

ENVIRONMENTAL JUSTICE AT DALHOUSIE UNIVERSITY

An Analysis of Environmental Justice Education in Environmentally-Focused Programs at

Dalhousie University

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Executive Summary

The following report details the methods and results of a survey surrounding student perceptions of environmental justice at Dalhousie University. This research was done by four students in SUST/ENVS 3502, a course at Dalhousie University. The purpose of the study is to evaluate if and to what extent upper-year students at Dalhousie University majoring in environmentally-focused subjects have discussed issues of environmental justice in their classes. The results included in this survey display a large interest in further discussions of environmental justice within the classroom among the Dalhousie student population. Using both a quantitative and qualitative approach, the results of this study may be used in the creation of future course curriculums among varying departments at Dalhousie University.

Introduction

In the years preceding Dalhousie University's two-hundredth anniversary, the university administration consulted with the Dalhousie community and developed a comprehensive statement of priorities known as “Inspiration and Impact: Dalhousie’s Strategic Direction 2014–2018” (Dalhousie University, n.d.). In 2018, the university embarked on its third century as an institution of higher education while its administration continued to work towards the implementation of its statement of priorities (Dalhousie University, n.d.). Among these priorities is “Strategic Priority 5.2”, Dalhousie’s diversity and inclusiveness policy that seeks to “foster a collegial culture grounded in diversity and inclusiveness” (Dalhousie University, 2018). There are four pillars under “Strategic Priority 5.2” which include “Climate and Group Interrelations”, “Student Access and Success”, Education and Research and Structures: Institutional Viability and Vitality. Our primary interest in “Strategic Priority 5.2” was the pillar on “Education and Research” which states that, “Dalhousie University will promote teaching and research about diversity and inclusiveness... and the inclusion of diverse perspectives across all disciplines.” (Dalhousie University, 2019). The pillar of “Education and Research” has four objectives focusing on the infusion and expansion of diversity and inclusiveness within curriculum, programs, research, and teaching methods at Dalhousie University (Dalhousie University, 2019).

As students at Dalhousie University, we were interested to see how diversity and inclusiveness are currently being addressed within our coursework and curriculum. By reviewing

the literature on the curriculum of environmental programs at post-secondary institutions, the emphasis on the need for an increased focus on social issues in relation to environmental problems is evident (Clark et al., 2011; Misiaszek, 2011; Westman & Aitken, 2019). As undergraduate students in environmental programs, we were interested to see how our peers perceived the current integration of social issues within their coursework. As part of our research project for ENVS/SUST 3502, we surveyed undergraduate students enrolled in specified environmentally-focused courses at Dalhousie University, which we believed would give us an indication of how the pillar of education and research of Strategic Priority 5.2 is being implemented within its environmental programs. We chose to focus on environmental justice as described by the ENRICH Project as it is a prime example of the interconnection between issues of social justice and the natural world, and there are countless incidents of environmental injustices is prevalent throughout Nova Scotia. Throughout our research, we gathered student feedback from individuals enrolled in selected environmentally-focused courses regarding the education and knowledge of environmental racism they have received at Dalhousie University. Our goal is to assess the educational approach toward environmental justice concepts in Dalhousie's environmentally-focused courses and how students feel the deliverability of these concepts is being presented. With our research project we hope to compile a report and present our findings to department heads and those involved in the curriculum development of selected environmental programs at Dalhousie. By presenting our report to those involved in course and curriculum development, we hope to provide valuable student feedback regarding the need for increased integration of social issues into environmentally-based courses and help inform future curriculum-based policies at Dalhousie University.

Methods

Our study gathered student feedback from students enrolled in selected environmentally-focused courses at Dalhousie University in order to assess student knowledge and satisfaction on topics of environmental justice (EJ) as defined by the ENRICH project (ENRICH project, n.d.). EJ is defined as the fair treatment and meaningful involvement of all people regardless of race, colour, national origin, or income with respect to the development and implementation of environmental regulations or policies (ENRICH project, n.d.). We are defining an environmentally-focused topic under the following criteria:

A program whose official description emphasizes the study of land use and its effects on humans, animals, plants, and all forms of life.

