.					
when the show moves quickly.					
when the show is boring.					
when the show is exciting.					
to fill in the free time during the show (e.g., during commercials).					

Second Screen Use While Watching TV

This final section is about your use of a second screen (any type) while watching TV. TV watching is defined as before: It is any TV viewing (shows or movies, reality TV, music videos, and documentaries).

Please do not include the watching of sports in this assessment.

Please answer using the provided scale:

SA = "Strongly Agree" -- this is what I do; this is what I think

A = "Agree"

N = "Neutral"-- this is what I do sometimes; this is what I think sometimes

D = "Disagree"

SD = "Strongly Disagree" -- this is NOT what I do; this is NOT what I think

23. While watching TV, I use a second screen; ...	SA	A	N	D	SD
to look up information (e.g., Wikipedia) about the show.					
to look up information about the production (e.g., staff, set, effects).					
to see if the show is honest in its presentation of the facts or opinions.					
to help others understand the show.					
to learn the opinions of others about the show.					
to read reviews (e.g., IMDb, Rotten Tomatoes) of the show.					
to learn the opinions of production staff (e.g., actors, directors, producers)					
to give my opinion of the show.					

24. While watching TV, I use a second screen to talk about the show...	SA	A	N	D	SD
as a way to keep in touch with family and friends.					
because my family or friends expect me to.					
to find new friends with similar interests.					
to start discussions.					
as a way to learn about life and society.					
with strangers because we focus on the show					
so I can be a part of a group.					
because it is like having people in the room with me.					

25. While watching TV, I use a second screen to talk about the show...	SA	A	N	D	SD
to discuss the motivations of the characters.					
to discuss the characters who are like me.					
to discuss the characters who are different from me.					
as a way to share problems.					
because I like to try to figure out weird characters.					
because others value my opinion.					
because there are people I want to meet.					
because the production staff (e.g., actors, directors) may join the discussion.					

26. While watching TV, I use a second screen to talk about the show ...						
	SA	A	N	D	SD	
to add to the fun.						
more often when the show is exciting or interesting.						
to help me relax.						
out of habit.						
when I have to say something about the show.						
because I am alone.						

I talk to people online						
	SA	A	N	D	SD	
Because its fun						
Because its exciting						
To have a good time						
Because its thrilling						
Because its stimulating						
Because its entertaining						
Because I enjoy it						
Because it peps me up						
To help others						
To let others know I care about their feelings						
To thank them						
To show others encouragement						
Because I am concerned about them						
Because I need someone to talk to or be with						
Because I just need to talk about my problems sometimes						
Because it makes me feel less lonely						
Because its reassuring to know someone is here						
To put off doing something I should be doing						
To get away from what I am doing						
Because I have nothing better to do						
To get away from pressures and responsibilities						

Because it relaxes me					
Because it allows me to unwind					
Because it's a pleasant rest					
Because it me feel less tense					
Because I want someone to do something for me					
To tell others what to do					
To get something I don't have					

27. I use social media....					
	SA	A	N	D	SD
To thank others					
To let others know I care about their feelings					
To show others encouragement					
To help others					
Because I am concerned about others					
To kill time					
To have a good time					
Because its entertaining					
Because I enjoy it					
Because its fun					
Because it's a pleasant rest					
Because it relaxes me					
Because it makes me feel less tense					
To get away from pressures and responsibilities					
To not look old fashioned					
To look stylish					
To look fashionable					
To feel involved with what's going on with other people					
Because I need someone to talk to or be with					
Because I just need to talk about my problems sometime					
To find potential romantic partners					
To be less inhibited chatting with strangers					

To meet people (new acquaintances)					
To get away from what I am doing					
To put off something I should be doing					
To forget about my problems					

28. Please answer using the provided scale:
SA = "Strongly Agree" -- this is what I do; this is what I think
A = "Agree"
N = "Neutral"-- this is what I do sometimes; this is what I think sometimes
D = "Disagree"
SD = "Strongly Disagree" -- this is NOT what I do; this is NOT what I think

	SA	A	N	D	SD
I like movies that challenge my way of seeing the world.					
I like movies that challenge my way of seeing the world.					
I like movies that make me more reflective.					
I like movies that focus on meaningful human conditions.					
My favorite kinds of movies are ones that make me think.					
I am very moved by movies that are about people’s search for greater understanding in life.					
I like movies that have profound meanings or messages to convey.					
It’s important to me that I have fun when watching a movie.					
Movies that make me laugh are among my favorites.					
I find that even simple movies can be enjoyable as long as they are fun.					
I like movies that may be considered “silly” or “shallow” if they can make me laugh and have a good time.					
For me, the best movies are ones that are entertaining.					
My favorite kinds of movies are happy and positive.					

29. I watch TV...	SA	A	N	D	SD
Because it relaxes me					
Because it allows me to unwind					
Because it's a pleasant rest					
So I won't have to be alone					
When there's no one else to talk to or be with					
Because it makes me feel less lonely					
Just because it's there					
Because I just like to watch					
Because it's a habit, just something I do					
When I have nothing better to do					
Because it passes the time away, particularly when I'm bored					
Because it gives me something to do to occupy my time					
Because it entertains me					
Because it's enjoyable					
Because it amuses me					
Because it's something to do when friends come over					
So I can talk with other people about what's on					
So I can be with other members of the family or friends who are watching					
Because it helps me learn things about myself and others					
So I can learn how to do things which I haven't done before					
So I could learn about what could happen to me					
Because it's thrilling					
Because it's exciting					
Because it peps me up					
So I can forget about school or other things					
So I can get away from the rest of the family or others					
So I can get away from what I'm doing					

30. Please answer using the provided scale:

SA = "Strongly Agree" – this is what I do; this is what I think

A = "Agree"

N = "Neutral"— this is what I do sometimes; this is what I think sometimes

D = "Disagree"

SD = "Strongly Disagree" – this is NOT what I do; this is NOT what I think

	SA	A	N	D	SD
I lose myself browsing the internet					
The time I spend using the internet just slip away					
I am absorbed during an internet experience					
Generally, I felt frustrated while visiting the internet					
Generally, I find the internet confusing to use.					
Generally, using the internet is taxing.					
Generally, browsing the internet is attractive.					
Generally, browsing the internet is aesthetically appealing.					
Browsing the internet appealed to my senses.					
Browsing the internet is worthwhile.					
My experience browsing the internet is rewarding.					
I felt interested in this experience.					

31. I use the internet because...

	SA	A	N	D	SD
It helps me share views with people globally					
It helps get answers to queries					
I Do not want to waste time dealing with people					
I can chat with anyone globally					
It introduces me to peer group					
It provides access to job opportunities					
It prepares me for globally economy/workplace					
It can search for a good job					
It helps me relax					
It provides me leisure					
I prefer spending time indoors					
It relieves stress thru entertainment					

It provides wider range of exposure					
It broadens my outlook					
It provides greater integration with world					
It gives me ideas					
It's the best way to know the world					
It's easy to download information from					
It is user-friendly					
It helps work faster					
It inspires me to excel					
It gives freedom to express opinions					
It charges me to do something new					
It is fillip to creativity					
It gives me feeling of being in control of things					
It gives me edge over others					

Appendix B Analysis of Questionnaire Use for the Validity Analysis

This appendix provides a more detailed examination of the questionnaires used for the validity analysis. It is divided into two sections: Analysis of the properties of each questionnaire, and analysis of the relationships between the questionnaires and the SSE-MS.

Properties of Each Questionnaire

Even though these questionnaires were selected because they were reliable, valid and relevant, reliabilities were checked because it confirms that each questionnaire works in the same manner within the current sample as it did in the original (published) sample(s). Furthermore, such checks are necessary because the response scale has been altered from the original: In this research, a common 5-point scale was applied items of all questionnaires. For the Interpersonal Communications Motives (Rubin, Perse & Barbato 1988), the Motivations for Watching TV (Rubin, 1983), the Use of Social Media (Leung, 2001), the User Engagement Scale-Short Form (O'Brien, Cairns & Hall, 2017), and the Motivations for Using the Internet (Roy, 2008)) that alteration was trivial: All originally used a five-point response scale, but the values assigned to the levels changed. For the Hedonic and Eudaimonic Scale (HandE: Oliver & Rany, 2011) the scale changed from seven to five points.

In this section, for each questionnaire Cronbach's alpha per subscale, summary statistics for each subscale, and the mean and *SD* for each item are provided. Note that the items that comprise each subscale are also presented because the label assigned to a subscale does not always reveal its content. This is an important point when considering validity.

Interpersonal Communications Motives

The Interpersonal Communications Motives (Rubin Perse Barbato 1988) consists of 28 items divided unequally across six subscales: Pleasure (Ple), Affection (Aff), Inclusion (Inc), Escape (Esc), Relaxation (Rel), and Control (Con). The number of items per factor varies from eight to three, which can have an impact on statistics like Cronbach's alpha.

Table B.1 presents the descriptive statistics per item, organized by subscale. The means are in the middle of the scale, tending to the "Agree" end of the spectrum, and the *SD* are reasonable. The minimum was universally 1 and the maximum was universally 5, so they are not presented. Hence, the change in response scale is acceptable, as participants were using the full range of the new responses.

Table B.1 Descriptive Statistics for the Items of the ICM.

		I talk to people online ...	Mean	SD
Pleasure	1	Because it's fun	2.34	1.19
	2	Because it's exciting	2.65	1.21
	3	To have a good time	2.54	1.25
	4	Because it's thrilling	3.07	1.26
	5	Because it's stimulating	2.83	1.31
	6	Because it's entertaining	2.37	1.21
	7	Because I enjoy it	2.28	1.19
	8	Because it peps me up	2.93	1.22
Affection	1	To help others	2.55	1.13
	2	To let others know I care about their feelings	2.62	1.22
	3	To thank them	2.62	1.17
	4	To show others encouragement	2.56	1.18
	5	Because I am concerned about them	2.66	1.21
Inclusion	1	Because I need someone to talk to or be with	2.84	1.31
	2	Because I just need to talk about my problems sometimes	2.88	1.30
	3	Because it makes me feel less lonely	2.90	1.31
	4	Because it's reassuring to know someone is here	2.87	1.32
Escape	1	To put off doing something I should be doing	2.46	1.31
	2	To get away from what I am doing	2.54	1.31
	3	Because I have nothing better to do	2.82	1.34
	4	To get away from pressures and responsibilities	2.72	1.32
Relaxation	1	Because it relaxes me	2.53	1.25
	2	Because it allows me to unwind	2.46	1.22
	3	Because it's a pleasant rest	2.55	1.21
	4	Because it makes me feel less tense	2.59	1.22
Control	1	Because I want someone to do something for me	3.14	1.25
	2	To tell others what to do	3.52	1.15
	3	To get something I don't have	3.53	1.19

Each dimension within each sample, was subjected to a reliabilities analysis. The summary results are presented in Table B.2. This includes the Cronbach's alpha (α), the adjusted alpha (adj- α), the average correlation, the minimum correlation, and the maximum correlation within each subscale.

Table B.2. Reliability Statistics for the Subscales of the ICM.

	Cronbach's		Correlations			
	α	adj- α	mean	min	max	sd
Pleasure	.955	.955	.728	.629	.860	.067
Affection	.928	.928	.720	.599	.823	.067
Inclusion	.920	.920	.742	.674	.866	.065
Escape	.895	.896	.682	.604	.808	.077
Relaxation	.937	.937	.787	.727	.854	.046
Control	.846	.847	.648	.616	.689	.033

All the scales have reasonable values for Cronbach's alpha, and the adjusted alpha. The average correlation is likely a bit high implying that the questionnaire could be refined. Alternatively, it implies that the sample is relatively homogeneous. Nonetheless, for current purposes, the questionnaire as a whole is fine.

Scales were created as the *mean* of the corresponding items (not the total), because the mean allows scales based on different numbers of items to be easily compared. Keep in mind that in this study, all items (all questionnaires) used the same 5-point scale. Table B.3 provides the descriptives for these subscales.

Table B.3. Descriptives for the Subscales of the ICM.

	Pleasure	Affection	Inclusion	Escape	Relaxation	Control
Mean	2.63	2.60	2.87	2.64	2.54	3.40
Median	2.50	2.40	2.75	2.50	2.25	3.33
Mode	2.00	2.00	3.00	2.00	2.00	3.00
Std. Dev	1.07	1.04	1.18	1.15	1.12	1.05
Skew	0.60	0.63	0.33	0.59	0.68	-0.08
Kurtosis	-0.13	-0.09	-0.83	-0.40	-0.15	-0.69
Min	1	1	1	1	1	1
Max	5	5	5	5	5	5

The means are near the middle but towards the “Agree” end of the spectrum. Control has the highest mean (the smallest amount of endorsement). The *SDs* are all about 1.0. Given the mean the degree of skew is expected and reasonable. All scales use the full range. Ideally, all subscales should have unimodal distributions (for inclusion in subsequent analyses), and —given the statistics— this appears to be the case.

Table B.4 provides the correlations between the dimensions.

Table B.4 Correlations for the Subscales of the ICM.

	Pleasure	Affection	Inclusion	Escape	Relaxation	Control
Pleasure	1.000	.667	.598	.535	.649	.504
Affection		1.000	.615	.502	.531	.476
Inclusion			1.000	.623	.624	.565
Escape				1.000	.610	.435
Relaxation					1.000	.485
Control						1.000

The dimensions are moderately correlated as is typical for questionnaires based on the U & G perspective.

Use of Social Media

The Use of Social Media questionnaire consists of 26 items divided unequally across seven subscales: Affection (Aff), Entertainment (Ent), Relaxation (Rel), Fashion (Fas), Inclusion (inc), Sociability (Soc), and Escape (Esc). The number of items per subscale varies from five to three, which can have an impact on statistics like Cronbach’s alpha (alpha depends on the average correlation and the number of items).

Table B.5 presents the descriptive statistics per item, organized by subscale. The minimum was universally 1 and the maximum was universally five, so they are not presented. The change in response scale did not seem to affect the scale.

Table B.5. Descriptive Statistics for the Items of the USM.

		I use social media ...	Mean	SD
Affection	1	To thank others	2.78	1.23
	2	To let others know I care about their feelings	2.64	1.26
	3	To show others encouragement	2.35	1.14
	4	To help others	2.53	1.20
	5	Because I am concerned about others	2.57	1.22
Entertain	1	To kill time	1.69	0.90
	2	To have a good time	2.00	1.02
	3	Because it’s entertaining	1.66	0.78
	4	Because I enjoy it	1.70	0.85
	5	Because it’s fun	1.78	0.88
Relaxation	1	Because it’s a pleasant rest	2.08	1.07
	2	Because it relaxes me	2.22	1.10
	3	Because it makes me feel less tense	2.35	1.14
	4	To get away from pressures and responsibilities	2.13	1.14
Fashion	1	To not look old fashioned	3.67	1.26
	2	To look stylish	3.32	1.34
	3	To look fashionable	3.28	1.37

Inclusion	1	To feel involved with what's going on with other people	2.34	1.15
	2	Because I need someone to talk to or be with	3.04	1.30
	3	Because I just need to talk about my problems sometime	3.22	1.29
Sociability	1	To find potential romantic partners	3.68	1.24
	2	To be less inhibited chatting with strangers	3.37	1.18
	3	To meet people (new acquaintances)	3.16	1.27
Escape	1	To get away from what I am doing	2.22	1.10
	2	To put off something I should be doing	2.24	1.19
	3	To forget about my problems	2.54	1.21

Most means were near the middle of the scale, tending to the higher (Disagree) side. The *SD* were all around 1. The minimum was universally 1 and the maximum was universally 5, so they are not presented. Generally, the change in response scale did not seem to affect the scale, since participants were using the full range of the new responses.

Each dimension was subjected to a reliabilities analysis. The summary results are presented in Table B.6. This include the Cronbach's alpha (α), the adjusted alpha (adj- α), the average correlation, the minimum correlation, the maximum correlation and the *SD* of the correlations for the items within the subscale.

Table B.6. Reliability Statistics for the Subscales of the USM.

	Cronbach's		Correlations			
	α	adj-α	mean	min	max	sd
Affection	.934	.935	.741	.680	.800	.035
Entertain	.888	.894	.628	.393	.878	.179
Relaxation	.874	.875	.635	.506	.744	.090
Fashion	.899	.898	.745	.632	.953	.161
Inclusion	.733	.726	.469	.300	.721	.199
Sociability	.800	.800	.572	.468	.659	.087
Escape	.864	.866	.683	.607	.785	.082

All the scales have reasonable values for Cronbach's alpha and the adjusted alpha. The average correlation is likely a bit high. Again, this may be a consequence of the homogeneity of a student (undergraduate) sample.

Table B.7 provides the descriptives for these subscales.

Table B.7. Descriptives for the Subscales of the USM.

	Affection	Entertainment	Relaxation	Fashion	Inclusion	Sociability	Escape
Mean	2.58	1.77	2.20	3.42	2.87	3.41	2.33
Median	2.40	1.70	2.00	3.33	3.00	3.33	2.00
Mode	2.00	1.00	1.00	5.00	2.00	5.00	2.00
Std. Dev	1.08	0.74	0.95	1.21	1.01	1.04	1.04
Skew	0.54	1.18	0.61	-0.19	0.13	-0.09	0.75
Kurtosis	-0.29	1.78	-0.05	-1.01	-0.48	-0.81	0.07
Min	1	1	1	1	1	1	1
Max	5	5	5	5	5	5	5

The means were near the middle: some were towards the “Agree” while others were toward the “Disagree” end of the spectrum. Note that Entertainment had the lowest mean (most endorsement) while Sociability and Fashion had the highest means (least endorsement). The *SDs* were all about 1.0. The mode is sometimes five (for Sociability and Fashion), which is less desirable and implies a non-unimodal distribution. Given the means, the degree of skew is expected and reasonable. All subscales used the full range.

Table B.8 provides the correlations between the dimensions. The dimensions were moderately correlated as is common for questionnaires based on the U & G framework, but the values are somewhat lower than for other questionnaires in the current research.

Table B.8. Correlations for the Subscales of the USM.

	Affection	Entertainment	Relaxation	Fashion	Inclusion	Sociability	Escape
Affection	1.000	.371	.354	.190	.417	.375	.217
Entertain		1.000	.662	.174	.384	.162	.466
Relaxation			1.000	.276	.466	.217	.499
Fashion				1.000	.460	.413	.241
Inclusion					1.000	.502	.503
Sociability						1.000	.235
Escape							1.000

In general, there is overlap, but it somewhat lower than in the prior questionnaires.

Motives for Watching TV

The Motivations for Watching TV (Rubin, 1983) was created as a nine-dimension questionnaire, with three items per dimension (27 items). However, during development it was reduced to just 18 items in five subscales: Habit/Pass time, Information, Entertainment, Companionship and Escape. These have some overlap with the previous questionnaire but

applied to watching TV. The number of items per factor varies from three to five.