Data collection was conducted through a survey/questionnaire targeting students in environmentally-focused courses past the third year undergraduate level (Appendix II). Purposive sampling, a type of non-probabilistic sampling, is when an identifiable population is used to collect data (Palys & Atchison, 2014). We decided to use purposive sampling for our data collection since our research focuses on a specific population at Dalhousie University. This sampling method will enable us to efficiently gather our data. We also decided to use an online survey to provide full anonymity for all participants. The only required questions in the survey and forms of self-identifying information was year and program (Appendix II).

Participant recruitment was conducted within 33 environmentally-focused courses with the permission of the instructor (Appendix I). We used 2017/2018 Dalhousie analytics program numbers to estimate our study population and calculate our margin of error (Dalhousie University, 2017). Our population size was 1346, targeted sample size was 165 with a confidence interval of 90% and 7 % margin of error. Students were asked to fill out a short survey regarding their current knowledge of environmental justice, their satisfaction of the knowledge they have received at Dalhousie University, and the importance of topics of environmental justice in relation to their studies. The study was aimed at undergraduate students past the third year level who have completed the majority of their degree requirements. Therefore, only students past the third year level were eligible to participate in this study.

Student survey responses were analyzed using a combination of A Priori Content Specific and A Priori Non-Content Specific methods. We analyzed themes and keywords central to environmental justice and new themes that arose from student responses were further analyzed. If and when appropriate, statistical analysis was used in certain questions to highlight or strengthen our results. Only descriptive statistics were used to find the mode, median or average. If there seemed to be noticeable differences between our chosen programs, further statistical analysis, such as the chi-squared test, were utilized.

There were some limitations throughout our research which we were required to address. We encountered several obstacles while conducting our survey including establishing a solid communication network with professors and with framing our research question. After contacting approximately 20 professors from different environmentally-focused programs, we

received minimal replies. As we were only targeting students in specific courses (Appendix I), strategies in reaching these students were limited. Since we did not have access to current program numbers, we were required to use numbers from previous years. Therefore, our sample size represented the most recent data that we could obtain. We also had trouble reaching our sample population due to our survey only being available online. In taking time to finalize our research question, we did not have time to apply for an incentive which could have boosted our sample size further.

Results

Quantitative

Our survey received a total of 50 responses with a 90% confidence level and 11.5% margin of error from students in environmentally-focused courses past the third year level at Dalhousie University (Appendix II). The majority of students, 28% of respondents, are currently enrolled in the Environmental Science program, followed by 20% in Environmental Sustainability and Society (ESS), 18% in International Development Studies (IDS), and 16% in Biology. All other environmentally-focused courses outlined in this study received less than 15% of students that responded to our survey.

Environmental justice knowledge rating.

Out of the 11 respondents that rated their current level of knowledge on issues related to environmental justice as high, six students are from either Environmental Science, ESS, or both (Figure 1). However, out of the eight students that said they have little knowledge on the topic, two students were from the Environmental Science program, two others from Social Anthropology, while the remainder were enrolled in Planning, IDS, Psychology, and Economics. Figure 1 demonstrates the overall level of student knowledge on issues related to environmental justice.

Knowledge of Environmental Justice

3. How would you rate your current level of knowledge on issues related to environmental justice*? Choose one.

50 responses

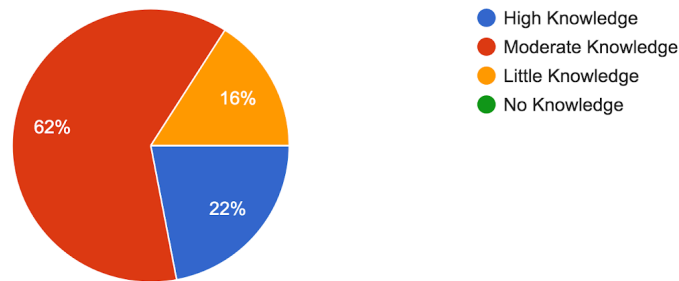


Figure 1. Survey responses from question three which asked students “How would you rate your current level of knowledge on issues related to environmental justice?” and were instructed to choose one of the following: high knowledge, moderate knowledge, little knowledge, or no knowledge.

Colonialism, racism, and economic status.

Figure 2 demonstrates students’ beliefs on the extent to which their courses provide discussion content on topics regarding environmental justice such as: colonialism, racism, and economic status. According to the legend below, each response is illustrated according to its assigned colour. Out of the six students that said colonialism had never been discussed in their courses, four students were enrolled in the Environmental Science program (Figure 2). Both respondents who said that racism is not a discussion topic in their course are both Biology students. The one respondent who said that economic status is not a discussion topic in their course is also a Biology student. On the other hand, the majority of students who responded that these topics are a main focus of their courses are enrolled in International Development Studies and Indigenous Studies.