Table B.9 presents the descriptive statistics per item, organized by subscale. The minimum was universally 1 and the maximum was universally 5, so they are not presented. The change in response scale did not seem to affect the scale. The item numbers are taken from the original publication (Rubin, 1983). The nine extra items that were not included in the final questionnaire were included in this analysis because they seemed to be related. For example, Items 1, 2 and 3 deal with relaxation (see the ICU and USM above), Items 22, 23, and 24 are in regards to arousal (a part of Diversion), and Items 16 and 18 are respecting social integration.

Table B.9. Descriptive Statistics for the Items of the MWTV.

		Item	Mean	SD
Habit/Pass Time	10	When I have nothing better to do	2.04	1.08
	7	Just because it's there	2.28	1.14
	11	Because it passes the time away, particularly when I'm bored	1.89	1.03
	12	Because it gives me something to do to occupy my time	1.89	0.99
	9	Because it's a habit, just something I do	2.12	1.10
Information	21	So I could learn about what could happen to me	2.93	1.29
	20	So I can learn how to do things which I haven't done before	2.76	1.24
	19	Because it helps me learn things about myself and others	2.78	1.25
	17	So I can talk with other people about what's on	2.66	1.19
Entertainment	14	Because it's enjoyable	1.72	0.84
	13	Because it entertains me	1.70	0.83
	15	Because it amuses me	1.77	0.87
Companionship	4	So I won't have to be alone	3.02	1.35
	6	Because it makes me feel less lonely	3.01	1.36
	5	When there's no one else to talk to or be with	2.72	1.29
Escape	27	So I can get away from what I'm doing	2.17	1.13
	26	So I can get away from the rest of the family or others	2.69	1.35
	25	So I can forget about school or other things	2.05	1.14
extra	1	Because it relaxes me	1.78	0.87
	2	Because it allows me to unwind	1.79	0.90
	3	Because it's a pleasant rest	1.77	0.89
	8	Because I just like to watch	1.86	0.94
	16	Because it's something to do when friends come over	2.35	1.15
	18	So I can be with other members of the family or friends who are watching	2.49	1.18
	22	Because it's thrilling	2.28	1.05
	23	Because it's exciting	2.12	0.97
	24	Because it peps me up	2.50	1.16

The means in Table B.9 tended to be on the lower side of the midpoint. The *SD* are reasonable.

Each dimension was subjected to a reliabilities analysis (the extra items were not analyzed for reliability to be able to compare reliabilities analysis). The summary results are presented in Table B.10.

Table B.10. Reliability Statistics for the Subscales of the MWTV.

	Cronbach's		Correlations			
	α	adj- α	mean	min	max	sd
Habit/Pass time	.872	.876	.585	.412	.842	.145
Information	.873	.872	.629	.440	.828	.180
Entertainment	.929	.929	.814	.756	.870	.051
Companionship	.894	.894	.738	.714	.774	.028
Escape	.846	.854	.661	.592	.792	.101

All the scales have reasonable values for Cronbach's alpha. The adjusted alpha is also fine. The average correlations are high, but the number of items per subscale is low (most have three items). Table B.11 provides the descriptives for these subscales.

Table B.11 Descriptives for the Subscales of the MWTV.

	Habit	Information	Entertainment	Companionship	Escape
Mean	2.04	2.78	1.73	2.92	2.30
Median	2.00	2.75	1.67	3.00	2.00
Mode	2.00	2.00	1.00	2.00	2.00
Std. Dev	0.87	1.06	0.79	1.21	1.06
Skew	1.13	0.27	1.46	0.12	0.68
Kurtosis	1.55	-0.54	3.06	-0.94	-0.17
Min	1.00	1.00	1.00	1.00	1.00
Max	5.00	5.00	5.00	5.00	5.00

The means are near the middle, but gravitating to the "Agree" end of the spectrum.

Table B.12 provides the correlations between the dimensions. The dimensions are moderately correlated as in the SSE-MS, the USM, and the ICM.

Table B.12. The Correlation Between the Dimensions of the MWTV

	Habit	Information	Entertainment	Companionship	Escape
Habit/Pass time	1.000	.315	.609	.393	.548
Information		1.000	.312	.442	.403
Entertainment			1.000	.230	.520
Companionship				1.000	.372
Escape					1.000

In general, there is overlap, but it somewhat lower than in the prior questionnaires.

User Engagement Scale

The User Engagement Scale, Short Form (O’Brien, Cairns, & Hall, 2017) consists of 12 items divided equally across four subscales: Focused Attention (FA), Personal Utility (PU), Aesthetic Experience (AE), and Reward Factor (RW). Participants respond to each item in isolation (there is no stem). The PU is “reverse scored”, in the sense that the individual items are regarding the lack of utility.

Table A.13 presents the descriptive statistics per item, organized by subscale. The minimum was universally 1 and the maximum was universally 5, so they are not presented. The change in response scale did not seem to affect the scale.

Table A.13. Descriptive Statistics for the Items of the UES-SF.

			Mean	SD
Focused attention (FA)	1	I lose myself browsing the internet.	1.99	1.00
	2	The time I spend using the internet just slip away.	1.75	0.85
	3	I am absorbed during an internet experience.	2.03	1.02
Personal Utility (PU)	1	Generally, I felt frustrated while visiting the internet.	3.50	1.16
	2	Generally, I find the internet confusing to use.	4.24	1.03
	3	Generally, using the internet is taxing.	3.93	1.10
Aesthetic experience (AE)	1	Generally, browsing the internet is attractive.	2.55	1.00
	2	Generally, browsing the internet is aesthetically appealing.	2.65	1.03
	3	Browsing the internet appealed to my senses.	2.39	0.95
Reward Factor (RW)	1	Browsing the internet is worthwhile.	2.40	0.97
	2	My experience browsing the internet is rewarding.	2.46	1.02
	3	I felt interested in this experience.	2.22	0.88

The means for Personal Utility are high, but the means for the rest are low, which shows that interacting on the internet is —generally— a positive experience. There were four dimensions (subscales). None of these would be strongly related to the SSE-MS.

Each dimension was subjected to a reliability analysis. The summary results are

presented in Table B.14.

Table B.14. Reliability Statistics for the Subscales of the UES-SF.

	Cronbach's		Correlations			
	α	adj- α	mean	min	max	sd
Focused Attention	.816	.821	.605	.545	.653	.049
Personal Utility	.787	.791	.557	.481	.699	.110
Aesthetic Experience	.828	.827	.615	.532	.675	.066
Reward Factor	.838	.837	.631	.544	.731	.084

All the scales have reasonable values for Cronbach's alpha. The adjusted alpha is also fine. The average correlation is likely a bit high; however, this is more reasonable when the number of items is low. For the current purpose, the questionnaire is fine. See Table B.14 for the descriptives for these subscales.

Table B.14. Descriptives for the Subscales of the UES-SF.

	Focused Attention	Personal Utility	Aesthetic Experience	Reward Factor
Mean	1.92	3.89	2.53	2.36
Median	2.00	4.00	2.67	2.33
Mode	1.00	4.00	2.00	2.00
Std Dev	0.82	0.92	0.86	0.83
Skew	0.87	-0.81	0.42	0.41
Kurtosis	0.57	0.20	0.31	0.26
Min	1	1	1	1
Max	5	5	5	5

The means are near the middle, some are towards the "Agree" end, with the exception of Personal Utility, as noted above. The mode is sometimes 1 (for focused attention), which is less desirable.

The correlations between the dimensions are shown in Table B.15. The dimensions are moderately correlated, but the correlations are much lower than those of the previous U & G questionnaires.

Table B.15. Correlations for the Subscales of the UES-SF.

	Focused Attention	Personal Utility	Aesthetic Experience	Reward Factor
Focused Attention	1.000	.165	.384	.309
Personal Utility		1.000	.118	.031
Aesthetic Experience			1.000	.636
Reward Factor				1.000

In general, there is overlap, but it somewhat lower than in the prior questionnaires.

Motivations for Using the Internet

The Motivations for Using the Internet (Roy, 2008) consists of 23 items divided unequally across six subscales: Self-Development (*SD*), Wide Exposure (*WE*), User Friendly (*UF*), Relaxation (*RE*), Career Opportunities (*CO*), and Global Exchange (*GE*). Some elements have overlap with the UES-SF (e.g., User Friendly) while other should overlap with the U & G framework (e.g., Self-Development). During development, there were 26 items, but only 23 made into the final form.

The item list is provided in Table B.16 which uses the item numbers as specified in the original citation. The minimum was universally 1 and the maximum was universally 5, so they are not presented. The change in response scale did not seem to affect the scale. The number of items per subscale ranged from three to six.

Table B.16. Descriptive Statistics for the Items of the MUInternet.

		I use the internet because	Mean	SD
Self-Development (SD)	21	It inspires me to excel	2.23	1.00
	22	It gives freedom to express opinions	2.06	1.02
	23	It charges me to do something new	2.29	1.03
	24	It is fillip to creativity	2.25	1.00
	25	It gives me feeling of being in control of things	2.60	1.17
	26	It gives me edge over others	2.60	1.17
Wide Exposure (WE)	13	It provides wider range of exposure	1.92	0.86
	14	It broadens my outlook	1.95	0.90
	15	It provides greater integration with world	2.05	0.96
	16	It gives me ideas	1.67	0.76
User Friendly (UF)	17	It's the best way to know the world	2.54	1.22
	18	It's easy to download information from	1.77	0.81
	19	It is user-friendly	1.74	0.84
	20	It helps work faster	1.76	0.89
Relaxation (RE)	9	It helps me relax	1.99	0.94
	10	It provides me leisure	1.79	0.83
	12	It relieves stress thru entertainment	1.92	0.88
Career Opportunity (CO)	6	It provides access to job opportunities	1.88	0.90
	7	It prepares me for globally economy/workplace	2.28	1.07
	8	It can search for a good job	1.79	0.86
Global Exchange (GE)	1	It helps me share views with people globally	2.62	1.27
	4	I can chat with anyone globally	2.57	1.31
	5	It introduces me to peer group	2.99	1.25

Each dimension was subjected to a reliabilities analysis. The summary results are presented in Table B.17. This include the Cronbach's alpha (α), the adjusted alpha (adj- α), the average correlation, the minimum correlation, the maximum correlation and the variance of the correlation for the items within the subscale.

Table B.17. Reliability Statistics for the Subscales of the USM for MUInternet.

	Cronbach's		Correlations			
	α	adj- α	mean	min	max	sd
Self-Development	.864	.867	.522	.346	.757	.115
Wide Exposure	.838	.840	.567	.487	.692	.073
User Friendly	.782	.811	.518	.335	.695	.150
Relaxation	.831	.833	.625	.538	.704	.074
Career Opportunity	.825	.833	.624	.535	.709	.078
Global Exchange	.795	.795	.563	.520	.648	.066

All the scales have reasonable values for Cronbach's alpha. The adjusted alpha is also fine. Table

B.18 provides the descriptives for these subscales.

Table B.18. Descriptives for the Subscales of the USM for MUInternet.

	Self-Development	Wide Exposure	User Friendly	Relaxation	Career Opportunity	Global Exchange
Mean	2.39	1.90	1.95	1.90	1.98	2.73
Median	2.33	2.00	2.00	2.00	2.00	2.67
Mode	2.00	1.00	1.00	1.00	1.00	2.67
Std. Dev	0.83	0.72	0.74	0.76	0.82	1.07
Skew	0.23	0.55	0.72	0.92	0.92	0.42
Kurtosis	0.09	-0.01	0.89	1.39	1.36	-0.37
Min	1	1	1	1	1	1
Max	5	5	5	5	5	5

The means are near the “Agree” end of the spectrum. Some of the modes are 1, implying excessive skew.

Table B.19 provides the correlations between the dimensions. The dimensions are moderately correlated.

Table B.19. Correlations for the Subscales of the USM for MUInternet.

	Self-Development	Wide Exposure	User Friendly	Relaxation	Career Opportunity	Global Exchange
Self-Development	1.000	.622	.611	.516	.482	.531
Wide Exposure		1.000	.678	.607	.645	.452
User Friendly			1.000	.520	.472	.330
Relaxation				1.000	.471	.277
Career Opportunity					1.000	.423
Global Exchange						1.000

In general, there is a lot of overlap, but the use of the internet is now ubiquitous. That is, everyone now uses the internet for “everything” (e.g., entertainment, research & education, maintenance of social connections, work, shopping and finances). Hence, it is not surprising that the dimensions overlap (particularly all but User-Friendly). It is important to be mindful that this questionnaire was published 2008 and the use of the internet has grown since then. A newer version or a different questionnaire could not be sourced.

Hedonic and Eudaimonic Scales

The Hedonic and Eudaimonic Scales (Oliver & Rany, 2011) was an interesting find during the literature search because the scale attempts to establish why people engage in

particular behaviors. It is not structured within the U & G framework, but links can be identified. It consists of 12 items divided equally across two subscales: Hedonic (pleasure seeking) and Eudaimonic (meaning seeking). There is no stem for this questionnaire.

Table B.20 presents the descriptive statistics per item, organized by subscale. The minimum was universally 1 and the maximum was universally 5, so they are not presented. The change in response scale did not seem to affect the scale.

Table B.20. Descriptive Statistics for the Items of the HandE.

			Mean	SD
Eudaimonic	1	I like movies that challenge my way of seeing the world.	1.91	0.94
	2	I like movies that make me more reflective.	1.90	0.89
	3	I like movies that focus on meaningful human conditions.	2.05	0.99
	4	My favorite kinds of movies are ones that make me think.	2.00	0.99
	5	I am very moved by movies that are about people's search for greater understanding in life.	2.12	1.01
	6	I like movies that have profound meanings or messages to convey.	2.02	0.96
Hedonic	1	It's important to me that I have fun when watching a movie.	1.69	0.82
	2	Movies that make me laugh are among my favorites.	1.60	0.84
	3	I find that even simple movies can be enjoyable as long as they are fun.	1.89	0.88
	4	I like movies that may be considered silly or shallow if they can make me laugh and have a good time.	2.28	1.17
	5	For me, the best movies are ones that are entertaining.	1.78	0.89
	6	My favorite kinds of movies are happy and positive.	2.23	1.04

There were two dimensions (subscales). The hedonic should be related to (elements of) the Diversion subscale. The eudaimonic should be related to the other dimensions.

Each dimension within each sample, was subjected to a reliability analysis. The summary results are presented in Table B.21. This include the Cronbach's alpha (α), the adjusted alpha (adj- α), the average correlation, the minimum correlation, the maximum correlation and the variance of the correlation for the items within the subscale.

Table B.21. Reliability Statistics for the Subscales of the HandE.

	Cronbach's		Correlations			
	α	adj- α	mean	min	max	sd
Eudaimonic	.914	.914	.640	.494	.773	.075
Hedonic	.808	.818	.428	.277	.595	.079

Note that both scales have reasonable values for Cronbach’s alpha. The adjusted alpha is also fine. Table B.22 provides the descriptives for these subscales.

Table B.22. Descriptives for the Subscales of the HandE.

	Eudaimonic	Hedonic
Mean	2.00	1.91
Median	2.00	1.83
Mode	1.00	2.00
Std. Dev	0.81	0.68
Skew	0.70	1.02
Kurtosis	0.38	1.72
Min	1.00	1.00
Max	5.00	4.67

The means are near the “Agree” end of the scale. The *SDs* are a little less than one, the maximum for the hedonic subscale did not reach the theoretical scale maximum, and the mode is sometimes 1.00. This implies that no one totally disagreed with either dimension, and many people totally agreed with the dimension. The correlations between the dimensions was $r = .229$, implying little overlap.

Relationships Between the Questionnaires and the SSE-MS

The validity analysis reduces to the interpretation of the correlations between each subscale of the SSE-MS and each subscale of the other questionnaires. Responses were scaled in the same way for all questionnaires, so it is only the magnitude that matters.

The strength of the association is the important question and this is addressed with r^2 , which is the percentage of variance explained. Hence, for interpretation, squared correlations are more informative because they directly assess the degree of overlap. However, the r (unsquared) provided the direction of the relationship. For the current analysis, all scales were rescaled (inverted as necessary) so that a positive correlation would reflect the expected relationship. That is, all subscales had low number as agreement and high numbers as disagreement.

To use the squared correlation, one needs a “criterion” for importance. In this study, $r^2 = .50$ (50%; $r = .71$) would be considered a “high” degree of overlap, $r^2 = .25$ (25%; $r = .50$) would be moderate overlap, and $r^2 = .10$ (10%; $r = .32$) would be considered “some overlap” (see section 5.3). Previously it was noted that $r > .30$ ($r^2 > .09 \approx .10$) is the standard used for

identifying important factor loadings (see *Chapters 3 and 4*). Note that $r = .30$ corresponds to $p < .0000000114$ for $N = 348$ so it is “highly significant”. Hence, in the current research, when comparing each questionnaire to the new SSE-MS, squared correlations exceeding 10% ($r^2 = .10$) are highlighted. This is just a guideline to help the reader identify the important elements of the analysis.

Interpersonal Communications Motives

The Interpersonal Communications Motives (Rubin Perse Barbato 1988) consists six subscales: Pleasure (Ple), Affection (Aff), Inclusion (Inc), Escape (Esc), Relaxation (Rel), and Control (Con). One would expect the pleasure escape and relaxation dimensions to align with the Diversion dimension of the SSE-MS. Similarly, the inclusion dimension should align with the Social Integration dimension of the SSE-MS. The rest should be unrelated, though this is ambiguous (e.g., people who like to help others might align with Personal Identity, though the Personal Identity dimension does not specifically target this). None should align with the Cognitive. What is notable about this questionnaire is that the general structure is quite similar to the new SSE-MS. That is, two questionnaires based on the same U & G conceptual framework seem to have similar psychometric properties.

The correlations between the scales of the SSE-MS and the subscales of the ICM are shown in Table B.23. Note that all of the correlations would be significant at $p < .05$, and 20 of 24 would be significant at $p < .001$.

Table B.23. The Correlations of the Four Subscales of the SSE-MS with the ICM.

	Cognitive	Personal Identity	Social Integration	Diversion
Pleasure	.182	.384	.416	.415
Affection	.140	.299	.341	.363
Inclusion	.134	.371	.384	.433
Escape	.115	.248	.286	.351
Relaxation	.129	.309	.264	.386
Control	.198	.351	.339	.361

Values ranged from $r = .115$ to $r = .433$. Table B.24 provides the more informative squared-correlations. Values ranged from $r^2 = .013$ to $r^2 = .188$. Hence the overlap ranged from about 1 to 19%.

Table B.24. The Squared Correlations of the Four Subscales of the SSE-MS with the ICM.

	Cognitive	Personal Identity	Social Integration	Diversion
Pleasure	.033	.148	.173	.172
Affection	.020	.089	.116	.132
Inclusion	.018	.137	.148	.188
Escape	.013	.061	.082	.123
Relaxation	.017	.095	.070	.149
Control	.039	.124	.115	.130

The Cognitive subscale was not related to any of the ICM scales. The Social Integration subscale was related to the Pleasure, Inclusion and Control factors, but was highest with the Pleasure. The Personal Identity subscale was related to the Pleasure, Affection, Inclusion (all slightly higher than the Social Integration) and Control factors. The highest was with the Pleasure. The Diversion subscale is related to all the ICM subscales and was highest for Inclusion but lowest for Escape which is unexpected.

These values are sufficiently close to the expected pattern that they support the validity of the SSE-MS. The main oddity was the link between Pleasure and three of the dimensions of the SSE-MS. However, these dimensions were correlated in the SSE-MS.

Generally, it would be better if the correlations had a higher magnitude, but the observed overlap is support for the conceptualization of the new SSE-MS.

Use of Social Media

The Use of Social Media questionnaire consists of seven subscales: Affection (Aff), Entertainment (Ent), Relaxation (Rel), Fashion (Fas), Inclusion (inc), Sociability (Soc), and Escape (Esc). One would expect affection and inclusion to be related to the Social Integration dimension of the SSE-MS, and Entertainment, Relaxation and Escape to be related to the Diversion dimension. The sociability of the USM is about romantic partners, so it is not quite the same as the Social Integration or Personal Identity of the SSE-MS; however, there is overlap with one item (meeting people). The Fashion subscale should not be related to the SSE-MS.

The correlations between the subscales of the SSE-MS with the subscales of the USM are shown in Table B .25. Values ranged from $r = .083$ to $r = .421$.

Table B.25. The Correlations of the Four Subscales of the SSE-MS with the USM.

	Cognitive	Personal Identity	Social Integration	Diversion
Affection	.206	.298	.298	.303
Entertain	.083	.145	.133	.241
Relaxation	.114	.213	.167	.296
Fashion	.148	.313	.291	.252
Inclusion	.157	.350	.304	.325
Sociability	.195	.421	.374	.312
Escape	.092	.116	.115	.195

Table B.26 provides the squared correlations. Values ranged from $r^2 = .007$ to $r^2 = .177$. Hence the overlap ranged from about 1% to 18%.

Table B.26. The Squared-Correlations of the Four Subscales of the SSE-MS with the USM.

	Cognitive	Personal Identity	Social Integration	Diversion
Affection	.042	.089	.089	.092
Entertain	.007	.021	.018	.058
Relaxation	.013	.045	.028	.088
Fashion	.022	.098	.085	.064
Inclusion	.025	.123	.093	.106
Sociability	.038	.177	.140	.098
Escape	.009	.013	.013	.038

The Cognitive subscale was not related to any of the USM subscales. The Personal Identity dimension was related to the Inclusion and Sociability—but was highest with Sociability. This may be due to the one item in Sociability. The Social Integration dimension was also related to sociability and closely with inclusion, but not as strongly. Surprisingly, the Diversion dimension was related to inclusion, but not the rest. However, affection, sociability and even relaxation, were closely related.

Generally, the results are not as strong as one would like, but they do support the validity of the SSE-MS. In addition, the structure of the USM resembles the structure of the new SSE-MS. This resemblance is encouraging because both are based in the U & G framework.

Motives for Watching TV

The Motivations for Watching TV (Rubin, 1983) was created as a nine-dimension questionnaire, with three items per subsacle (27 items). However, during development it was

reduced to just 18 items in five subscales: Habit/Pass time, Information, Entertainment, Companionship and Escape. These have some overlap with the previous questionnaire but applied to watching TV. The number of items per factor varies from three to five.

There were six subscales. Habit/pass time, entertainment and escape should be related to the Diversion dimension of the SSE-MS. Information should be related to Personal Identity dimension—not the Cognitive dimension—because it is about personal growth. Companionship should be related to the Social Integration dimension.

For validity testing, the associations of the SSE-MS with the MWTV are shown in Table B.27. Values ranged from $r = .068$ to $r = .431$, not including the extra items.

Table B.27. The Correlations of the Four Subscales of the SSE-MS with the MWTV.

	Cognitive	Personal Identity	Social Integration	Diversion
Habit/Pass Time	.131	.101	.100	.206
Information	.259	.429	.431	.399
Entertainment	.090	.068	.123	.118
Companionship	.206	.332	.275	.352
Escape	.145	.161	.181	.193
MWTV 1	.113	.079	.122	.101
MWTV 2	.074	.063	.097	.085
MWTV 3	.118	.060	.126	.115
MWTV 8	.049	.027	.074	.081
MWTV 16	.087	.215	.161	.185
MWTV 18	.178	.253	.243	.206
MWTV 22	.076	.097	.158	.127
MWTV 23	.074	.105	.157	.124
MWTV 24	.178	.216	.270	.201

The squared correlation—excluding the extra items—are in Table B.28. Values ranged from $r^2 = .005$ to $r^2 = .186$.

Table B.28. The Squared-Correlations of the Four Subscales of the SSE-MS with the MWTV

	Cognitive	Personal Identity	Social Integration	Diversion
Habit/Pass Time	.017	.010	.010	.042
Information	.067	.184	.186	.159
Entertainment	.008	.005	.015	.014
Companionship	.043	.110	.076	.124
Escape	.021	.026	.033	.037
MWTV01	.013	.006	.015	.010
MWTV02	.005	.004	.009	.007
MWTV03	.014	.004	.016	.013
MWTV08	.002	.001	.006	.007
MWTV16	.008	.046	.026	.034
MWTV18	.032	.064	.059	.042
MWTV22	.006	.009	.025	.016
MWTV23	.005	.011	.025	.015
MWTV24	.032	.047	.073	.041

The information and companionship subscales were related to the Personal Identity dimension of the SSE-MS. The link with Companionship may be due to the links between Personal Identity and Social Integration in the SSE-MS. However, surprisingly, Companionship was not more strongly linked to Social Integration. The Diversion dimension was not related to Habit/Pass time, entertainment or escape which was surprising. Observe that none of the extra items had high correlations. This is, in some sense, consistent with the findings of their original work.

With the exception of the Diversion dimension, the results support the validity of the SSE-MS. What the results also imply is that the use of a second screen is more related to the social aspect of communication via social media (the ICM and USM), than they are about watching TV. It appears that the diversion in the SSE-MS is not the diversion *to* watch TV, but rather the diversion *from* watching TV, when the TV is insufficiently engaging.

User Engagement Scale

The User Engagement Scale, Short Form (O'Brien, Cairns, & Hall, 2017) consists of 12 items divided equally across four subscales: Focused Attention (FA), Personal Utility (PU), Aesthetic Experience (AE), and Reward Factor (RW). Participants respond to each item in isolation (there is no stem). Keep in mind that that PU is “reverse scored”, in the sense that the individual items are regarding the lack of utility.

There were four dimensions (subscales). None of these would be strongly related to the SSE-MS, but focused attention and Reward Factor might generally correlate with the level of engagement for all subscales.

For validity testing, the correlations of the SSE-MS with the UES are shown in Table B.29. Values ranged from $r = .093$ to $r = .382$.

Table B.29. The Correlations of the Four Subscales of the SSE-MS with the UES.

	Cognitive	Personal Identity	Social Integration	Diversion
Focused Attention	.101	.148	.159	.200
Personal Utility	.200	.382	.323	.274
Aesthetic experience	.111	.226	.221	.235
Reward Factor	.093	.195	.204	.205

The squared correlations are shown in Table B.30. Values ranged from $r^2 = .009$ to $r^2 = .146$.

Table B.30. The Squared-Correlations of the Four Subscales of the SSE-MS with the UES.

	Cognitive	Personal Identity	Social Integration	Diversion
Focused Attention	.010	.022	.025	.040
Personal Utility	.040	.146	.104	.075
Aesthetic experience	.012	.051	.049	.055
Reward Factor	.009	.038	.042	.042

Take notice that Social Integration and Personal Identity are both related to Personal Utility. This was not expected, but the relationships are not particularly strong either. The UES does not support or refute the structure of the SSE-MS.

Motivations for Using the Internet

The Motivations for Using the Internet (Roy, 2008) consists of 23 items divided unequally across six subscales: Self-Development (*SD*), Wide Exposure (*WE*), User Friendly (*UF*), Relaxation (*RE*), Career Opportunities (*CO*), and Global Exchange (*GE*). Some elements have overlap with the UES-SF (e.g., User Friendly) while other should overlap with the U & G framework (e.g., Self-Development). During development, there were 26 items, but only 23 made into the final form.

There were six dimensions (subscales). One would expect Wide Exposure, Self-Development and Global Exchange to relate to the Personal Identity dimension. The Wide Exposure should also relate to the Cognitive dimension. Relaxation should relate to the Diversion dimension. The

other subscales should not be related.

The SSE-MS with the MUInternet is shown in Table B.31. Values ranged from $r = .057$ to $r^2 = .412$.

Table B.31. The Correlations of the Four Subscales of the SSE-MS with the MUInternet.

	Cognitive	Personal Identity	Social Integration	Diversion
Self-Development	.185	.321	.352	.364
Wide Exposure	.130	.136	.187	.249
User Friendly	.083	.057	.113	.197
Relaxation	.152	.081	.135	.208
Career Opportunity	.105	.112	.152	.224
Global Exchange	.258	.412	.404	.407

The squared-correlations are in Table B.32. Values ranged from $r^2 = .003$ to $r^2 = .170$.

Table B.32. The Squared-Correlations of the Four Subscales of the SSE-MS with the MUInternet.

	Cognitive	Personal Identity	Social Integration	Diversion
Self-Development	.034	.103	.124	.133
Wide Exposure	.017	.018	.035	.062
User Friendly	.007	.003	.013	.039
Relaxation	.023	.007	.018	.043
Career Opportunity	.011	.013	.023	.050
Global Exchange	.067	.170	.163	.165

As expected, self-development and global exchange were related to the Personal Identity dimensions, but not the wide exposure. These were also related to Social Integration, but that may be due to the overlap between those dimensions. None were related to the Cognitive dimension. The Diversion dimension was related to Self-Development and Global Exchange, but not to relaxation. Generally, the results offer partial support for the validity of the SSE-MS.

Hedonic and Eudaimonic Scales

The Hedonic and Eudaimonic Scales (Oliver & Rany, 2011) was an interesting find during the literature search because the scale attempts to establish why people engage in particular behaviors. It is not structured within the U & G framework, but links can be identified. It consists of 12 items divided equally across two subscales: Hedonic (pleasure seeking) and Eudaimonic (meaning seeking). There is no stem for this questionnaire.

There were two dimensions (subscales). The hedonic should be related to (elements of)

the Diversion subscale. The eudaimonic should be related to the other dimensions.

For the assessment of validity, the correlations of the SSE-MS with the HandE are shown in Table B.33. Values ranged from $r = .017$ to $r = .252$.

Table B.33. The Correlations of the Four Subscales of the SSE-MS with the HandE

	Cognitive	Personal Identity	Social Integration	Diversion
Eudaimonic	.163	.143	.252	.218
Hedonic	.017	.042	.053	.077

Table B.34 provides the squared correlations for the validity assessment. Values ranged from $r^2 = .000$ to $r^2 = .064$

Table B.34. The Squared-Correlations of the Four Subscales of the SSE-MS with the HandE.

	Cognitive	Personal Identity	Social Integration	Diversion
Eudaimonic	.027	.021	.064	.048
Hedonic	.000	.002	.003	.006

The HandE did not seem to be related to any of the SSE-MS dimensions. The highest value was between the Personal Identity dimension and the Eudaimonic subscale, which is consistent with expectations. Those who would use a SS while watching TV for the purpose *of* personal growth would be more likely to watch movies *about* personal growth. However, the lack of a relationship between Diversion and Hedonic is a bit surprising. However, it can be seen from the item list that the Hedonic subscale is focus primarily on the “fun” aspects of movie watching, whereas Diversion subscale is more focused on emotional arousal or emotional abatement. It would seem that “arousal” is not the same as “fun”.

Appendix C Sample Analyses

The goal of this appendix is the detailed presentation of the comparison of the two samples used in the main analysis. This comparison is important because the two samples were combined for the main analysis, and it is important to understand what the combination represents. Details about the sampling procedure were provided in *Chapters 5 and 6*.

In the following, the term “samples” refers to the distinction between the Ryerson and Dalhousie samples. The term *item* is used to refer to the actual item in the survey package (or within a questionnaire in the survey package). It is notated in italics. The term “groups” is used to refer to response options associated with each categorical item (e.g., “Female” or “Male” groups within Gender). These are notated in quotes. The term “levels” is used to refer to response options associated with each ordinal item (e.g., frequency of use of a second screen as “Always”). These are also notated in quotes. Hence, there is:

Sample	Ryerson or Dalhousie
<i>Item</i>	One question on the questionnaire, for which a single response was collected
“Group”	The response options for a categorical item.
“Level”	The response options for an ordinal item.
Variable	An item OR A collection of items

For each item, the two samples were compared using the most appropriate test; for categorical items, this was a simple $2 \times K$ *chi-square* analysis (χ^2), where K is the number of possible response options (in this case, the number of “groups”) (Veaux et al., 2017). This *chi-square* test is only appropriate when the groups are mutually exclusive – when the participant can only select one response item. For example, it can be used to compare Living Arrangements (because each participant selected only 1 of 7 options) but it could not be used to compare Occupations (because each participant could select many of the 12 occupations).

For ordinal items, the two samples were compared using a simple two-group between-subjects *t-test*. This is a test of mean differences and it requires the assumptions of independence (achieved by random sampling), normal distributions, and homogeneity of variance³²(Veaux et al., 2017). However, the two-group *t-test* is extremely robust against violations of these

³² These assumptions can be expressed in many different ways, but all presentations reduce to the same assumptions.

assumptions (see Howell, 2002, p. 215-216), particularly when the two groups are using the same scale, and when the distributions are basically the same in the two groups (e.g., same unimodal distribution even if not normal, same type of positive or negative skew). Robustness states that the significance of the difference between the means can be trusted and used as a basis for inference. For ordinal items, the distributions of responses (the number of participants at each “level”) for the two samples were also compared using a $2 \times M$ *chi-square* analysis where M is the number of possible response options (in this case, the number of “levels”). This is a test of whether or not the two samples have the same distributions. Thus, it serves to further validate and contextualize the results of the *t-test*. It also served to indicate whether or not the ordinal variable should be treated as if it were categorical. All tests were two-tailed with Type 1 Error rate set to $\alpha = .05$.

Finally, statistical tests that compare Ryerson and Dalhousie samples are asking if the populations represented by the two samples are different (ANOVA). The point of using two different samples was to gain additional breadth (and sample size). To that end, I would hope that they are different. However, given the ubiquity of TV viewing, and the fact that both were tied to university communities (Ryerson as a participant pool; Dalhousie as a starting point), one would not expect all items to be different. That is, one would hope that the use of two samples would *expand the range* of the variables, while retaining considerable overlap in the distributions. This was particularly true for the demographic variables (e.g., age, education, occupation), and possibly true for the other background variables (e.g., TV Viewing Habits and SS use).

This analysis proceeds in three main sections: *Demographics*, *TV Viewing Habits*, and *SS Use*. The analysis is presented as annotated results with some basic interpretation because there are 253 variables to consider, too many relationships between variables, and because analyses build on prior analysis.

Data Preparation, Cleaning and Coding

It was important to prepare and clean the data prior to analysis. Firstly, the data was examined to learn about missing values, valid responses, and values that were added by participants in text comments (i.e., what was included in the “other” box). Secondly, to glean some insights about the data collected, descriptive statistics were examined (modes, means, *SD*, etc..) detailed explanation follows:

Data Coding

The raw data was imported from the appropriate package – from Dalhousie or Ryerson – into SPSS. At each variable, the imported values were checked and any errors were corrected. Because there was data from two sources, the import was designed to use the same variables (names, labels, value assignments) in both. In addition, some items allowed participants to add text comments. For example, participants could provide additional comments about living arrangements, or employment. These text comments were re-coded to fit the existing categories, or used to create new categories, or left as “other”.

Data Cleaning

The first step of cleaning examined the responses to the main questionnaires (SSE MS and the 6 questionnaires). Participants were permitted (as required by ethical requirements) to skip any item. However, analyses require relatively complete data. Therefore, for each subscale of each questionnaire, the number of missing values was computed for each participant. For the new questionnaire (SSE MS), the data had to be complete. For the other questionnaires, a participant was tagged for deletion if the number missing was greater than or equal to, half the items of the questionnaire (i.e., participants were allowed, at most, 1 missing of 3 items, 1 missing of 4 items, 2 missing of 5 items, 2 missing of six items, etc.).

Secondly, the standard deviation (*SD*) was computed for all (valid) responses of each subscale of each questionnaire, for each participant. If the *SD* is 0, then there is no variation in responses. It is possible for a participant to genuinely select the same response for all items of a subscale (e.g., a participant could respond “strongly agree” to all items of the Cognitive subscale), but it is extremely unlikely that a participant would provide the same response to all items of all subscales. Hence, participants who had a zero standard deviation for all subscales of a particular questionnaire were marked for deletion. This test captures those participants who respond uniformly with a “5” or with a “1” (or any other consistent value) and also identifies participants who change their responses per questionnaire.

Thirdly, the demographics were checked. Participants were *tagged* if they failed to select an appropriate response within the majority of the Background questions (i.e., failed to provide an occupation, failed to select a means of watching TV, failed to select any genres of TV viewing, etc.). Any text responses were considered valid even if that response was coded as “other”. Then, any participant who had been tagged in five or more areas (items) was checked to

see if the information had been coded somewhere in the text responses. If there was no way to resolve the missing value(s) the participant was marked for deletion

When all checks were applied to the Dalhousie sample, the number of participants dropped from 189 to just 107 (57 of the 82 that were dropped were questionnaires that had not even been started – none of the questions had been answered; others had a pattern of “dropping out part way though”). For the Ryerson sample, the number dropped from 395 to 386 (just nine were invalid – again, 5 of these seemed to be questionnaires that had not been started at all, and the others seemed to have dropped out without finishing).

Speed of Responding

The time to completion was collected. This was used as an additional check. As previously mentioned, participants in the Ryerson sample were provided with course credit for completion. Thus, there was some inducement to completion, regardless of quality of responses. It could be argued that there might be a group of participants who did not properly read (“skipped” or “skimmed”) the informed consent even though they did give consent, and/or who responded randomly to many or all items in an effort to finish quickly to receive the 1% (Analyses detailed above captured those who responded with the same response just to receive the 1%). The Dalhousie sample offered less of an inducement: a chance to win one of two CAD 50\$ gift cards. The reward was not immediate and the probability of reward was much less.

The time to completion was collected. The time to completion for the Dalhousie sample had a mean of 28.2 minutes, with a *SD* of 27.4. More critically, the minimum time was 5.8 minutes and about 10% of the sample had times less than 10.6 min. This seems fast, but detailed analysis indicated that the fastest participants were reading and answering questions appropriately all the way to the end.

The appropriateness of the responses was checked for those with the fastest completion times using a number of techniques. Firstly, there was a continuous (approximately normal) distribution of completion times down to the minimum completion time (5.8 minutes): The distribution was not bimodal. If a select group of participants was not reading the questions and only responding randomly, then one would expect a bimodal distribution for completion times.