Discussion of Environmental Justice Topics

5. To what extent have the following been discussed in your courses?

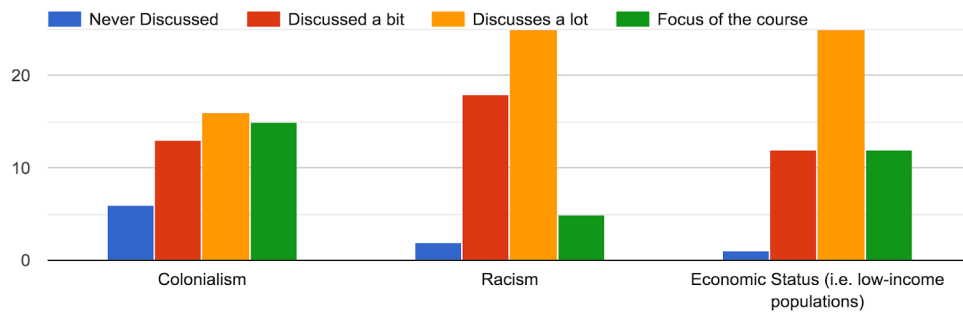


Figure 2. Survey responses to question five which asked students “To what extent have the following been discussed in your courses?” on a scale from never discussed to focus of the course.

Figure 3 demonstrates students’ overall satisfaction with the coverage and content on the same topics as Figure 2. Students were to rate their level of satisfaction on a scale from very unsatisfied to extremely satisfied. Results show that the majority of students are satisfied with the amount of coverage on colonialism and moderately satisfied with the amount of coverage on racism and economic status (Figure 3). Nine students said they are very unsatisfied with the amount of content and coverage on colonialism, racism, and economic within their courses. These students are in Environmental Science and Biology. Respondents who are extremely satisfied with the coverage of these topics within their courses are mainly from IDS, ESS, and Environmental Science.

Satisfaction of Environmental Justice Topic Coverage

6. Rate your satisfaction of coverage and content on the following topics?

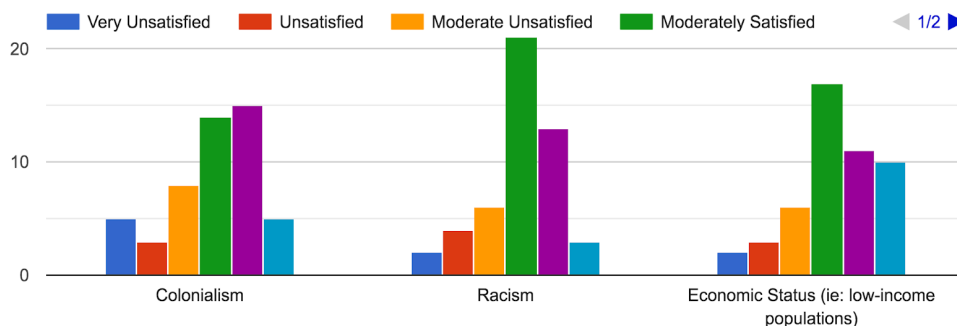



Figure 3. Survey responses to question six asking students to “Rate your satisfaction of coverage and content on the following topics” on a scale from very unsatisfied to extremely satisfied.

Importance of environmental justice.

Question seven allowed students to express their agreement towards the following statements: “Issues of environmental justice are important to my education” and “I would like to see more coverage on topics surrounding environmental justice in my courses”. Students were asked to rate their level of agreement on a scale of one to five, one being strongly disagree and five being strongly agree. Figures 4 and 5 demonstrate that 56% of students strongly agree that issues of environmental justice are important to their education and 52% strongly agree that they would like to see more coverage on topics surrounding environmental justice in their courses.

Importance of Environmental Justice

7. a) Indicate your agreement with the following statements: Issues of environmental justice are important to my education. 

50 responses

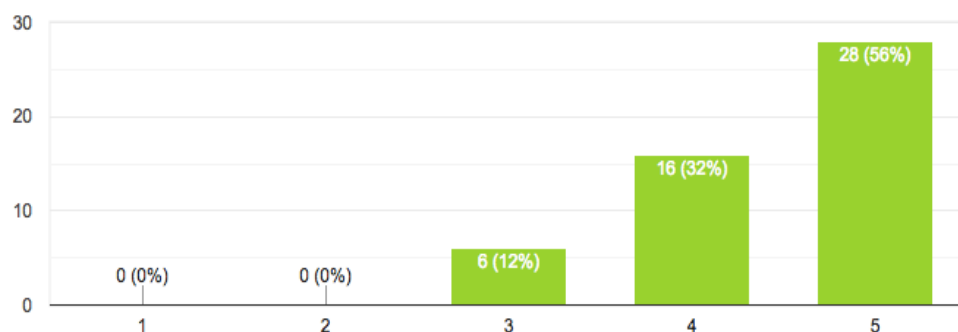


Figure 4. Survey results to question seven which asked students to “Indicate your agreement with the following statement: Issues of environmental justice are important to my education” on a scale from one to five, one being strongly disagree and five being strongly agree.

More Coverage of Environmental Justice Topics

b) Would like to see more coverage topics surrounding environmental justice in my courses

50 responses

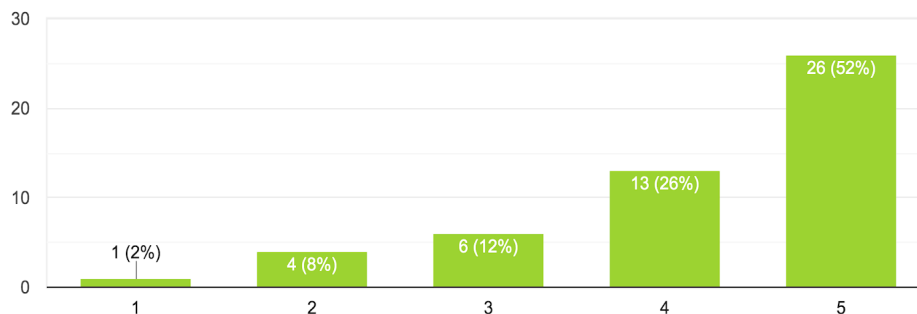


Figure 5. Survey results to question seven which asked students to “Indicate your agreement with the following statement: Would like to see more coverage topics surrounding environmental justice in my courses” on a scale from one to five, one being strongly disagree and five being strongly agree.

Constructive learning formats.

Figure 6 illustrates the most effective learning formats that students feel would be most helpful in covering content on environmental justice. The most popular learning format that was selected by 74% of respondents is guest speakers, followed by in-class lectures with 64% and community-based learning with 56% (Figure 6).

Learning Formats

8. Which learning formats would be most helpful in covering topics of environmental justice? Check all that apply.

50 responses

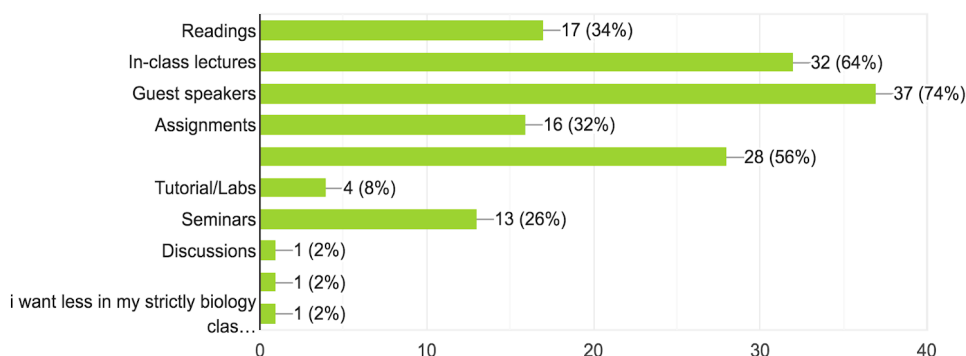



Figure 6. Survey responses to question eight which asked students “Which learning formats would be most helpful in covering topics of environmental justice?” and instructed to check all that apply.

Exposure to diverse backgrounds.

Figure 7 demonstrates students’ beliefs on the importance of being exposed to marginalized identities, lived experiences, and research expertise on a scale of one to ten from extremely unimportant to extremely important. 76% of students rated this exposure as extremely important for their course at Dalhousie University while the rest of the students rated above average (Figure 7).