Secondly, responses for the fastest participants were internally consistent. There were numerous checks for internal consistency. For example, one item asked about the percentage of time spent “watching TV at time of broadcast”, and another that asked about the time spent

“watching TV at time of choice”. Logically, these should sum to about 100%. In fact, across all (valid) participants, the mean was 93.5% (mode 100). It would not be expected to be identically 100% because participants were estimating their time utilization, and because the scale was crude allowing only 0%, 25%, 50%, 75% and 100% as options. Critically the eight fastest participants (those with times under) had an average of 84.5% (5 of 8 had sums of 100%). Other questions were examined in a similar manner. For example, questions about the number of episodes watched in a single session (i.e., “watch entire season at once” vs “watching three or more episodes at once” vs “watching 1 or 2 episodes at once”) had a mean of 134.0% overall and a mean of 146.9% for the fastest eight. Finally, the correlations between various measures did not vary dramatically between the entire sample and the fastest 8. Hence, to be conservative, the Dalhousie sample implied that times of 8 minutes are not unreasonable even if they seemed so at first glance.

The information provided by the Dalhousie sample was used to contextualize the Ryerson sample. For the Ryerson sample, the mean time to completion was 23.4 min (*SD*: 19.9) with a minimum of 3.37 min. The 3.4 min is too fast. The same checks cited above indicated that these participants were *not* reading and responding consistently. Those checks implied that participants with values greater than about 8 min were responding appropriately. For both samples, plots were created that examined “total time” (for the various sets of activities described above) as a function of Duration. A fit line suggested that the mean stabilized at 100% at around 8 minutes. Hence, to be safe and conservative, a cutoff of 8 minutes was used and applied consistently to both samples. This lowered the Dalhousie sample from 107 to 102 (i.e., 5 participants were too fast) and the Ryerson sample from 386 to 348 (38 were too fast).

It should be added that several of those that were discarded seemed to be genuinely trying to complete the survey: Many of the participants whose data was discarded indicated a desire to obtain the results.

Demographics

Several items captured various aspects of demographics. A total of 450 ($n=348$, $n=102$ for Ryerson and Dalhousie) participants completed the online survey. The following includes the raw data and the percentages for each group or level. Percentages are more useful as a basis of inference, but analyses are based on the raw data. Empty cells had no counts.

Gender

The two samples had roughly the same breakdown by gender with about 27% male. The Ryerson sample had 254 of 348 (73.0%) females and the Dalhousie sample had 72 of 102 (70.6%) females. A simple 2x2 *chi-square* with $\chi^2(1) = 0.15, p = .701$, analysis demonstrated no differences between the two samples.

Age

The breakdown by *Age Group* is shown in Table C.1. For the Ryerson sample, the option to select the age range 25 to 29 was inadvertently missed. However, as a whole, only 3.2% of the Ryerson sample fell within that range, and this would translate to just 11 participants for the current sample of 348. In the 30 to 39 range, the entire sample had only 1.0% which would translate to 3 or 4 participants for the current sample which matches the current sample. The missing age group can be estimated from other variables. Older participants would *likely* be those with a prior degree (most people finish an undergraduate degree at 22 or 23 years of age, though a college degree can be earlier), an appropriate occupation (e.g., full time employment, professional), and not living at home with parents. For example, of the four participants in the highest age group (30 to 39), three had a BSc, BA or College degree (one had some university) and all were not living with parents. However, all listed their employment as “student”. One could extrapolate the concept to the second age group (21 to 24) although it must be acknowledged that it is not deterministic. Within this second education group, 29 had a degree, and of that 29, six were living with their partner and children and five were living on their own. These 11 would be the most likely candidates for the higher age group: Each had a BSc, BA or college degree with occupations that included “Technology and Research (e.g., engineer, scientist)” ($n=2$), “Administrative (e.g., management, secretarial)” ($n=3$), “Service (e.g., retail)” ($n=5$), and “Unskilled labor” ($n=1$). Two were living with parents (not implausible). These 11 persons were moved to the higher age group.

Table C.1. Age Group Distribution for the Two Samples.

	Ryerson		Dalhousie		Both	
	N	Percentage	N	Percentage	N	Percentage
18 to 20	220	63.2	18	17.6	238	52.9
21 to 24	111	31.9	29	28.4	140	31.1
25 to 29	11	3.2	20	19.6	31	6.9
30 to 39	4	1.1	22	21.6	26	5.8
40 to 49		0.0	5	4.9	5	1.1
50 to 59		0.0	2	2.0	2	0.4
60 or greater		0.0	6	5.9	6	1.3
Missing	2	0.6	0	0.0	2	0.4
Total	348		102		450	

The Dalhousie sample had a greater range of ages, even though it was smaller. Two participants declined to provide their ages. A 2×7 *chi-square* analysis was used to assess sample differences on the distributions. The analysis demonstrated significant differences between the two samples with $\chi^2(6) = 163.53$ ($p < .0005$).

In addition, *Age Groups* represented an ordinal scale (from 1 to 7) and the means were 1.39 (*SD*: 0.55) and 2.97 (*SD* 1.59) respectively. The Ryerson mean corresponded to the “21-24” level and the Dalhousie mean corresponded to the “25-29”. The two samples differed with $t(448) = 15.57$ ($p < .0005$).

The *chi-square* and *t-test* analysis provide the same conclusion. The two samples differed on age. However, note that they overlapped. The Dalhousie sample includes the Ryerson sample within its range.

Living Arrangements

The breakdown by *Living Arrangements* is shown in Table C.2. Initially, there were 130 responses in the “other” category for Ryerson, and there were 12 responses in the “other” category for Dalhousie. However, most of these could be coded within the predefined groups. The remaining “Other” category consisted of “taken”, “Living alone, with family (parents & siblings)”, “room and board situation with a family”, or those who indicated “other” without providing details.

Table C.2. Living Arrangements.

	Ryerson		Dalhousie		Both	
	#	%	#	%	#	%
In a relationship (married, or cohabitating) with children at home.	3	0.9	22	21.6	25	5.6
In a relationship (married, or cohabitating) with no children at home	20	5.8	18	17.7	38	8.4
Living alone (house or apartment)	46	13.2	14	13.7	60	13.3
Living with friends (house or apartment)	29	8.3	19	18.6	48	10.7
Living with roommates (house or apartment)	46	13.2	14	13.7	60	13.3
Living with parents/family (at home)	200	57.5	11	10.8	211	46.9
Other	3	0.9	4	3.9	7	1.6
Total	348		102		450	

The Ryerson sample had more participants (students) living at home. The Dalhousie sample had more who appeared to be on their own or raising a family. A 2×7 *chi-square* analysis was used to compare the sample which demonstrated significant differences with $\chi^2(6) = 123.39$ ($p < .0005$). Note that both samples had some people in all groups. That is, they overlapped but the Dalhousie sample provided additional breadth.

Education

The distributions for level of Education (*Education Group*) are shown in Table C.3

Table C.3. The Educational Distribution.

	Ryerson		Dalhousie		Both	
	#	%	#	%	#	%
Some HS	1	0.3			1	0.22
HS	171	49.1	9	8.8	180	40.0
Some University	139	39.9	28	27.5	167	37.1
BSc or BA or College	36	10.3	26	25.5	62	13.8
MSc or MA			28	27.5	28	6.2
PhD, PsyD or Professional (MD, JD, MJ, LLB, MFA)			8	7.8	8	1.8
PhD and Professional			3	2.9	3	0.7
Missing	1	0.3	0	0.0	1	0.2
Total	348		102		450	

The Ryerson sample was more heavily slanted to the undergraduate population: Note that one participant declined to provide an education. However, 36 had already completed a BSc, BA or college degree. A 2x7 *chi-square* analysis demonstrate significant differences between the distributions for the two samples, with $\chi^2(6) = 181.85$ ($p < .0005$). The education groups represented an ordinal scale (from 1 to 7) with means of 2.61 ($SD: 0.67$) and 4.07 ($SD 1.22$) respectively. The two samples differed with $t(448) = 15.67$ ($p < .0005$). Thus, both analyses imply a difference between the two samples. Again, the two samples overlapped. They were not “distinct”. Again, the Dalhousie sample served to extend the range of the sample.

Relative Income

The distributions for *Relative Income* are shown in Table C.4.

Table C.4. Relative (Family) Income.

	Ryerson		Dalhousie		Both	
	#	%	#	%	#	%
Below average income	197	56.6	40	39.2	237	52.7
Average income	134	38.5	44	43.1	178	39.6
Above average income	16	4.6	17	16.7	33	7.3
Missing	1	0.3	1	1.0	2	0.4
Total	348		102		450	

In both samples, the minority of participants reported above average incomes. This is not surprising given that both are associated with universities The Ryerson sample had a mode that was “Below average Income”, as would be expected of a student sample, and the Dalhousie had a mode of “Average Income”. A 2x3 *chi-square* analysis demonstrated a significant difference between the two samples, with $\chi^2(2) = 20.63$, $p < .0005$. The *Relative Income* represented an ordinal scale (coded as -1, 0 and 1) and the means for the two samples differed with $t(448) = 4.21$ ($p < .0005$). The means were -0.52 ($SD: 0.58$) and -0.21 ($SD 0.71$) respectively. Two participants declined to provide a relative income. Again, the two samples overlapped. One issue with this measure is the potential confounding of the notion of income. Many students are dependent on parents, but also have an income from their own employ. It is not clear if “relative income referred to family, personal or both. Future work might wish to clarify this further.

Residential Location (Urbanization)

The distributions for *Residential Location (Urbanization)* are shown in Table C.5.

Table C.5. Residential Locations.

	Ryerson		Dalhousie		Both	
	#	%	#	%	#	%
Rural	7	2.0	3	2.9	10	2.2
Suburban	145	41.7	20	19.6	165	36.7
City	196	56.3	78	76.5	274	60.9
Missing	0	0.0	1	1.0	1	0.2
Total	348		102		450	

Most participants were city dwellers, and very few were rural. This is not surprising given that both samples were fundamentally university based, even if available online to any potential participant. A 2x3 *chi-square* analysis demonstrated significant differences between the two samples, with $\chi^2(2) = 16.03$ ($p < .0005$). The *Residential Location* were converted to an ordinal scale (from 1 to 3 representing the degree of urbanization or population density) and after conversion, the two samples differed with $t(448) = 5.33$ ($p < .0005$). The means were 2.54 ($SD: 0.54$) and 2.74 ($SD 0.50$) respectively. Both samples had a mean that was within the “Suburban” to “Urban” range. Note that one participant declined to provide a residential location. Again, the two samples overlapped.

Occupation

The categorization of *Occupation* was more difficult. Participants were permitted to select any number of “current” occupations from a list (see Table C.6), and were permitted to add a comment. Hence, many participants indicated multiple occupations. For example, many students indicated the categories of “Student” and “Education” likely to acknowledge employment as a part-time instructor or teaching assistant. This also implied that the number of cited occupations will not match the number of participants. Table C.6 is the list of occupations selected, along with any corrections (adjustments) based on the comments.

Table C.6. List of Occupations.

	Ryerson		Dalhousie		Both		Sample Diff	
	#	%	#	%	#	%	$\chi^2(1)$	$p(\chi^2)$
Professional	1	0.29	14	13.73	15	3.33	44.21	.000
Tech / Research	4	1.15	22	21.57	26	5.78	60.41	.000
Education	11	3.16	31	30.39	42	9.33	69.12	.000
Admin	24	6.90	19	18.63	43	9.56	12.56	.000
Service	92	26.44	8	7.84	100	22.22	15.78	.000
Entertain	6	1.72	4	3.92	10	2.22	1.76	.186
Skilled	4	1.15	0	0.00	4	0.89	1.15	.347
Unskilled	7	2.01	2	1.96	9	2.00	0.00	.974
Student	296	85.06	18	17.65	314	69.78	169.97	.000
Home Maker	0	0.00	0	0.00	0	0.00		
Not Employed	21	6.03	2	1.96	23	5.11	2.70	.100
Other	0	0.00	4	3.92	4	0.89	13.77	.000
Total	348		102		450			

For Ryerson, the list of alternatives included “Intern” (coded as “Tech / Research”), “Lifeguard” (coded as “Skilled Labor”), “retail assistant manager” (coded as “Admin”) and “Student” (coded as “Student”). For Dalhousie, the list of alternatives included “Currently Unemployed” and “no job” (coded as “Not Employed”), “Customer Service Rep” (code as “Service”), “HR SQ Consultant”, “Information Management” and “Policy Analyst” (coded as “Tech / Research”), and “Master student”, “student” (twice) and “student and ta” (coded as “Student” and “Education”). There were an additional four participants who selected “other” but did not provide additional details.

Because participants could select multiple occupations, a simple *chi-square* analysis (i.e., a $2 \times 12 \chi^2$) is *not* appropriate. However, one can examine the differences in the level of endorsement of *each* occupation separately. That is, for each occupation, the participant said “yes” or “no”, so a $2 \times 2 \chi^2$ within each occupation is appropriate. Table C.6 includes those analyses, excepting the home maker occupation that had zeros. These demonstrated significant differences between samples for in 8 of the 12 occupations.

The occupations represented a truly categorical scale so they were not converted to an ordinal scale. However, the number selected per participant was analyzed. For Ryerson, the number of occupations selected ranged from 1 to 4, with a mean of 1.33 (*SD*: 0.61): most (256) selected only one occupation. For Dalhousie, the number of occupations selected ranged from 1 to 3, with a mean of 1.18 (*SD*: 0.50): Again, most (77) selected only one occupation. The means

differed between the samples with $t(448) = 2.35$ ($p < .019$). Note that Dalhousie had fewer occupations per participant, likely because more of them were older and established in careers.

One important observation is that both samples had some participants in all groups, and both samples had no participants in the Home Maker group (strangely, this category was added because many participants indicated this role with text responses in prior stages of this work).

TV Viewing Habits

A number of items addressed current TV Viewing Habits. These tapped the type of TV viewing, intensity of TV viewing, the social context of TV viewing. In this section, many items often tapped a single domain (e.g., 16 items tapped genres – each as a binary yes/no).

Genres Viewed

Participants were asked which *Genres* of TV they viewed, with 15 cited options that could be selected and one open-ended final item which were coded within one of the prior categories if possible. Table C.7 presents the counts per category after recoding. The number listed under other was those that could not be recoded (e.g., “cooking shows”, “YouTube”). The participants could select more than one option, so the total number of genres does not match the sample size.

Table C.7. Genres of TV Viewing for both Samples.

	Ryerson		Dalhousie		Both		Sample Diff	
	#	%	#	%	#	%	$\chi^2(1)$	$p(\chi^2)$
Action	194	55.7	57	55.9	251	55.8	0.00	.981
Anime	52	14.9	19	18.6	71	15.8	0.81	.369
Children Family	90	25.9	31	30.4	121	26.9	0.82	.364
Classics	98	28.2	26	25.5	124	27.6	0.28	.595
Comedy	258	74.1	76	74.5	334	74.2	0.01	.940
Documentaries	136	39.1	51	50.0	187	41.6	3.87	.049
Drama	200	57.5	65	63.7	265	58.9	1.27	.259
Spirituality	16	4.6	9	8.8	25	5.6	2.68	.101
Horror	86	24.7	26	25.5	112	24.9	0.03	.873
Independent	40	11.5	20	19.6	60	13.3	4.49	.034
Music	84	24.1	21	20.6	105	23.3	0.56	.456
SF or Fantasy	103	29.6	41	40.2	144	32.0	4.07	.044
Sports & Fitness	0	0	14	13.7	14	3.1	49.30	.000
Thrillers	129	37.1	39	38.2	168	37.3	0.05	.830
Reality	173	49.7	4	3.9	177	39.3	69.31	.000
Other	10	2.9	4	3.9	14	3.1	1.21	.272
Total	348		102		450			

As can be seen in the table, for many *Genres* the endorsement of options did not seem to differ substantially by samples. For example, 55.7% of the Ryerson and 55.9% of the Dalhousie sample watched “Action”. However, some *Genres* were clearly different: “Thrillers”, “Reality”, “Sports & Fitness” (this was shows about sports, not sports itself) all differed by more than 20%. Participants could choose as many *Genres* as desired, so a single 2 x 2 χ^2 per Genre is the appropriate analysis (not one 2x15 analysis for all Genres). These are included in Table C.7: Six of the 16 *Genres* differed by samples, the largest discrepancy being “Thrillers”. The others included “Reality”, “Sports & Fitness”, “Independent” and “Science Fiction & Fantasy”.

In addition, the number of *Genres* per participant can be compared. For Ryerson, the number of *Genres* endorsed ranged from 1 to 14, with a mean of 4.77 (*SD*: 2.44): most (68) selected five genres. For Dalhousie, the number of *Genres* endorsed ranged from 1 to 12, with a mean of 4.89 (*SD*: 2.26): most (21) selected four or five genres (there were two modes). The number of *Genres* endorsed did not differ between the two samples with $t(448) = 1.25$ ($p < .534$). Again, both samples had some participants in all genres, with the exception of *Sports and Fitness* (only endorsed by the Dalhousie sample). Thus, the two samples were complementary.

Mode of Access for TV

Participants were asked about their *Mode(s) of TV Access* because it was thought that the mode could limit the options for SSE. Table C.8 presents the five options that participants could endorse. There was also an open ended option (not used by any). Results indicated that many participants still used cable, but more actually used streaming media in one form or another.

Table C.8. Mode of TV Access for both Samples.

I watch TV using	Ryerson		Dalhousie		Both		Sample Diff	
	#	%	#	%	#	%	$\chi^2(1)$	$p(\chi^2)$
a cable or antenna connection	163	46.8	44	43.1	207	46.0	0.44	.509
DVDs	28	8.0	12	11.8	40	8.9	1.35	.246
streaming TV to a TV	222	63.8	69	67.6	291	64.7	0.51	.474
streaming TV to a computer	270	77.6	73	71.6	343	76.2	1.58	.209
streaming TV to a smartphone	204	58.6	54	52.9	258	57.3	1.04	.308
Other	0	0.0	0	0.0	0	0.0		
Total	348		102		450			

The samples did not seem to differ in term of *Mode of Access*. Because participants could select as many options as desired, an analysis of each Mode of Access was used to assess sample differences, but there were no significant differences.

For Ryerson, the number of *Modes of Access* ranged from 1 to 5, with a mean of 2.55 (*SD*: 1.12): most (101) selected three modes. For Dalhousie, the number of *Modes of Access* ranged from 1 to 5, with a mean of 2.47 (*SD*: 1.11): most (31) selected two. The number of *Modes of Access* did not differ between the two samples with $t(448) = 1.25$ ($p < .534$).

Frequency of Mode of Access

Participants were asked about the *Intensity* of viewing for each *Mode of Access* (above). Responses were collected using a four-point scale (1 = “rarely or never”, 2 = “at least once a month”, 3 = “at least once a week”, 4 = “everyday”). Note that higher values imply more use (more intensity). Table C.9 presents the distributions of use.

Table C.9. Distributions for the Intensity of Use of Each Mode of TV Access.