Importance of Exposure from Diverse Backgrounds

9. How important is it to you to be exposed to perspectives from diverse backgrounds (ex: marginalized identities, lived experiences, research expertise) in your courses? 

50 responses

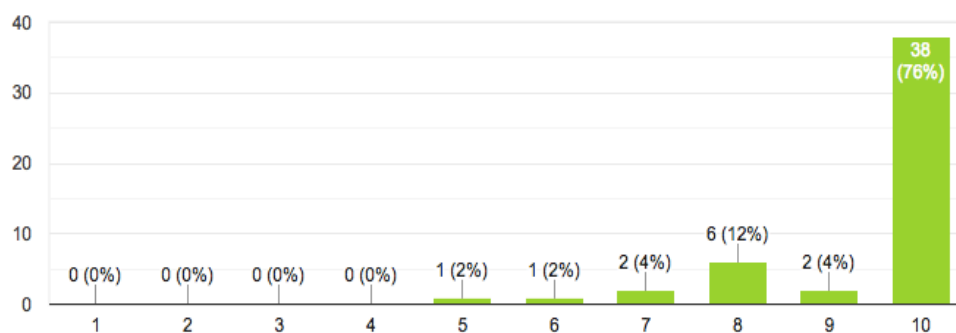


Figure 7: Survey responses of question nine which asked students “How important is it to you to be exposed to perspectives from diverse backgrounds (ex: marginalized identities, lived experiences, research expertise) in your courses?” on a scale from one to ten with 1 being extremely unimportant and ten being extremely important.

Qualitative

10. Is there anything else that you would like to share regarding your experiences with the topic of environmental justice in your program?

12 responses

As the Medical Sciences program is very interdisciplinary, there is very much a divide in the types of courses that cover topics of environmental justices (i.e. sociology, philosophy) and those that do not (i.e. almost all of the 'traditional sciences' - bio, chem, etc.).

As an Environmental Science major, the issues of modern environmental racism is discussed quite often, but the direct environmental impacts of colonialism are not mentioned at all. Also question 4 wont let you pick more than one response per column so you can only answer 4 of the questions.

Teachers treat environmental justice only one aspect of their environmental teaching - mentioned in a couple classes and then done. Environmental justice should set the tone of every class, instead of being an afterthought. I see the damage caused by this in peers right now, even when we discuss environmental justice I can see how integrating an understanding of colonialism (for example) in their work is a box they need to check when it should inform all their actions and learning. I am disappointed to say that educator's lack of integrating environmental justice learning fully and properly has been making me regret coming to Dalhousie. In order to get through my classes I felt like I had to put away my feelings on environmental justice often and my past year has been trying to unlearn many things both ENVS and ESS has taught me.

I like it. I wish it could be taught globally. And question 4(a) is broken; I could only pick one per column instead of one per row

I believe that these topics are very very important for all environmentally related programs, and should be included in more course curriculum. These issues are very relevant for understanding and being more educated about problems that are going on both in our own backyard and on a global scale!

History of community planning

SUST2001 goes into a bit about colonialism, but not a lot

I have found most of my exposure to environmental justice in the academic realm has been through my own research that I have done for term papers, because while it was not the focus of the course, professors have allowed me pursue such topics. If I was restricted to specific research topics in my courses, I would likely not be as informed about environmental justice topics.

dal is great

Keep up the good work folks

Personal experiences and discussions with people involves in activism helps to ground understanding to real life, and makes personal connections.

I think they should be prevalent in environmental studies courses and courses that are cross listed with them, and/or talk about conservation and career advice. However, I would not want this in my invertebrate biology class, for example, or a functional anatomy class. Just let me do hard science without having to deal with politics, for once. (p.s. I am biracial female in STEM and from a mixed-religion household, and am far from a white, catholic student, before you get salty about my comments)

Figure 8. Results to question 10 of the survey.