I watch TV using:	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
cable from TV stations	1	160	46.0	51	50.0	211	46.9
	2	55	15.8	14	13.7	69	15.3
	3	88	25.3	24	23.5	112	24.9
	4	45	12.9	13	12.7	58	12.9
streaming media broadcast by TV stations	1	92	26.4	36	35.3	128	28.4
	2	72	20.7	21	20.6	93	20.7
	3	105	30.2	32	31.4	137	30.4
	4	79	22.7	13	12.7	92	20.4
streaming media from on-demand service	1	34	9.8	7	6.9	41	9.1
	2	29	8.3	3	2.9	32	7.1
	3	112	32.2	49	48.0	161	35.8
	4	173	49.7	43	42.2	216	48.0
DVDs or pre-recorded media	1	264	75.9	68	66.7	332	73.8
	2	54	15.5	19	18.6	73	16.2
	3	21	6.0	12	11.8	33	7.3
	4	9	2.6	3	2.9	12	2.7
Total		348.0		102.0		450	

The *Intensity of Mode of Access* is fairly consistent across samples. For each item (*Intensity of Mode of Access*), a 2x4 *chi-square* analyses was used to compare the distributions per sample.

For *I watch TV using cable from TV stations*, there was no significant difference with $\chi^2(3) = 0.59$ ($p < .898$). For *I watch TV using streaming media broadcast by TV stations*, there was no significant difference with $\chi^2(3) = 6.04$ ($p < .110$). For *I watch TV using streaming media from on-demand service*, there was a significant difference with $\chi^2(3) = 13.32$ ($p < .004$). For *I watch TV using DVDs or pre-recorded media*, there was no significant difference with $\chi^2(3) = 5.84$ ($p < .119$).

Each *Intensity of Mode of Access* represents an ordinal scale. Hence, Table C.10 provides descriptive statistics.

Table C.10. Descriptive Statistics for Intensity of Use of Each Mode of TV Access.

	Ryerson				Dalhousie				Both			
	Cable	S-Bd	S-OD	DVD	Cable	S-Bd	S-OD	DVD	Cable	S-Bd	S-OD	DVD
Mean	2.05	2.49	3.22	1.35	1.99	2.22	3.25	1.51	2.04	2.43	3.23	1.39
SD	1.11	1.11	0.96	0.71	1.12	1.07	0.82	0.82	1.11	1.09	0.93	0.74
Min	1	1	1	1	1	1	1	1	1	1	1	1
Max	4	4	4	4	4	4	4	4	4	4	4	4

Notes: Cable=“cable from TV stations”, S-Bd=“streaming media broadcast by TV stations” S-OD=“streaming media from on-demand service”, DVD= “DVDs or pre-recorded media”

A two-group *t-test* was used to assess sample differences. For *I watch TV using cable from TV stations*, there was no difference with $t(448) = 0.49$ ($p < .623$). For *I watch TV using streaming media broadcast by TV stations*, there was a significant difference with $t(448) = 2.22$ ($p < .027$), For *I watch TV using streaming media from on-demand service*, there was no significant difference with $t(448) = 0.35$ ($p < .728$). For *I watch TV using DVDs or pre-recorded media*, there was no significant difference with $t(448) = 1.89$ ($p < .060$).

The third item (*I watch TV using streaming media from on-demand service*) was significant for the χ^2 but not the *t-test* and the second item (*I watch TV using streaming media broadcast by TV stations*) was significant for the *t-test* but not the χ^2 . The χ^2 compares the two distributions and shows that there were (very minor) differences between the distributions samples for “*I watch TV using streaming media from on-demand service*”). Conversely, the *t-test* compares means in indicates that the two means were different for “*I watch TV using streaming media broadcast by TV stations*”. However, in both cases, the differences were minor. For the third item, the distributions were similar (10, 8, 32 and 50% vs 7, 3, 48 and 43%): Both concentrated in the higher levels. For the third item, the means were 2.49 vs 2.22: both were

within the “at least once a month” level. The two samples were quite similar.

Hours per Day of TV Viewing

There are many ways to examine the intensity of commitment. Hence, participants were asked how many hours of TV they watched per weekday (Monday through Friday), per Saturday, and per Sunday. Responses were collected on an ordinal scale with 5 levels (1 = “less than 1 hr”, 2 = “about 1 - 2 hr”, 3 = “about 2 - 3 hrs”, 4 = “about 3 to 4 hrs”, and 5 = “more than 5 hrs”). Note that higher codes imply more use (more intensity). Note that participants could choose only one response per item. Table C.11 provides the distributions per item.

Table C.11. Distributions for the Hours per Day of TV Viewing

The number of hours I watch:	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
Weekdays (Monday to Friday)	1	48	13.8	16	15.7	64	14.2
	2	98	28.2	22	21.6	120	26.7
	3	112	32.2	32	31.4	144	32.0
	4	62	17.8	21	20.6	83	18.4
	5	28	8.0	11	10.8	39	8.7
Saturday	1	28	8.0	10	9.8	38	8.4
	2	52	14.9	17	16.7	69	15.3
	3	111	31.9	33	32.4	144	32.0
	4	110	31.6	22	21.6	132	29.3
	5	47	13.5	20	19.6	67	14.9
Sunday	1	39	11.2	11	10.8	50	11.1
	2	55	15.8	16	15.7	71	15.8
	3	104	29.9	36	35.3	140	31.1
	4	106	30.5	17	16.7	123	27.3
	5	44	12.6	22	21.6	66	14.7
Total		348		102		450	

Again, the two samples seem similar and people watch more TV on weekends. χ^2 analyses were used to compare the distributions for each item (*Weekdays*, *Sat* and *Sun*) per sample. For *Weekdays*, there was no significant difference with $\chi^2(4) = 2.51$ ($p < .643$). For *Saturdays*, there was no significant difference with $\chi^2(4) = 5.13$ ($p < .274$). For *Sundays*, there was a significant difference with $\chi^2(4) = 10.53$ ($p < .032$).

The scale used is ordinal, and Table C.12 provides the corresponding descriptive statistics.

Table C.12. Descriptive Statistics for the Hours per Day of TV Viewing.

	Ryerson			Dalhousie			Both		
	Weekdays	Sat	Sun	Weekdays	Sat	Sun	Weekdays	Sat	Sun
Mean	2.78	3.28	3.18	2.89	3.25	3.23	2.81	3.27	3.19
SD	1.14	1.12	1.18	1.22	1.23	1.26	1.15	1.15	1.20
Min	1	1	1	1	1	1	1	1	1
Max	5	5	5	5	5	5	5	5	5

For *Weekdays*, there was no significant mean difference with $t(448) = 0.85$ ($p < .396$). For *Saturdays*, there was no significant mean difference with $t(448) = 0.24$ ($p < .812$). For *Sundays*, there was no significant mean difference with $t(448) = 0.37$ ($p < .710$). The *t*-tests echo the results of the χ^2 tests. The two samples were not different.

Timing of TV Viewing

TV shows can often be consumed at different times. In particular shows, may be consumed at the time of broadcast (typical for new releases) or at the time of choosing (typical for DVDs, and for on-demand streaming media). Participants were asked how frequently they used each option, using an ordinal scale with 5 levels (1 = “Never = about 0% of the time”, 2 = “Rarely = about 25% of the time”, 3 = “Frequently = about 50% of the time”, 4 = “Usually = about 75% of the time”, and 5 = “Always = about 100% of the time”). Note that higher codes imply more use (more intensity). Table C.13 provides the data.

Table C.13. Distributions for the Frequency of the Timing of TV Viewing.

I watch shows	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
at the time of broadcast	1	109	31.3	34	33.3	143	31.8
	2	181	52.0	43	42.2	224	49.8
	3	37	10.6	14	13.7	51	11.3
	4	18	5.2	10	9.8	28	6.2
	5	3	0.9	1	1.0	4	0.9
at the time of my choosing	1	24	6.9	5	4.9	29	6.4
	2	41	11.8	10	9.8	51	11.3
	3	45	12.9	17	16.7	62	13.8
	4	122	35.1	32	31.4	154	34.2
	5	116	33.3	38	37.3	154	34.2
Total		348		102		450	

A χ^2 analysis within each indicated that there was no significant difference between samples for consumption at the *Time of Broadcast* with $\chi^2(4) = 5.04$ ($p < .284$), or at the *Time of Choice* with $\chi^2(4) = 2.23$ ($p < .694$).

Because the scales are ordinal, Table C.14 provides the corresponding information compressed to descriptive statistics.

Table C.14. Descriptive Statistics for the Frequency of the Timing of TV Viewing.

	Ryerson		Dalhousie		Both	
	at broadcast	at choice	at broadcast	at choice	at broadcast	at choice
Mean	1.64	1.73	2.03	3.86	1.73	2.21
SD	0.83	0.98	0.98	1.17	0.87	1.03
Min	1	1	1	1	1	1
Max	5	5	5	5	5	5

For *Consumption at Time of Broadcast*, there was no significant mean difference with $t(448) = 1.09$ ($p < .276$). For *Consumption at Time of Choice* there was no significant mean difference with $t(448) = 0.74$ ($p < .459$). The *t-test* and χ^2 are complementary. The two samples were similar.

This pair of items also offered the chance for additional checks. Logically, the two options are mutually exclusive – for any particular viewing event, a participant must do one or the other, Hence, the frequencies of the two combined should sum to 100%. For the Ryerson sample, the mean sum of the frequencies was 92.1% ($SD: 33.6$) and for the Dalhousie sample, the mean of the sum of the frequencies was 97.3%, ($SD: 30.2$). This imply that, *on average*, participants are reading the questions and responding appropriately. One would not expect the total to be exactly 100% because there were only five broad options.

Binge Watching

Participants were asked how often they engaged in “binge watching” using three items: frequency of “Watching an entire season at once”, frequency of “watching 3 or more episodes at once”, and frequency of “watching 1 or 2 episodes at once”. Responses were collected using an ordinal scale with 5 levels (1 = “Never = about 0% of the time”, 2 = “Rarely = about 25% of the time”, 3 = “Frequently = about 50% of the time”, 4 = “Usually = about 75% of the time”, and 5 = “Always = about 100% of the time”). Note that higher codes imply more use (more intensity).

Table C.15 provides the distribution of responses per item.

Table C.15. Distributions for Frequency of Binge Watching

I watch an	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
an entire season	1	76	21.8	26	25.5	102	22.7
	2	143	41.1	38	37.3	181	40.2
	3	93	26.7	26	25.5	119	26.4
	4	26	7.5	10	9.8	36	8.0
	5	10	2.9	2	2.0	12	2.7
several episodes	1	17	4.9	9	8.8	26	5.8
	2	63	18.1	22	21.6	85	18.9
	3	113	32.5	38	37.3	151	33.6
	4	110	31.6	21	20.6	131	29.1
	5	45	12.9	12	11.8	57	12.7
A few episodes	1	26	7.5	7	6.9	33	7.3
	2	99	28.4	25	24.5	124	27.6
	3	105	30.2	35	34.3	140	31.1
	4	89	25.6	28	27.5	117	26.0
	5	29	8.3	7	6.9	36	8.0
Total		348		102		450	

Again χ^2 analyses were used to compare the distributions per item between samples: For *Entire Seasons*, there was no significant difference with $\chi^2(4) = 1.58$ ($p < .812$). For *Several Episodes*, there was no significant difference with $\chi^2(4) = 6.53$ ($p < .163$). For *Few Episodes*, there was no significant difference with $\chi^2(4) = 1.24$ ($p < .872$).

The scale for each item is ordinal and Table C.16 provides the corresponding descriptive statistics.

Table C.16. Descriptive Statistics for Frequency of Binge Watching.

	Ryerson			Dalhousie			Both		
	Entire Seasons	Several Episodes	Few Episodes	Entire Season	Several Episodes	Few Episodes	Entire Season	Several Episodes	Few Episodes
Mean	2.28	3.30	2.99	2.25	3.05	3.03	2.28	3.24	3.00
SD	0.98	1.06	1.08	1.01	1.12	1.04	0.99	1.07	1.07
Min	1	1	1	1	1	1	1	1	1
Max	5	5	5	5	5	5	5	5	5

For *Entire Season*, there was no significant mean difference with $t(448) = 0.27$ ($p < .791$). For *Several Episodes*, there was a small significant mean difference with $t(448) = 2.04$ ($p < .042$).

Note that both means are in the same range (i.e., ordinal level 3). For *Few Episodes*, there was no significant mean difference with $t(448) = 0.34$ ($p < .735$). The t -tests echo the results of the χ^2 tests. The two samples are essentially the same.

Intensity of Following TV Shows

To get at the intensity of TV viewing from another angle, participants were asked how many shows they “watched”, “followed”, “made time for”, or “followed on social media” per week. Responses were collected on an ordinal scale with 5 levels (1 = “1 or less shows/wk”, 2 = “2 - 5 shows/wk”, 3 = “6 - 10 shows/wk”, 4 = “11 - 20 shows/wk”, and 5 = “more than 20 shows/wk”). Note that higher codes imply more use (more intensity). Table C.17 provides the data.

Table C.17. Distributions for the Intensity of Shows “Watched”, “Followed”, “Made Time For”, and “Followed on Social Media”.

The number of shows I:	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
Watched	1	84	24.1	26	25.5	110	24.4
	2	175	50.3	48	47.1	223	49.6
	3	65	18.7	15	14.7	80	17.8
	4	19	5.5	8	7.8	27	6.0
	5	5	1.4	5	4.9	10	2.2
Followed	1	127	36.5	42	41.2	169	37.6
	2	177	50.9	54	52.9	231	51.3
	3	35	10.1	2	2.0	37	8.2
	4	8	2.3	2	2.0	10	2.2
	5	1	0.3	2	2.0	3	0.7
Made Time For	1	146	42.0	43	42.2	189	42.0
	2	160	46.0	46	45.1	206	45.8
	3	29	8.3	8	7.8	37	8.2
	4	10	2.9	2	2.0	12	2.7
	5	3	0.9	3	2.9	6	1.3
Followed on Social Media	1	220	63.2	60	58.8	280	62.2
	2	93	26.7	30	29.4	123	27.3
	3	23	6.6	4	3.9	27	6.0
	4	8	2.3	2	2.0	10	2.2
	5	4	1.1	6	5.9	10	2.2
Total		348		102		450	

The distributions show minor differences between the two samples. Watched had the highest

level of endorsement in both, but that level was not high.

A 2x5 *chi-square* analyses was used to compare the distributions for each item between samples. For *Watched* there was no significant difference with $\chi^2(4) = 0.59$ ($p < .898$). For *Followed*, there was no significant difference with $\chi^2(4) = 6.04$ ($p < .110$). For *Make Time*, there was a significant difference with $\chi^2(4) = 13.32$ ($p < .004$). For *Followed on Social Media*, there was no significant difference with $\chi^2(4) = 5.84$ ($p < .119$).

As with the previous, the intensity represented an ordinal scale. Hence, Table C.18 provides the same information as descriptive statistics.

Table C.18. Descriptive Statistics for the Intensity of Shows “Watched”, “Followed”, “Made Time For”, and “Followed on Social Media”.

	Ryerson				Dalhousie				Both			
	watch	follow	make	SM	watch	follow	make	SM	watch	follow	make	SM
Mean	2.05	2.49	3.22	1.35	1.99	2.22	3.25	1.51	2.04	2.43	3.23	1.39
SD	1.11	1.11	0.96	0.71	1.12	1.07	0.82	0.82	1.11	1.09	0.93	0.74
Min	1	1	1	1	1	1	1	1	1	1	1	1
Max	4	4	4	4	4	4	4	4	4	4	4	4

A two-group *t-test* was used to assess sample differences. For *Watched*, there was no difference with $t(448) = 0.95$ ($p < .344$). For *Followed*, there was no significant difference with $t(448) = 1.01$ ($p < .315$). For *Made Time*, there was no significant difference with $t(448) = 0.40$ ($p < .687$). For *Followed on Social Media*, there was no significant difference with $t(448) = 1.54$ ($p < .123$). The *t-tests* echo the results of the χ^2 tests, although the second item (*Followed*) had a significant χ^2 but a non-significant *t-test*. The two samples had minor differences.

Emotional Connection to TV Shows

It is difficult to measure the emotional connection to a TV show in the generic sense (i.e., without reference to a particular favorite show) using behavioral measures (e.g., measure like “I love my favorite TV show.”). However, if a person is more attached to a show, they will make time for that show and they will be “upset” if they should miss a planned viewing or episode. Hence, two times asked about these generic attributes: “My day is planned around TV shows” and “I get upset if I miss my show”. Responses were collected using the standard ordinal scale with five levels (1 = “Never = about 0% of the time”, 2 = “Rarely = about 25% of the time”, 3 = “Frequently = about 50% of the time”, 4 = “Usually = about 75% of the time”, and 5 = “Always

= about 100% of the time”). Note that higher codes imply more use (more intensity). Table C.19 presents the distributions per item. Note that the majority of responses fall into the “never” or “rarely” categories. This may reflect the newer mode of TV consumption: VoD. One can still plan one’s TV viewing when using an on-demand service, but there are fewer constraints.

Table C.19. Distributions for the Frequency of the Emotional Commitment to TV Shows

I ...	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
plan my day around the show	1	186	53.4	58	56.9	244	54.2
	2	115	33.0	26	25.5	141	31.3
	3	35	10.1	10	9.8	45	10.0
	4	9	2.6	7	6.9	16	3.6
	5	3	0.9	1	1.0	4	0.9
get upset if I miss my show	1	186	53.4	56	54.9	242	53.8
	2	107	30.7	33	32.4	140	31.1
	3	25	7.2	7	6.9	32	7.1
	4	24	6.9	3	2.9	27	6.0
	5	6	1.7	3	2.9	9	2.0
Total		348		102		450	

A χ^2 analysis within each item indicated that there was no significant difference between samples for *Planned* with $\chi^2(4) = 5.68$ ($p < .224$), or for *Upset* with $\chi^2(4) = 2.75$ ($p < .601$).

Table C.20 provides the corresponding information for the descriptive statistics.

Table C.20. Descriptive Statistics for the Frequency of the Emotional Commitment to TV Shows.

	Ryerson		Dalhousie		Both	
	Planned	Upset	Planned	Upset	Planned	Upset
Mean	1.64	1.73	1.70	1.67	1.66	1.71
SD	0.83	0.98	0.97	0.95	0.87	0.97
Min	1	1	1	1	1	1
Max	5	5	5	5	5	5

For *Planned*, there was no significant mean difference with $t(448) = 0.54$ ($p < .591$). For *Upset*, there was no significant mean difference with $t(448) = 0.55$ ($p < .583$). The *t-test* and χ^2 are complementary, and the two sample are basically the same.

Social Context of TV Viewing

The final item of this section was an attempt to define the social context of TV viewing. Participants were asked about the frequency of the different social settings (with *No One*, with *My Children*, with *My Partner*, with *My Family*, with *My Friends*, with *Roommates*, with *Colleagues*, and with *Others*) while watching TV using the standard 5 points scale (1 = “Never = about 0% of the time”, 2 = “Rarely = about 25% of the time”, 3 = “Frequently = about 50% of the time”, 4 = “Usually = about 75% of the time”, and 5 = “Always = about 100% of the time”). Table C.21 provides the distributions: The table is split into a and b components simply for typesetting purposes.

Table C.21a. Distributions for the Social Context of TV Viewing.

I watch TV with:	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
No one	1	16	4.6	2	2.0	18	4.0
	2	30	8.6	18	17.6	48	10.7
	3	63	18.1	26	25.5	89	19.8
	4	168	48.3	37	36.3	205	45.6
	5	71	20.4	19	18.6	90	20.0
My children	1	342	98.3	74	72.5	416	92.4
	2	3	0.9	8	7.8	11	2.4
	3	2	0.6	10	9.8	12	2.7
	4	1	0.3	8	7.8	9	2.0
	5	0	0.0	2	2.0	2	0.4
My partner	1	211	60.6	39	38.2	250	55.6
	2	39	11.2	12	11.8	51	11.3
	3	56	16.1	20	19.6	76	16.9
	4	37	10.6	25	24.5	62	13.8
	5	5	1.4	6	5.9	11	2.4
My family	1	60	17.2	28	27.5	88	19.6
	2	125	35.9	28	27.5	153	34.0
	3	107	30.7	32	31.4	139	30.9
	4	49	14.1	11	10.8	60	13.3
	5	7	2.0	3	2.9	10	2.2
Total		348		102		450	

Note that most participants in both samples endorsed the *No One* item at the higher levels (“Usually”). The *My Children* item was endorsed at the lowest levels (“never”), particularly in the younger student sample (Ryerson). The same was true of *My Partner*, to a lesser degree.

Table C.21b. Distributions for the Social Context of TV Viewing.

I watch TV with:	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
My friends	1	70	28.2	24	23.5	94	26.9
	2	137	55.2	44	43.1	181	51.7
	3	99	39.9	19	18.6	118	33.7
	4	39	15.7	13	12.7	52	14.9
	5	3	1.2	2	2.0	5	1.4
Roommates	1	283	114.1	74	72.5	357	73.4
	2	31	12.5	8	7.8	39	11.1
	3	23	9.3	8	7.8	31	8.9
	4	11	4.4	9	8.8	20	5.7
	5	0	0.0	3	2.9	3	0.9
Colleagues	1	308	124.2	91	89.2	399	85.5
	2	28	11.3	6	5.9	34	9.7
	3	9	3.6	4	3.9	13	3.7
	4	3	1.2	1	1.0	4	1.1
	5	0	0.0	0	0.0	0	0.0
Others	1	306	123.4	88	86.3	394	83.9
	2	24	9.7	7	6.9	31	8.9
	3	11	4.4	6	5.9	17	4.9
	4	7	2.8	1	1.0	8	2.3
	5	0	0.0	0	0.0	0	0.0
Total		348		102		450	

The *Roommates*, *Colleagues* and *Others* were not the company of choice: χ^2 analyses indicated that there was no significant difference between samples for *My Family* ($\chi^2(4) = 6.83$, $p < .326$), for *My Friends* ($\chi^2(4) = 4.64$, $p < .326$), for *Colleagues* ($\chi^2(4) = 0.99$, $p < .803$) or for *Others* ($\chi^2(4) = 2.04$, $p < .564$). However, there were differences for *No One* ($\chi^2(4) = 12.19$, $p < .016$), *My Children* ($\chi^2(4) = 75.91$, $p < .0005$), *My Partner* ($\chi^2(4) = 25.12$, $p < .0005$) and *Roommates* ($\chi^2(4) = 16.97$, $p < .002$).

Table C.22 provides the corresponding information for the descriptive statistics (again, the table is split for typesetting).

Table C.22a. Descriptive Statistics for the Social Context of TV Viewing.

	Ryerson				Dalhousie				Both			
	NoOne	Child	Partner	Family	NoOne	Child	Partner	Family	NoOne	Child	Partner	Family
Mean	3.71	1.03	1.81	2.48	3.52	1.59	2.48	2.34	3.67	1.16	1.96	2.45
SD	1.03	0.24	1.14	1.00	1.05	1.07	1.37	1.09	1.04	0.55	1.19	1.02
Min	1	1	1	1	1	1	1	1	1	1	1	1
Max	5	4	5	5	5	5	5	5	5	5	5	5

Table C.22b. Descriptive Statistics for the Social Context of TV Viewing.

	Ryerson				Dalhousie				Both			
	Friend	Room	Coll	Others	Friend	Room	Coll	Others	Friend	Room	Coll	Others
Mean	2.33	1.32	1.16	1.19	2.26	1.62	1.17	1.22	2.32	1.38	1.16	1.20
SD	0.95	0.73	0.49	0.58	1.02	1.13	0.53	0.59	0.97	0.84	0.50	0.59
Min	1	1	1	1	1	1	1	1	1	1	1	1
Max	5	4	4	4	5	5	4	4	5	5	4	4

There were no significant differences for *No One* ($t(488) = 1.66, p < .099$), *My Family* ($t(488) = 1.17, p < .244$), *My Friends* ($t(488) = 0.63, p < .529$) *Colleagues* ($t(488) = 0.15, p < .878$) and *Others* ($t(488) = 0.35, p < .725$). However, there were differences for *My Children* ($t(488) = 9.01, p < .0005$), *My Partner* ($t(488) = 4.99, p < .0005$), and *Roommates* ($t(488) = 3.18, p < .002$).

Note that the *t-test* and *chi-square* provide the same interpretation – there are some minor differences between the two samples. Given the demographic differences (age and living arrangements in particular), these differences are not surprising.

Second Screen Use

A number of items addressed the manner in which participant used a Second Screen (SS) while watching TV. Note that this is about second screen (SS) use, not the Second Screen Experience as a whole. This was focused specifically on the use of SS during TV viewing, and not on the use of a SS while engaged in other activities. It was intended to contextualize the amount and type of SS use while watching TV. This would help to contextualize the significance (not in the sense of the “statistical” significance) of talking about TV while watching TV. These items tapped the type of SS, type of TV viewing, intensity of TV viewing, the social context of TV viewing. In this section, many items often tapped a single domain (e.g., 16 items tapped genres – each as a binary yes/no).

Again, the point was that the Dalhousie sample should extend the breadth of the Ryerson sample which was more limited in the range of demographics.

Type of Second Screen

The first set of items tapped the type of second screen. Participants could endorse any of four options using a simple yes / no response. The first asked if the SS was the *Same Screen* (computer or TV or phone) as the TV show. The second asked if the second screen was a *Different Screen* (e.g., watch TV on a TV, and use a computer or phone as a second screen). The third option specifically asked if the SS was a *Smartphone* because casual observation and conversation implied that this was the most common mode (note that the TV show could be on a TV or computer or other device). A final option allowed for *Other SS*, with an associated open-ended text option. Note that participants could choose multiple options (Table A.23).

Table C.23. The Type of SS

My SS is a:	Ryerson		Dalhousie		Both		Sample Diff	
	#	%	#	%	#	%	$\chi^2(1)$	p(χ^2)
split screen	142	40.8	44	43.1	186	41.3	0.18	.674
different screen	132	37.9	55	53.9	187	41.6	8.30	.004
smartphone	293	84.2	80	78.4	373	82.9	0.12	.174
some other device	0	0.0	0	0.0	0	0.0	--	--
Total	348		102		450			

Initially, there were six endorsements of *Other*. These corresponding texts was examined and re-coded within the pre-existing categories, if possible. The most interesting response was “Gaming console (PS4 + Switch)” which was coded as “different screen”. After re-coding, there were no selections of *Other*. The two samples did not seem different. Because participants could select as many options as desired, the analysis was a $\chi^2(1)$ per item. The analyses showed that the use of the *Different Screen* differed by samples: The Dalhousie sample used this mode more often, but it was not a lot more often. For Ryerson, the number of *Types of SSs* endorsed ranged from 1 to 4, with a mean of 1.34 (*SD*: 0.71): Most (169) used just one type, but a substantial number (126) used two types. For Dalhousie, the number of *Types of SSs* ranged from 1 to 4, with a mean of 1.76 (*SD*: 0.73): most (45) used two types while almost as many used just one type (41) The number of *Types of SSs* endorsed did not differ between the two samples with $t(448) = 1.51$ ($p < .133$). Generally, the two sample complemented and extended each other. They overlapped to a considerable degree (i.e., both samples used the full range from min to max) and the differences were relatively minor.

The Second Screen Process

The second group of items asked how participants used (accessed) a second screen. The first item was about use during breaks (*Breaks*: “I use the second screen during breaks (e.g., commercials)”), the second was about pausing the TV (*Pausing*: “I pause the TV to use the SS”), the third was about simultaneous viewing (*Both*: “I try to watch both the TV and the SS simultaneously”), the fourth was about missing the TV (*Miss*: “I miss or ignore the TV while using the SS”), and the final option was the ubiquitous *Other Process* with an associated text response. All options were binary endorsements (yes or no). Table C.24 provides the levels of endorsement for each process.

Table C.26. The Process for Using a SS

I use a SS:	Ryerson		Dalhousie		Both		Sample Diff	
	#	%	#	%	#	%	$\chi^2(1)$	p(χ^2)
during breaks	82	23.6	0	0.0	82	18.2	29.39	.0005
by pausing the TV	197	56.6	44	43.1	241	53.6	5.76	.016
by watching both.	225	64.7	69	67.6	294	65.3	0.31	.577
by missing TV	197	56.6	47	46.1	244	54.2	3.52	.060
Other	109	31.3	5	4.9	114	25.3	29.11	.0005
Total	348		102		450			

Initially, there were six endorsements of *Other Process*. Note that 111 and 5 participants indicated *Other Process*, but only 10 provided information about the process. Of the 10, only two could be coded within pre-existing categories. A $\chi^2(1)$ per item showed that the use of *Breaks* and *Pausing*, and *Other Process* differed by samples. Note that *Breaks* only applies if one has commercial breaks. This does not apply to many on-demand streaming services like Netflix. For Ryerson, the number of *Processes for Using a SS* ranged from 1 to 5, with a mean of 2.47 (*SD*: 1.18): This was evenly split between the use of *Breaks* (89), *Pause* (89), and *Both* (92). For Dalhousie, the number of *Processes for Using a SS* ranged from 1 to 3 with a mean of 1.62 (*SD*: 0.72): Most (53) used just *Breaks*. The number of *Processes for Using a SS* differed between the two samples with $t(448) = 6.96$ ($p < .0005$).

Generally, the two sample complemented and extended each other. They overlapped to a considerable degree although the Dalhousie sample did not use the SS during breaks.

Social Media Outlets Used on the SS

A set of crucial items asked about the activities of that second screen. Participants were

asked about the type of app: *Social Media* (e.g., Facebook), *Blogs*, *Micro Blogs* (e.g., Twitter), *Email* conversations, *Forums* (often provided by the show), *Chat*, *Information* channels, and *Video Conferencing* (e.g., Skype). For each item, the standard five-point scale was used (1 = “Never = about 0% of the time”, 2 = “Rarely = about 25% of the time”, 3 = “Frequently = about 50% of the time”, 4 = “Usually = about 75% of the time”, and 5 = “Always = about 100% of the time”). Table C.25 provides the distributions. The table is split simply to make it fit.

Table C.25a. Distributions for the Applications Used On the SS.

My SS contains:	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
Social Media	1	10	2.9	8	7.8	18	4.0
	2	36	10.3	23	22.5	59	13.1
	3	105	30.2	33	32.4	138	30.7
	4	121	34.8	24	23.5	145	32.2
	5	76	21.8	14	13.7	90	20.0
Blogs	1	210	60.3	61	59.8	271	60.2
	2	94	27.0	21	20.6	115	25.6
	3	26	7.5	11	10.8	37	8.2
	4	11	3.2	6	5.9	17	3.8
	5	7	2.0	3	2.9	10	2.2
Microblogs	1	141	40.5	45	44.1	186	41.3
	2	91	26.1	20	19.6	111	24.7
	3	62	17.8	17	16.7	79	17.6
	4	38	10.9	11	10.8	49	10.9
	5	16	4.6	9	8.8	25	5.6
Email	1	103	29.6	30	29.4	133	29.6
	2	116	33.3	34	33.3	150	33.3
	3	77	22.1	26	25.5	103	22.9
	4	42	12.1	10	9.8	52	11.6
	5	10	2.9	2	2.0	12	2.7
Total		348		102		450	

Note that *Social Networking Sites* has a high frequency of use, whereas *Blogs*, *Microblogs* and *Email* are all much lower. A 2x5 *chi-square* per item showed that the distributions for *Social Networking Sites* ($\chi^2(4) = 19.64, p < .0005$) differed by samples. However, there were no differences for *Blogs* ($\chi^2(4) = 4.18, p < .382$), *Microblogs* ($\chi^2(4) = 4.21, p < .378$) or *Email* ($\chi^2(4) = 0.99, p < .922$).

Table C.25b. Distributions for the Social Context of TV Viewing.

My SS contains:	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
Forums	1	179	51.4	52	51.0	231	51.3
	2	99	28.4	27	26.5	126	28.0
	3	42	12.1	13	12.7	55	12.2
	4	22	6.3	7	6.9	29	6.4
	5	6	1.7	3	2.9	9	2.0
Chat	1	9	2.6	13	12.7	22	4.9
	2	35	10.1	15	14.7	50	11.1
	3	101	29.0	30	29.4	131	29.1
	4	122	35.1	26	25.5	148	32.9
	5	81	23.3	18	17.6	99	22.0
Information	1	169	48.6	56	54.9	225	50.0
	2	104	29.9	21	20.6	125	27.8
	3	41	11.8	13	12.7	54	12.0
	4	29	8.3	10	9.8	39	8.7
	5	5	1.4	2	2.0	7	1.6
Video Conferencing	1	214	61.5	71	69.6	285	63.3
	2	88	25.3	21	20.6	109	24.2
	3	34	9.8	7	6.9	41	9.1
	4	9	2.6	3	2.9	12	2.7
	5	3	0.9	0	0.0	3	0.7
Total		348		102		450	

Information channels and *Chat* have a high level of use. The others (*Forums* and *Video Conference*) are much lower. A *chi-square* analysis showed that the distributions for *Chat* ($\chi^2(4) = 21.52, p < .0005$) differed by samples. There were no differences for *Forums* ($\chi^2(4) = 0.76, p < .943$), *Information* channels ($\chi^2(4) = 3.49, p < .480$), or *Video Conferencing* ($\chi^2(4) = 2.31, p < .511$).

The response for each item was an ordinal scale. Hence Table C.26 presents the descriptive statistics per item (again split simply to make it fit).

Table C.26a. Descriptive Statistics for the Social Context of TV Viewing.

	Ryerson				Dalhousie				Both			
	SM	Blogs	Micro Blogs	Email	SM	Blogs	Micro Blogs	Email	SM	Blogs	Micro Blogs	Email
Mean	3.62	1.59	2.13	2.25	3.13	1.72	2.21	2.22	3.60	1.59	2.12	2.24
SD	1.03	0.91	1.19	1.09	1.15	1.07	1.34	1.04	1.10	0.93	1.23	1.13
Min	1	1	1	1	1	1	1	1	1	1	1	1
Max	5	5	5	5	5	5	5	5	5	5	5	5

The mean for SM is much higher than the other items. There were significant differences for *SM* ($t(488) = 4.22, p < .0005$), but not for *Blogs* ($t(488) = 0.83, p < .406$) *Microblogs* ($t(488) = 1.36, p < .173$) or *Email* ($t(488) = 1.64, p < .101$). These results echo those of the previous analysis.

Table C.26b. Descriptive Statistics for the Social Context of TV Viewing.

	Ryerson				Dalhousie				Both			
	Forums	Chat	Info	Video	Forums	Chat	Info	Video	Forums	Chat	Info	Video
Mean	1.78	3.66	1.84	1.56	1.84	3.21	1.83	1.43	1.78	3.64	1.84	1.56
SD	1.00	1.02	1.02	0.84	1.08	1.26	1.11	0.75	1.03	1.10	1.05	0.85
Min	1	1	1	1	1	1	1	1	1	1	1	1
Max	5	5	5	5	5	5	5	4	5	5	5	5

Chat had higher levels of use. There were significant differences for *Chat* ($t(488) = 4.34, p < .0005$), but not for *Forums* ($t(488) = 1.03, p < .302$) *Information channels* ($t(488) = 1.08, p < .279$), or *Video Conferencing* ($t(488) = 0.79, p < .431$). Again, the results of the *t-test* echo those of the *chi-square* analysis.

The number of Social Media Outlets used was counted per participant was calculated. For Ryerson, the number of Social Media Outlets used ranged from 1 to 8, with a mean of 5.02 (*SD*: 1.94): This was uniformly distributed for two or more apps with a mode of 5 ($n=66$). For Dalhousie, the number of Social Media Outlets ranged from 1 to 8 with, again, a uniform distribution but with modes at 4 ($n= 18$) and 7 ($n=19$) with a mean of 1.62 (*SD*: 0.72). The number of Social Media Outlets used did not differ between the two samples with $t(448) = 1.42$ ($p < .158$).

Generally, the differences were minor (both samples used the full range except on Video – a relatively new technology): One may speculate that the differences in SM and Chat use are reflective of the age different in the samples. The Dalhousie sample was older and the use of social media is related to age.

Use of Second Screen

A set of six items addressed the question of SS use in the generic sense. Was the SS used for *Work*, or *Shopping*, to *Talk About the Show*, to *Socialize but Not About the Show*, to “*Browse*”, or to do *Other Things NOT about the Show*? The point of this set of items was to contextualize the *amount of SS use* that was devoted to the TV show. Note that, in principle, all participants used the SS to talk about the TV to some degree – it was a selection requirement for recruitment. However, that did not mean that they used the SS exclusively or primarily for this function.

For each item, the standard five-point scale was used (1 = “Never = about 0% of the time”, 2 = “Rarely = about 25% of the time”, 3 = “Frequently = about 50% of the time”, 4 = “Usually = about 75% of the time”, and 5 = “Always = about 100% of the time”). Table C.27 provides the distributions.

Table C.27. Distributions for the Use of Second Screen.