Discussion

Quantitative

The purpose of our study was to evaluate if and to what extent upper-year students at Dalhousie University majoring in environmentally-focused subjects have discussed issues of environmental justice (EJ) in their classes. As 22% of respondents (11 out of 50) rated their knowledge of issues related to EJ as high knowledge (Figure 1), this shows that students perceive their courses could be teaching them more coverage or increasing their knowledge of EJ. Although all participants according to the survey demonstrate that they do have some form of knowledge regarding environmental justice, many demonstrate that they have low levels of knowledge regarding issues of EJ. Figure 2 shows that while racism and economic status have been “discussed a lot”, colonialism has been discussed less and essentially only when it has only been the focus of the course. This indicates that discussion surrounding colonialism should be taught more outside of courses where it is the main focus. Figure 3 shows students are more satisfied by the coverage of economic status and racism than that of colonialism. Figure 4 and 5 shows that EJ education in their courses is important to them and over half the respondents would like to see more coverage of EJ concepts. Figure 6 shows how educators could implement different teaching tools to teach EJ concepts more effectively from student perspectives. 38 of 50 respondents rated 10 to question nine, which shows how important diversity is to students EJ education at Dalhousie (Figure 7). Thus, these results emphasize the purpose of this study by indicating that students in environmentally-focused courses are aware of the importance of EJ and the majority would like to gain further knowledge on the topic in their course at Dalhousie University. These results also indicate that students in environmentally-focused courses at the third year level and above should be receiving further knowledge on issues related to EJ at Dalhousie University.

Qualitative

For our qualitative question, we asked: “Is there anything else that you would like to share regarding your experiences with the topic of environmental justice in your program?”. Our final question allowed students an opportunity to freely discuss any thoughts, opinions or

concerns they had regarding the teaching of environmental justice (EJ) that they have received at Dalhousie University thus far. Out of the 50 total respondents, 12 students answered this question, which was optional.

One of the primary recurrent themes that we found in the answers to this question was how there was a notable discrepancy in the amount that environmental racism was discussed as compared to colonialism and its impacts. The term “colonialism” was one of the most common key terms included in our qualitative results, recurring in 3 separate responses (Figure 8). Students found that issues of environmental racism were discussed much more than issues related to colonialism, specifically, which was a point of discouragement among respondents.

Other recurrent themes that were found in our qualitative results were how students wanted a shift in focus from discussing issues of EJ in passing to using them as a foundation that the topics could be based upon. There was also a fair amount of discussion surrounding perceptions of how social-based classes vs. science-based courses should be addressing these issues. As seen in Figure 8, several students in STEM (Science, Technology, Engineering, and Mathematics) touched upon the large difference in the amount that environmental racism was discussed in social-based classes (such as Sociology) vs. science-based courses (such as Biology). Two students in STEM/Medical Sciences found that their “traditional science” classes (Biology, Chemistry, Physics) did not address issues of environmental justice, but had varying opinions as to whether it should be included in the syllabus or not. However, the majority of all other respondents emphasized the importance of including more environmental justice education in their classes.

The inclusion of an open-ended question also created an opportunity for respondents to provide feedback on the survey itself. However, there were two issues of note with the inclusion of a free question. During the first day of data collection, question 4 was malfunctioning. Had it not been for the two respondents who advised us of this issue in the final question, we would not have known that there was an issue. If this survey were to be done again, we would consider the addition of another open-ended qualitative question specifically dedicated to receiving feedback about the survey and its format. The second issue, although minor, was that this allowed students to say whatever they want, whether it was related to the topic of environmental justice or not. This led to one respondent submitting “Dal is great” (Figure 8), which was unhelpful to the results of our study.

Our study findings rest within current research looking at environmental education, as well as inclusive education. Aitken and Westman (2016) discuss the future of environmental education in their article titled, “Future of Eco-Education”. They argue that for university graduates, a variety of jobs will require a clear understanding of the importance of respecting ecological limits and social justice (Aitken & Westman, 2016). As well as the integration and knowledge of Indigenous knowledge and teaching methods is vital for any environmental education pathway, advocating for more inclusive education (Aitken & Westman, 2016). As respondents showed coverage of colonialism to be limited (Figure 3), it is clear that it should be addressed further (Aitken & Westman, 2016). Aitken and Westman (2016) further show that students perceived importance of EJ in their education is supported by academia and that Dalhousie University should address this. Clark et al. (2011) addresses environmental education failures, while also providing solutions to improve programs in the article titled “College and university environmental programs as a policy problem (part 2): Strategies for improvement”. Clark et al. (2011) argues the link between the environment and people are very strong, so adopting a human dignity standpoint in environment programs would be more inclusive. As our results showed, there is a separation between social science and hard science knowledge from environmentally-focused of EJ. Both Aitken and Westman (2016) and Clark et al. (2011) clearly show the importance of social integration into environmental education. This shows that Dalhousie should be bridging the gap between programs. Clark et al. (2011) also discuss recommendations in building effective environmental programs. They argue that creating an interdisciplinary curriculum is the most effective, teaching practical and system knowledge (Clark et al., 2011). They also argue that teaching should be based in an active learning approach involving active dialogue between teachers and students (Clark et al., 2011). Clark et al. (2011) also recommend different venue types, such as workshops, field trips, immersion in experiential education and argue a mix of different methods is most effective. Respondents in the study expressed interest in multiple forms of venues as described above (Figure 6), thus this would be something Dalhousie should address.