I use a SS:	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
To Work	1	82	23.6	24	23.5	106	23.6
	2	108	31.0	24	23.5	132	29.3
	3	77	22.1	29	28.4	106	23.6
	4	61	17.5	18	17.6	79	17.6
	5	20	5.7	7	6.9	27	6.0
To Shop	1	71	20.4	24	23.5	95	21.1
	2	110	31.6	30	29.4	140	31.1
	3	96	27.6	34	33.3	130	28.9
	4	57	16.4	11	10.8	68	15.1
	5	14	4.0	3	2.9	17	3.8
To talk about the TV show I am watching	1	120	34.5	9	8.8	129	28.7
	2	124	35.6	65	63.7	189	42.0
	3	56	16.1	27	26.5	83	18.4
	4	37	10.6	1	1.0	38	8.4
	5	11	3.2	0	0.0	11	2.4
To socialize, but NOT about the show	1	26	7.5	14	13.7	40	8.9
	2	57	16.4	13	12.7	70	15.6
	3	111	31.9	35	34.3	146	32.4
	4	109	31.3	26	25.5	135	30.0
	5	45	12.9	14	13.7	59	13.1

I use a SS:	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
To Browse	1	19	5.5	16	15.7	35	7.8
	2	51	14.7	18	17.6	69	15.3
	3	97	27.9	37	36.3	134	29.8
	4	133	38.2	17	16.7	150	33.3
	5	48	13.8	14	13.7	62	13.8
To do other things NOT about the show	1	25	7.2	10	9.8	35	7.8
	2	47	13.5	17	16.7	64	14.2
	3	93	26.7	36	35.3	129	28.7
	4	126	36.2	25	24.5	151	33.6
	5	57	16.4	14	13.7	71	15.8
Total		348		102		450	

A 2x5 *chi-square* per item showed significant differences between samples for the distributions of *Talking About the Show* ($\chi^2(4) = 49.17, p < .0005$) and *Browsing* ($\chi^2(4) = 23.93, p < .0005$). There were no significant differences for *Work* ($\chi^2(4) = 3.01, p < .556$), *Shopping* ($\chi^2(4) = 3.27, p < .514$), *Socializing (not about show)* ($\chi^2(4) = 5.22, p < .266$) or *Other Activities (not about show)* ($\chi^2(4) = 6.84, p < .145$). This difference may be related to the other demographics of the sample. Note that for *Talking about the Show*, the Dalhousie sample was more concentrated in the lower middle frequencies but did not reach the scale maximum. For *Browsing*, the Dalhousie sample was lower.

Again, these items collected responses on an ordinal scale. Table C.28 (split for presentation) provides the descriptive statistics.

Table C.28a. Descriptive Statistics for Generic SS Use.

	Ryerson			Dalhousie			Both		
	Work	Shop	Talk	Work	Shop	Talk	Work	Shop	Talk
Mean	2.51	2.52	2.12	2.61	2.40	2.20	2.53	2.49	2.14
SD	1.19	1.11	1.10	1.22	1.06	0.60	1.20	1.10	1.01
Min	1	1	1	1	1	1	1	1	1
Max	5	5	5	5	5	4	5	5	5

Table C.28b. Descriptive Statistics for Generic SS Use.

	Ryerson			Dalhousie			Both		
	Socialize	Surf	Other	Socialize	Surf	Other	Socialize	Surf	Other
Mean	3.40	3.41	3.40	2.95	3.16	2.95	3.30	3.35	3.30
SD	1.07	1.13	1.07	1.24	1.16	1.24	1.11	1.14	1.11
Min	1	1	1	1	1	1	1	1	1
Max	5	5	5	5	5	5	5	5	5

In terms of means, there were no significant differences for *Work* ($t(488) = 0.74, p < .462$), *Shopping* ($t(488) = 0.96, p < .339$), *Talking about the Show* ($t(488) = 0.64, p < .573$), or *Socializing (not about Show)* ($t(488) = 1.03, p < .305$), but there was for *Browsing* ($t(488) = 3.62, p < .0005$), and for *Other Activities (not about show)* ($t(488) = 1.99, p < .048$). The results of the *t-test* were similar to those of the *chi-square* analysis with the exception of *Talking About the Show*.

In terms of the number of uses that the participants endorsed (setting any frequency greater than 2 or “Rarely” as the criterion for use), it was not surprising that six was the modal value (i.e., if “everyone” uses the internet for “everything”, one would expect everyone to endorse all options). For the Ryerson sample, the number of Generic Uses ranged from 2 to 6 with a mode of 6 ($n=163$). The mean was 5.01 ($SD 1.23$). For the Dalhousie sample, the number of Generic Uses ranged from 2 to 6 with a mode of 6 ($n=52$). The mean was 5.05 ($SD 1.24$). The two means did not differ with $t(448) = 0.25 (p < .803)$.

Generally, the two sample complemented and extended each other. They overlapped to a considerable degree (i.e., both samples used the full range from min to max) and the differences were relatively minor. One could speculate that the differences were related to the fact that the Dalhousie sample was older and more educated.

When Was the SS Used

The final item of this section tried to capture – in a general way – when the SS was used while watching TV. The items captured SS use when the show was *Slow*, when the show was *Fast*, when the show was *Boring*, when the show was *Exciting* and to fill in the *Free Time* (e.g. commercials).

For each item, the standard five-point scale was used (1 = “Never = about 0% of the time”, 2 = “Rarely = about 25% of the time”, 3 = “Frequently = about 50% of the time”, 4 = “Usually = about 75% of the time”, and 5 = “Always = about 100% of the time”). Table C.29 provides the distributions.

Table C.29. Distributions for the When of Second Screen Use.

I use a SS when the show is:	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
Slow	1	16	4.6	7	6.9	23	5.1
	2	45	12.9	18	17.6	63	14.0
	3	104	29.9	38	37.3	142	31.6
	4	128	36.8	25	24.5	153	34.0
	5	55	15.8	14	13.7	69	15.3
Fast	1	148	42.5	40	39.2	188	41.8
	2	158	45.4	48	47.1	206	45.8
	3	18	5.2	9	8.8	27	6.0
	4	19	5.5	4	3.9	23	5.1
	5	5	1.4	1	1.0	6	1.3
Boring	1	11	3.2	4	3.9	15	3.3
	2	40	11.5	15	14.7	55	12.2
	3	88	25.3	26	25.5	114	25.3
	4	144	41.4	31	30.4	175	38.9
	5	65	18.7	26	25.5	91	20.2
Exciting	1	169	48.6	47	46.1	216	48.0
	2	140	40.2	36	35.3	176	39.1
	3	26	7.5	11	10.8	37	8.2
	4	12	3.4	7	6.9	19	4.2
	5	1	0.3	1	1.0	2	0.4
needs something to fill in Free Time	1	17	4.9	10	9.8	27	6.0
	2	29	8.3	11	10.8	40	8.9
	3	92	26.4	27	26.5	119	26.4
	4	122	35.1	24	23.5	146	32.4
	5	88	25.3	30	29.4	118	26.2
Total		348		102		450	

A 2x5 chi-square per item showed no significant differences between samples for *Slow* ($\chi^2(4) = 7.12, p < .130$), *Fast* ($\chi^2(4) = 2.50, p < .646$), *Boring* ($\chi^2(4) = 5.06, p < .201$), *Exciting* ($\chi^2(4) = 4.68, p < .321$), or *Free Time* ($\chi^2(4) = 7.46, p < .114$).

Again, these items collected responses on an ordinal scale. Table C.30 (split for presentation) provides the descriptive statistics.

Table C.30a. Descriptive Statistics for Generic SS Use.

	Ryerson				Dalhousie				Both			
	Slow	Fast	Boring	Exciting	Slow	Fast	Boring	Exciting	Slow	Fast	Boring	Exciting
Mean	3.46	1.78	3.61	1.67	3.21	1.80	3.59	1.81	3.40	1.78	3.60	1.70
SD	1.05	0.88	1.02	0.78	1.10	0.83	1.14	0.95	1.06	0.87	1.05	0.82
Min	1	1	1	1	1	1	1	1	1	1	1	1
Max	5	5	5	5	5	5	5	5	5	5	5	5

Table C.30b. Descriptive Statistics for Generic SS Use.

	Ryerson	Dalhousie	Both
	Free Time	Free Time	Free Time
Mean	3.68	3.52	3.64
SD	1.09	1.29	1.14
Min	1	1	1
Max	5	5	5

In terms of means, there was a significant difference for *Slow* ($t(488) = 2.15, p < .032$), but not for *Fast* ($t(488) = 0.26, p < .797$), *Boring* ($t(488) = 0.18, p < .859$), *Exciting* ($t(488) = 1.58, p < .114$), or *Free Time* ($t(488) = 1.22, p < .225$). The results of the *t-test* were similar to those of the *chi-square* analysis with the minor exception of *Slow*. The Dalhousie sample had a lower level of endorsement than the Ryerson sample.

Each of *Slow*, *Boring*, *Fast*, *Exciting* and *Free time* was converted to a binary using a cutoff of 2 (responses greater than “Rarely”). Both *Slow* and *Boring* were endorsed by 94.6% of the Ryerson sample ($n=329$) and by 90.2% of the Dalhousie sample ($n=92$). Both *Fast* and *Exciting* were endorsed by 45.4% of the Ryerson sample ($n=158$) and by 47.1% of the Dalhousie sample ($n=48$). This raises the interesting observation that *Slow* and *Boring* are equitable, but *Fast* and *Exciting* are not. For the Ryerson sample, the two boring options were endorsed an average of 1.92 ($SD: 0.34$) with a range from 0 to 2. For the Dalhousie sample the two “boring” options were endorsed an average of 1.89 ($SD: 0.34$) with a range from 0 to 2. The means did not differ as a function of sample, with $t(448) = 0.78 (p < .434)$. Similarly, the two “exciting” options were endorsed an average of 1.109 ($SD: 0.90$) with a range from 0 to 2. For the Dalhousie sample the two exciting options were endorsed an average of 1.15 ($SD: 0.88$) with a range from 0 to 2. The means did not differ as a function of sample, with $t(448) = 0.57 (p < .568)$.

There were some differences between the samples, but again, there was considerable

overlap. The two samples extended each other.

Social Context of SS Use

A collection of 10 items addressed the social context of SS use. Items addressed who was physically close to the participant while the SS was in use (see Tables A.31a, A.31b and A.31c), what those people were doing, and why a participant might want to use a SS. The first three were use *When Alone*, use *When Others Are Using It* and use *Even if Not Alone*. The next four were use *When Others are Annoying*, use *When Others are Ignoring*, use *When No One Wants to Watch TV with Me*, and use *When I Need Different Company*. The final three were *When I Want Particular Company*, *When I Do Not Want (physical) Company*, and *When I Do Not Want to Leave My Place*

For each item, the standard five-point scale was used (1 = “Never = about 0% of the time”, 2 = “Rarely = about 25% of the time”, 3 = “Frequently = about 50% of the time”, 4 = “Usually = about 75% of the time”, and 5 = “Always = about 100% of the time”). Tables C.30a-c provide the distributions. The table is split into three simply to make it fit.

Table C.31a. Distributions for the Social Context of TV Viewing.

I use a SS:	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
When Alone	1	9	2.6	1	1.0	10	2.2
	2	38	10.9	9	8.8	47	10.4
	3	82	23.6	37	36.3	119	26.4
	4	141	40.5	28	27.5	169	37.6
	5	78	22.4	27	26.5	105	23.3
Because Others are Using It	1	88	25.3	34	33.3	122	27.1
	2	114	32.8	34	33.3	148	32.9
	3	96	27.6	24	23.5	120	26.7
	4	42	12.1	6	5.9	48	10.7
	5	8	2.3	4	3.9	12	2.7
Even though Others are Around	1	71	20.4	31	30.4	102	22.7
	2	128	36.8	41	40.2	169	37.6
	3	84	24.1	18	17.6	102	22.7
	4	51	14.7	10	9.8	61	13.6
	5	14	4.0	2	2.0	16	3.6
Total		348		102		450	

There was a lot of use when *Alone*. However, use in the other conditions was lower. The difference is quite obvious. A 2x5 *chi-square* analysis per item showed significant differences

between samples for the distributions of *When Alone* ($\chi^2(4) = 10.21, p < .037$), but not for *Because Others are Using It* ($\chi^2(4) = 5.99, p < .200$) or *Even though Others are Around* ($\chi^2(4) = 7.50, p < .112$).

Table C.31b. Distributions for the Social Context of TV Viewing.

I use a SS:	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
When Others are Annoying	1	112	32.2	40	39.2	152	33.8
	2	81	23.3	32	31.4	113	25.1
	3	94	27.0	21	20.6	115	25.6
	4	49	14.1	6	5.9	55	12.2
	5	12	3.4	3	2.9	15	3.3
When Others are Ignoring Me	1	125	35.9	48	47.1	173	38.4
	2	99	28.4	28	27.5	127	28.2
	3	65	18.7	18	17.6	83	18.4
	4	44	12.6	6	5.9	50	11.1
	5	15	4.3	2	2.0	17	3.8
When No One Wants to Watch TV with Me	1	133	38.2	45	44.1	178	39.6
	2	92	26.4	21	20.6	113	25.1
	3	70	20.1	21	20.6	91	20.2
	4	44	12.6	10	9.8	54	12.0
	5	9	2.6	5	4.9	14	3.1
When I Need a Change of Company	1	128	36.8	8	7.8	136	30.2
	2	105	30.2	74	72.5	179	39.8
	3	68	19.5	20	19.6	88	19.6
	4	34	9.8	0	0.0	34	7.6
	5	13	3.7	0	0.0	13	2.9
Total		348		102		450	

Use for these reasons was generally lower. A 2x5 *chi-square* analysis per item showed significant differences between samples for the distributions of *When I Need a Change of Company* ($\chi^2(4) = 71.24, p < .0005$) but not for *When Others are Annoying* ($\chi^2(4) = 8.89, p < .064$), *When Others are Ignoring Me* ($\chi^2(4) = 7.02, p < .135$), or *When No One Wants to Watch TV with Me* ($\chi^2(4) = 3.67, p < .453$).

Table C.31c. Distributions for the Social Context of TV Viewing.

My SS contains:	Level	Ryerson		Dalhousie		Both	
		#	%	#	%	#	%
When I Want Particular Company	1	72	20.7	1	1.0	73	16.2
	2	102	29.3	41	40.2	143	31.8
	3	103	29.6	58	56.9	161	35.8
	4	52	14.9	2	2.0	54	12.0
	5	19	5.5	0	0.0	19	4.2
When I Do Not Want (physical) Company	1	130	37.4	56	54.9	186	41.3
	2	88	25.3	18	17.6	106	23.6
	3	69	19.8	16	15.7	85	18.9
	4	43	12.4	7	6.9	50	11.1
	5	18	5.2	5	4.9	23	5.1
When I Do Not Want to Leave My Place	1	120	34.5	51	50.0	171	38.0
	2	98	28.2	21	20.6	119	26.4
	3	65	18.7	16	15.7	81	18.0
	4	45	12.9	7	6.9	52	11.6
	5	20	5.7	7	6.9	27	6.0
Total		348		102		450	

A 2x5 *chi-square* per item showed significant differences between samples for the distributions of *When I Want Particular Company* ($\chi^2(4) = 54.87, p < .0005$), *When I Do Not Want (physical) Company* ($\chi^2(4) = 10.70, p < .020$), and *When I Do Not Want to Leave My Place* ($\chi^2(4) = 9.78, p < .044$).

The response for each item was an ordinal scale. Hence Table C.32a-c presents the descriptive statistics per item.

Table C.32a. Descriptive Statistics for the Social Context of TV Viewing.

	Ryerson			Dalhousie			Both		
	Alone	Because Others Are	Despite Others	Alone	Because Others Are	Despite Others	Alone	Because Others Are	Despite Others
Mean	3.69	2.33	2.45	3.70	2.14	2.13	3.69	2.29	2.38
SD	1.02	1.05	1.09	0.99	1.07	1.02	1.01	1.06	1.08
Min	1	1	1	1	1	1	1	1	1
Max	5	5	5	5	5	5	5	5	5

The mean for Alone is basically the same as both samples – in contrast to the analysis of distributions. There were no significant differences for *Alone* ($t(488) = 0.03, p < .975$) or *Because*

Others Are ($t(488) = 1.65, p < .0.100$), but there was for *Despite Others* ($t(488) = 02.67, p < .008$).

Table C.32b. Descriptive Statistics for the Social Context of TV Viewing.

	Ryerson				Dalhousie				Both			
	Annoy	Ignore	Share	Chg	Annoy	Ignore	Share	Chg	Annoy	Ignore	Share	Chg
Mean	2.33	2.21	2.15	2.14	2.02	1.88	2.11	2.12	2.26	2.14	2.14	2.13
SD	1.17	1.18	1.14	1.13	1.05	1.03	1.22	0.51	1.16	1.02	0.00	1.03
Min	1	1	1	1	1	1	1	1	1	1	1	1
Max	5	5	5	5	5	5	5	3	5	5	5	5

There were significant mean differences for *Annoy* ($t(488) = 2.44, p < .015$) and *Ignore* ($t(488) = 2.53, p < .012$), but not for *No One to Watch With* ($t(488) = 0.32, p < .750$) or *Need for a Change of Company* ($t(488) = 0.15, p < .880$).

Table C.32c. Descriptive Statistics for the Social Context of TV Viewing.

	Ryerson			Dalhousie			Both		
	Want Special	No Company	No Leaving	Want Special	No Company	No Leaving	Want Special	No Company	No Leaving
Mean	2.55	2.23	2.27	2.60	1.89	2.00	2.56	2.15	2.21
SD	1.14	1.22	1.22	0.55	1.19	1.25	1.03	1.21	1.23
Min	1	1	1	1	1	1	1	1	1
Max	5	5	5	4	5	5	5	5	5

There were no significant differences for *Want Specific Company* ($t(488) = 0.40, p < .691$) and *Chat* ($t(488) = 4.34, p < .0.005$), but there were for *Do Not Want (physical) Company* ($t(488) = 2.45, p < .015$) and *Do Not Want to Go Out* ($t(488) = 1.97, p < .049$).

Generally, the results of the *t-test* were similar to those of the *chi-square* analysis with the exception of *Want Specific Company*. For Ryerson, the number of *Social Situations* ranged from 1 to 10, with a mean of 7.16 (*SD*: 2.99): The mode was 10 ($n=122$), but the distribution was fairly uniform from 1 through 8 ($n= 15$ to 26) building for 9 ($n=47$) and 10. For Dalhousie, the number of *Social Situation* ranged from 1 to 10, again with a mode of 10, but the distribution was more uniform. The number of *Social Situations* did not differ for the two samples with $t(488) = 0.76$ ($p < .445$).

Summary of Item by Item Comparisons Across Samples

The point of two samples was to extend the breadth to provide a better bases for inferences. The analysis of the demographic items indicated that the samples different on their means, but in fact,

overlapped considerably on each item. The analysis of the TV Viewing Habits and SS Use had fewer differences on means and more overlap on distributions. Thus, it can be concluded that the two samples complemented each other, extending the range of basic demographics but not demonstrating major differences in TV viewing or SS use. Therefore, combining the two samples seemed reasonable.

Appendix D Final Sample Analysis of the SSE-MS

The purpose of this appendix is to provide more details about the statistical analysis associated with the Reliabilities analysis of the combined sample. It also includes, for comparison purposes, the reliabilities analysis of Sample Y.

There are two main sections: The Descriptive statistics for the combined and for Sample X. and the Reliabilities analysis. The reliabilities analysis is similar to that used for the analysis of Sample X in Chapter 4.

Descriptive Statistics

Table D.1 provides the descriptive statistics for the combined sample and for Sample Y. These are discussed in Chapter 6. The descriptive statistics for Sample X are in Appendix C. Comparison of all shows little variation across samples. Appendix: Sample Statistics provides the details of the analysis of the differences.