Conclusion

As Dalhousie enters its’ third century as an institution of higher education and with the creation of the “Inspiration and Impact: Dalhousie’s Strategic Direction 2014–2018” (Dalhousie

University, n.d.”, Dalhousie is poised to be a leading institution in environmental education. Our focus on “Strategic Priority 5.2”, specifically the pillar on “Education and Research” which states that, “Dalhousie University will promote teaching and research about diversity and inclusiveness... and the inclusion of diverse perspectives across all disciplines.” (Dalhousie University, 2019). As it is clear students in environmentally-focused courses feel environmental justice is of great importance, Dalhousie should be assessing and addressing “Strategic Priority 5.2”. We recommend a first step is starting within curriculum of various programs, which can bridge the gap between student experiences and campus policies. We recognize that our sample size is low and since our study only targeted winter semester classes, thus we recommend further research for more baseline data. Further research could help inform “Strategic Priority 5.2” and other relevant policies to help further enact change throughout Dalhousie and increase student knowledge.

Our chosen definition during research was from the ENRICH project (ENRICH project, n.d.). The ENRICH project was started in 2012 to address environmental racism in Mi’kmaq and African Nova Scotian communities (ENRICH project, n.d.). Many different stakeholders partake in this project, such as NGOs, researchers and various academic researchers, with many from Dalhousie University (ENRICH project, n.d.). We also recommend more collaboration between different faculties and key stakeholders of those affected and experts in this field. Various research from the ENRICH project could help inform curriculum at Dalhousie.

Acknowledgements

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Appendices

Appendix I

Targeted Courses at Dalhousie University during the Winter of 2019

Department	Class
Indigenous Studies	INDG 2052: Contemporary Issues in INDG Studies INDG 3052: Indigenous Social Health and Environmental Issues INDG 3050: Indigenous Research Methodology & Knowledge Practices
Sociology	SOSA 2503: Health and Society SOSA 3108: Environment & Culture SOSA 3185: Issues in the Study of Indigenous Peoples of North America SOSA 3143: Health, Illness and the World System SOSA 4005: Issues in Soc. Just. & Inequities SOSA 4006 Issues in Critical Health Studies SOSA 3285 Sociology of Law
Environmental Science	ENVS 3200: Intro to Environmental Law ENVS 3400: Environment and Human Health ENVS 3601: Global Biogeochemical Cycles
Environment, Sustainability and Society	SUST 3102: Coastal Change & Adaptation SUST 3955 ESS: Indigenous Perspectives SUST 3956 Topics in ESS: The Cdn. North
International Development Studies	INTD 3115: Global Health in the 21st Century INTD 4011: Special Topics: Advanced Seminar: Development & Displacement

Political Science	POLI 3208: Canadian Provincial Politics POLI 3233: Canada in the Global Economy POLI 3206: Constitutional Law and Politics in Canada POLI 3505: Human Rights: Foundations POLI 4380: Politics of Climate Change POLI 4505: Human Rights: Legal Issues
Environmental Engineering	ENVE 3500: Air Quality
Canadian Studies	CANA 2280: African Nova Scotian History
Planning	PLAN 2006: Space, Place and Geographic Information Systems PLAN 3051: Topics in Community Design 2 (Social Justice) PLAN 3053: Topics in Community Design - Transportation and Land Use Planning PLAN 3225: Plants in the Human Landscape PLAN 4106: Transportation Planning
Biology	BIOL 3063: Resource Ecology BIOL 3601: Nature Conservation

Appendix II

Survey

The Survey on Environmental Justice Education at Dalhousie University can be found in full at the following link: <https://bit.ly/2U5Nx25>