To summarize briefly, for the Demographic variables, the two samples differed significantly on six of the seven variables: Age, Living Arrangements, Educational Attainment, Relative Income Degree of Urbanization, and on 8 or the 12 Occupations that each participant could endorse. They did not differ significantly on Gender. However, both samples used the full ranges of all ordinal variables, and both samples had some participants in every category of the categorical variables (Occupation, Living Arrangements). Neither sample had any participants who selected “homemaker” as an occupation. Said another way, the distributions for the demographic variables had considerable overlap, but also provided breadth.

For the TV Viewing Habits, the two samples did *not* differ significantly on 11 of 16 Genres that participants could selected, did *not* differ significantly any of the 6 items used to assess Mode of TV Access, did *not* differ significantly on 3 of the 4 items used to assess the Intensity of Access By Mode, did *not* differ significantly on 3 of the 4 items used to assess the Intensity of Watching Particular Shows, did *not* differ significantly on any of the 3 items uses to assess the Hours of TV Viewing (weekdays, Saturdays, Sundays), did *not* differ significantly on the any of the 2 items used to assess Time of TV Viewing, did *not* differ significantly on any of the 3 items used to assess Binge Watching, did *not* differ significantly on either of the two items used to assess Emotional Connection to TV Shows, did *not* differ significantly on 4 of the 8 items used to assess the Social Context of TV Viewing. Hence, despite differences on demographics the two samples had very similar TV Viewing Habits.

Finally, for SS Use, the two samples did *not* differ significantly on 3 of 4 items used to assess the Type of SS, did *not* differ significantly on 3 of 6 items used to assess the Process for Accessing a Second Screen, did *not* differ significantly on 6 of 8 items used to assess the Applications Use on the Second Screen, did *not* differ significantly on 5 of 10 items used to assess the Social Context of SS Use, did *not* differ significantly on 4 of 6 items used to assess the Content of the Second Screen, and did *not* differ significantly on any of the 5 items used to assess the Time of Second Screen Use. Hence, despite differences on demographics the two samples had very similar patterns for SS Use (though there were more differences than with TV Viewing Habits). Furthermore, the distributions for the two samples *overlapped completely* for every variable. If a variable had responses scaled from 1 to 5, then both samples had a range from 1 to 5 (min to max). If a variable had responses scaled from 1 to 4, then both samples had a range from 1 to 4. If a variable had binary response (yes / no), then both samples has some responses in each category.

Hence, based on the descriptive statistics, it was appropriate to combine the samples.

Table D.1. Descriptive Statistics for Sample Y and the Combined Sample (Samples X and Y)

	Item Text	Y		Combined	
		Mean	SD	Mean	SD
Cognitive	While watching TV, I use a second screen to ...				
	1 look up information about the show.	2.25	1.15	2.53	1.27
	2 look up information about the production (e.g., staff, set, effects).	2.77	1.18	3.06	1.33
	3 see if the show is honest in its presentation of the facts or opinions.	2.76	1.25	3.23	1.29
	4 help others understand the show.	3.27	1.18	3.36	1.27
	5 learn the opinions of others about the show.	2.91	1.14	3.08	1.28
	6 read reviews of the show.	2.66	1.21	2.87	1.35
	7 learn the opinions of production staff	3.48	1.21	3.64	1.26
	8 give my opinion of the show.	3.75	1.16	3.96	1.18
Social Integration	While watching TV, I use a second screen to talk about the show ...				
	1 as a way to keep in touch with family and friends.	3.50	1.26	3.43	1.31
	2 because my family or friends expect me to.	3.67	1.18	3.57	1.30
	3 to find new friends with similar interests.	3.71	1.17	3.76	1.17
	4 to start discussions.	3.64	1.33	3.70	1.26
	5 as a way to learn about life and society.	3.37	1.36	3.42	1.35
	6 with strangers because we focus on the show	3.59	1.18	3.65	1.21
	7 so I can be a part of a group.	3.71	1.22	3.93	1.14

	8	because it is like having people in the room with me.	3.90	1.11	4.10	1.09
Personal Identity	While watching TV, I use a second screen to talk about the show ...					
	1	to discuss the motivations of the characters.	2.25	1.02	2.87	1.23
	2	to discuss the characters who are like me.	3.60	1.20	3.87	1.12
	3	to discuss the characters who are different from me.	3.83	1.18	3.88	1.19
	4	as a way to share problems.	3.42	1.21	3.50	1.28
	5	because I like to try to figure out weird characters.	3.15	1.25	3.53	1.27
	6	because others value my opinion.	3.75	1.16	4.02	1.14
	7	because there are people I want to meet.	3.72	1.25	3.89	1.19
Diversion	While watching TV, I use a second screen to talk about the show ...					
	1	to add to the fun.	3.04	1.39	3.04	1.33
	2	more often when the show is exciting or interesting.	3.31	1.32	3.18	1.35
	3	to help me relax.	3.37	1.22	3.36	1.32
	4	out of habit.	2.76	1.42	2.84	1.40
	5	when I have to say something about the show.	3.26	1.32	3.08	1.35
	6	because I am alone.	3.31	1.33	3.37	1.38

Reliability Analysis

The next analyses examined structure of the SSE-MS. The first analysis used a principal components analysis with an oblique rotation (because the subscales were expected to be correlated) to assess the factor structure. This was conducted for the Sample Y and for the combined sample (the same analysis for Sample X was presented in *Chapter 5*; some aspects of the analysis of the combined sample were present in *Chapter 6*).

For each analysis, the solution for eigenvalues greater than 1 and the solution for four factors (the desired number of subscales) were examined, but only the four factor solution is presented. The two analyses are presented side-by-side. This allows one to see how the Sample Y differs from the combined sample. However, this also demonstrates any differences between Samples X and Y without the need to include the analyses of Sample X (presented in *Chapter 5*). This is because 77% of the combined sample is the Sample X, so the combined sample is “essentially” the same as Sample X.

The factorability of Sample Y has been substantiated by running the KMO which was .871 and the Bartlett's test of Sphericity which was 2404.9.5 ($p < .0005$; $df = 435$). Both imply that a factor solution existed. The solution for eigenvalues greater than 1 produced five factors that explained 69.1% of the variance. The solution with four factors explained 65.1% of the variance. The pattern matrix for the four factor solution is presented in Table D.2. Factor loading in excess of .5 are notated due to the smaller sample size.

For the Combined sample, the KMO was .947 and the Bartlett's test of Sphericity was 8918.8 ($p < .0005$; $df = 435$) again implying that a factor solution existed. The solution for eigenvalues greater than 1 was the same as the solution with four factor, and it explained 61.8% of the variance. The pattern matrix for the four factor solution is also presented in Table D.2. Factor loading in excess of .3 are notated (given the larger sample size).

Table D.2. The Four Factor Solutions for Sample Y and the Combined Sample.

	Factors For Sample Y					Factors for Combined Sample			
	1	2	3	4		1	2	3	4
Soc07	.919	-.015	-.100	.060	PId02	.783	.037	-.078	.045
Soc06	.898	.040	-.082	-.002	PId01	.760	.107	-.068	.020
Soc08	.788	-.006	-.036	.262	PId05	.753	.079	-.037	.016
PId04	.778	.000	.132	-.241	PId03	.745	.073	-.134	.017
Soc04	.771	.064	.052	.287	PId06	.707	.037	-.175	.057
Soc03	.770	.106	-.001	.188	PId04	.652	.037	-.251	.022
PId03	.729	-.042	.248	-.188	Div05	.643	.047	.057	.273
PId02	.711	-.022	.245	-.255	Div01	.530	.071	.032	.484
PId06	.687	-.059	.297	-.189	Div02	.513	-.029	-.033	.391
Cog08	.634	.136	.068	-.106	PId07	.450	-.031	-.445	.044
PId01	.626	-.034	.333	-.217	Cog03	-.067	.798	-.098	-.043
PId07	.608	-.098	.287	-.015	Cog01	-.098	.790	.096	.051
Soc05	.558	.325	.045	.192	Cog06	.116	.751	.154	-.043
PId05	.491	.049	.420	-.165	Cog02	-.109	.720	-.106	.097
Cog07	.480	.475	-.115	-.075	Cog05	.221	.707	.066	.008
PId08	.432	-.019	.365	-.105	Cog07	.018	.584	-.329	-.071
Cog01	-.229	.831	.070	.014	Cog04	.166	.572	-.082	.049
Cog02	-.109	.805	.172	.140	Soc06	.148	.012	-.796	-.136
Cog03	.077	.728	-.062	.147	Soc03	.115	-.017	-.767	-.006
Cog05	.197	.677	-.021	-.312	Soc07	.160	-.013	-.746	.002
Cog04	.107	.564	.214	.061	Soc02	-.110	-.005	-.706	.150
Cog06	.196	.551	-.206	-.493	Soc08	.069	-.032	-.658	.167
Div04	-.251	.080	.922	.027	Soc05	.074	.156	-.645	-.003
Div03	.026	.112	.812	.058	Soc04	.258	.043	-.569	-.024

Factors For Sample Y				
	1	2	3	4
Div01	.216	.014	.729	-.026
Div02	.262	-.013	.671	-.049
Div06	.148	-.012	.599	.065
Div05	.316	.082	.593	-.004
Soc01	.056	.118	-.042	.731
Soc02	.436	.005	.122	.475

Factors for Combined Sample				
	1	2	3	4
PI08	.300	.023	-.511	-.001
Soc01	-.182	.115	-.508	.264
Cog08	.264	.233	-.419	-.171
Div04	.144	.059	.054	.783
Div03	.139	.061	-.114	.689
Div06	.032	-.005	-.195	.659

The solution for Sample X was not as clean as the solution for the combined sample. This is likely due to the smaller sample size. Nonetheless, Factor 1 is still the Personal Identity items (all 8 this time) plus 6 of the 8 Social Integration items: Soc03, Soc04, Soc05, Soc06, Soc07 and Soc08, and two of the Cognitive items (Cog07 and Cog08). The combining of Social Integration and Personal Identity items is not surprising, particularly given the prior literature on the U & G framework and the factor correlations in Sample X ($r = .61$). Factor 2 is still the Cognitive items, but now just 6 of the 8. Factor 3 is now all 6 of the Diversion items. The fourth factor is just two of the Social items, and these also loaded with Factor 1. The structure is not identical with that of Sample X, but it is still quite similar. Basically, the Social Integration and Personal Identity items merged onto one factor, leaving the Cognitive as an isolated factor. Sample Y also keeps all the Diversion items separate (Sample X included Div 5 with the Personal Identity factor).

The Combined sample solution placed 7 of 8 Personal Identity items (missing PI08) on Factor 1 along with 3 of the Diversion item (Div 1, 2, and 5). Factor 2 contained 7 of the 8 Cognitive items (missing Cog 8). Factor 3 was the Social Integration items (all 8) plus the extraneous Cognitive and Personal Identity items (Cog 8 and PI08). The final factor was the 3 remaining Diversion items (Div 3, 4 and 6). The inclusion of the three Diversion items with the Personal Identity items is not surprising given the content of the items (see Table A.1). This is a retrospective evaluation (hindsight is always 20/20). The inclusion of PI08 with the Social Integration items is not surprising because Personal Identity and Social Integration tend to be tightly linked theoretically, and in prior studies using the U & G framework. Cog 8 is about providing opinions, so it is logically related to Social Integration.

The factors were correlated, as shown in Table D.3. This is consistent with the literature of the U & G framework.

Table D.3. Correlations between the Factors of the Four-Factor Solutions for Sample Y and the Combined Sample.

Sample Y					Combined Sample				
Factor	1	2	3	4	Factor	1	2	3	4
1	1.000	.287	.474	-.036	1	1.000	.374	-.537	.366
2		1.000	.121	.001	2		1.000	-.375	.198
3			1.000	-.033	3			1.000	-.345
4				1.000	4				1.000

Note. The sign of the correlation is not relevant. It is a by-product of the algorithm.

The Social Integration and Personal Identity factors are the most highly related in the Combined sample (and these were “joined” in the Sample Y)

As with the analysis of the Sample X (*Chapter 5*), the results provided sufficient confidence in the conceptual structure of the questionnaire, so four subscales were created that aligned with the initial conceptualization: Cognitive, Personal Identity, Social Integration and Diversion. Therefore, subscales were created as the simple sum of the items based on the conceptual structure (i.e., not the factor structure).

Each subscale within each sample, was then subjected to a reliabilities analysis (see *Chapter 5* for more details). The summary results are presented in Table D.4. These include the Cronbach’s alpha (α), the adjusted alpha (adj- α), the average correlation, the minimum correlation, the maximum correlation and the variance of the correlation for the items within the subscale.

Table D.4. Reliability Statistics for the Subscales of the SSE-MS

	Sample Y						Combined					
	Cronbach’s		Correlations				Cronbach’s		Correlations			
	A	adj- α	mean	min	max	Sd	α	adj- α	mean	min	max	sd
Cognitive	.835	.835	.387	.061	.650	.121	.863	.863	.440	.182	.620	.096
Pers Id	.945	.945	.683	.439	.857	.122	.934	.934	.640	.468	.849	.089
Soc Int	.877	.872	.459	.011	.819	.235	.894	.895	.516	.321	.749	.116
Diversion	.891	.891	.578	.427	.788	.113	.869	.869	.526	.346	.695	.110

Note that all the subscales have reasonable values for Cronbach’s alpha. The adjusted alpha is also fine. The average correlation is reasonable, and possibly a bit high. Typical values are in the .3 to .5 range. Higher correlations lead to a higher alpha (which is good), but may imply that the items are too related – that less related items could have been used and might have been capable of capturing more breadth. The minimum correlations are fine (see *Chapter 5* for more

discussion).

Table D.5 presents the analysis of each item. This includes the α if the item is deleted (α if deleted), the correlation of the item with the total score ($r_{i,\text{total}}$), and the multiple R (see *Chapter 5* for additional discussion). All are acceptable. The change in the alpha (chg α) is provided as the original alpha minus the alpha if deleted, so that a negative value implies that the item hurts the subscale. For the Sample Y, the minimum was -.026 and for the combined sample, the minimum was -.006. These are not important.

Table D.5. The Reliability Statistics for Each Item of Each Subscale for Sample Y and the Combined Sample.

		Sample Y				Combined			
		$r_{i,\text{total}}$	multiple R	α if deleted	chg α	$r_{i,\text{total}}$	multiple R	α if deleted	chg α
Cognitive	1	.533	.494	.819	.016	.553	.397	.853	.010
	2	.605	.525	.810	.025	.619	.469	.846	.017
	3	.588	.373	.812	.023	.694	.499	.837	.026
	4	.549	.428	.817	.018	.616	.448	.846	.017
	5	.681	.557	.800	.035	.688	.537	.838	.025
	6	.522	.408	.821	.014	.594	.463	.849	.014
	7	.603	.443	.810	.025	.656	.471	.842	.022
	8	.420	.357	.833	.002	.469	.302	.861	.002
Personal Identity	1	.841	.799	.935	.010	.787	.654	.924	.010
	2	.864	.800	.933	.012	.817	.767	.922	.012
	3	.884	.837	.932	.013	.844	.777	.920	.014
	4	.845	.753	.934	.010	.800	.653	.923	.011
	5	.791	.681	.939	.006	.735	.562	.928	.006
	6	.873	.784	.933	.012	.819	.684	.922	.012
	7	.703	.601	.944	.001	.738	.611	.928	.006
	8	.613	.524	.949	-.004	.625	.491	.935	-.001
Social Integration	1	.152	.110	.903	-.026	.473	.289	.900	-.006
	2	.489	.286	.877	.000	.587	.381	.888	.006
	3	.763	.628	.849	.028	.754	.607	.873	.021
	4	.799	.680	.844	.033	.686	.510	.879	.015
	5	.632	.500	.863	.015	.691	.486	.879	.015
	6	.758	.719	.849	.028	.747	.632	.874	.020
	7	.763	.739	.848	.029	.775	.680	.871	.023
	8	.748	.607	.850	.028	.691	.517	.879	.015
Diversion	1	.781	.646	.860	.031	.771	.630	.828	.041
	2	.758	.705	.864	.027	.680	.586	.844	.025
	3	.744	.578	.867	.024	.691	.525	.842	.026
	4	.686	.575	.876	.015	.670	.514	.846	.023

		Sample Y				Combined			
		$r_{i,total}$	multiple R	α if deleted	chg α	$r_{i,total}$	multiple R	α if deleted	chg α
	5	.725	.655	.869	.022	.642	.524	.851	.018
	6	.572	.387	.893	-.002	.553	.371	.866	.003

Finally, scales were created as the *mean* of the corresponding items (not the total) because the mean allows scales based on different numbers of items (i.e., 8 for the Cognitive, Personal Identity, and Social Integration, but only 6 for the Diversion) to be easily compared. The use of totals is an anachronism. Table D.6 provides the descriptive statistics for these subscales. The minimums and maximums were 1 and 5 respectively for all subscales, so they are not shown.

Table D.6. Descriptive Statistics for Each Subscale of the SSE-MS for Sample Y and the Combined Sample.

	Sample Y				Combined			
	Cog	PId	Soc	Div	Cog	PId	Soc	Div
Mean	2.98	3.63	3.41	3.18	3.22	3.67	3.70	3.15
Median	3.00	3.63	3.50	3.00	3.25	3.75	3.75	3.00
Mode	3.00	5.00	3.00	5.00	3.00	5.00	5.00	5.00
Std. Dev	0.81	1.04	0.87	1.07	0.92	0.92	1.02	1.05
Skewness	0.34	-0.19	-0.49	0.37	0.05	-0.45	-0.23	0.31
Kurtosis	0.18	-0.87	-0.12	-0.64	-0.53	-0.48	-0.97	-0.70

The Sample Y seemed to be slightly more inclined to use the SS to fulfill Cognitive needs, but otherwise the two samples were quite similar. The means are near the middle but towards the “Disagree” end of the spectrum. As noted previously (see *Chapter 5*), this is not surprising because for any one item (or scale) most participants would *not* be likely to seek that gratification. The *SD* are all about 1.0, which is good (see previous comments). The mode is sometimes 5, which is less desirable. Given the mean, the degree of skew is expected and reasonable. All scales use the full range.

Table D.7 provides the correlations between the dimensions (this is not the correlation between the factors, but it is similar). As would be expected given the factor analysis and the initial conceptualization, the dimensions are moderately correlated. Future work might seek to reduce the overlap.

Table D.7. Correlations for the Subscales of the SSE-MS for Sample Y and the Combined Sample.

	Y				Combined			
	Cog	PId	Soc	Div	Cog	PId	Soc	Div
Cog	1.000	.453	.510	.350	1.000	.588	.527	.476
PId		1.000	.731	.732		1.000	.744	.721
Soc			1.000	.547			1.000	.641
Div				1.000				1.000

Generally, the structure and the reliabilities seem fine. The parallel presentation of the Combined and Sample Y clearly demonstrates that combining the two samples is reasonable. The two samples are not identical, but they overlap on background data (Sample Y enhances the range of Sample X) and they have very similar internal structures for the SSE-MS.