Greener Futures in Suits and Ties: Environmental Literacy and Intrigue Among Management and Law Undergraduate Students at Dalhousie University

Siobhan Herold, Grace Kasouf, Raphaëlle Dupré, Hannah Nekkers, & Kieran Davies-King

Dalhousie University

SUST/ENVS3502: The Campus as a Living Laboratory

Dr. Caroline Franklin

April 7, 2025

Table of Contents

Key Words: Environmental literacy, university students, environmental education, business, law, commerce, management, sustainability values, environmental action

Abstract

Environmental and sustainability issues are prominent and routinely studied issues in our society. These issues are not only important to address, but they have also long been the focus of increasing interest and educational demand. In recent years, universities have begun incorporating and offering environmental education programs, but what about the stimulation of environmental and sustainable knowledge in students in non-science related courses? The goal of this research is to evaluate the level of interest undergraduate students in Management and Law programs at Dalhousie University have in environmental literacy and sustainability initiatives. We investigated whether Management and Law students believe environmental education is important and whether it is incorporated in their studies. We also examined their interest in making environmental or sustainable courses required in their degrees, their participation in Environmental Science (ENVS) or Sustainability (SUST) courses and campus sustainability initiatives, and their willingness to complete an online module on sustainability literacy. Data collection was completed over one week through the distribution of an online survey. The survey included both open-response and closed-response questions. We received 46 survey responses. Survey results revealed that few students have taken an ENVS or SUST course as part of their degree (13.1%) but half (50%) agreed an environmental science course be incorporated into all undergraduate programs at Dalhousie. Over half of the students showed interest in participating in sustainable initiatives through the school, and 84.8% believed environmental knowledge is important in today's world. Students showed little interest in completing an online sustainability module, with only 26% stating they were somewhat too very interested. Significant differences in responses between Law and Management students were found when asked about the importance of environmental knowledge, where fewer Law students believed in importance compared to those in Management. To satisfy student desire to learn more about these concepts, we recommend that undergraduate programs at Dalhousie incorporate environmental and sustainable concepts into the existing curriculum.

Acknowledgements

We would like to thank Dr. Caroline Franklin for her guidance throughout this semester, as well as our teaching assistant Chelsea.

1.0 Introduction

In modern society environmental issues, such as natural disasters, biodiversity loss, and failure of climate change mitigations and adaptation, are omnipresent concerns across the globe (World Economic Forum, 2019). In recent years, these environmental issues have been continuously listed on the World Risk List, and this has been acknowledged by the World Economic Forum in their 2019 Global Risk Report (Lui et al., 2020).

Given the urgency to understand and mitigate global climate change, there has been corresponding increases in the need for environmental knowledge and education. By the 1970s there was an increase in the number of universities offering programs for environmental education. This increase was described as a "global phenomenon," meaning it was occurring across many countries and recognized as a significant worldwide trend (Frank et al., 2011). This increase peaked around the 1990s and environmental education was one of the fastest-growing areas of study in higher education in America (Frank et al., 2011). In recent years, there has been an increase in the number of students enrolling in environmental degrees globally, and an increase in employers seeking people with environmental education backgrounds or related studies (Frank et al., 2011).

During this time, environmental education also expanded and diversified into specified programs such as sustainable forestry, environmental technology management, and environmental humanities (Frank et al., 2011). The expansion of environmental courses offered at universities has provided students outside of environmental or natural science programs the opportunity to improve their environmental knowledge (Frank et al., 2011).

Moreover, the source of environmental education is important. There is a significant relationship between students' level of sustainability knowledge and their environmental learning source (Michel & Zwickle, 2021). Classrooms have the most positive effect on students' sustainability knowledge, while other information sources such as parents' previous knowledge have the most negative impact (Michel & Zwickle, 2021).

Environmental and sustainable education also has been proven to translate into real-world applications. Environmental knowledge has a significant positive effect on the beliefs of individuals regarding environmentally-related activities or issues, also known as environmental attitudes (Lui et al., 2020; Schultz et al., 2004). General environmental knowledge has a strong positive influence on environmental attitudes, which in turn can positively shape both environmental behavioural intentions and pro-environmental behaviours (Lui et al., 2020). In Taiwan, an experiment was conducted to determine if, when students were required to take an environmental course, their environmental habits were affected, such as conserving more water or choosing eco-friendly products (Hsu, S. J. 2004). It was determined that there was a significant positive influence on a student's responsible environmental behaviour and associated environmental literacy variables (Hsu, S. J. 2004). This experiment also positively affected students' environmental responsibility, intention to act, and overall perceived knowledge of environmental issues. Additionally, the changes were still in effect two months after the course ended, such as the maintaining belief the students could make a difference and environmental responsibility, indicating longer-term benefits from university-level environmental courses (Hsu, S. J. 2004).

While these previous studies show the effectiveness of translating environmental knowledge to positive environmental behaviour, other factors need to be taken into account as well. It was found that there is still a gap between environmental knowledge and pro-environmental behaviour, and that environmental knowledge combined with personal engagement, attitudes, values, habits, and external factors are the biggest influences on whether people act and live in an environmentally friendly and sustainable way (Kollmuss & Agyeman, 2002). Another review also found that to best reinforce positive environmental behaviours physiological, ecological, technological, and socio-cultural influences and backgrounds should be involved and taken into consideration (Steg & Vlek, 2009). Contextualising environmental and sustainable education in lessons has also proven to be very effective in creating meaningful learning environments for students (Wals & Jickling, 2002).

Improving environmental literacy has a significant long-term positive impact on an individual's ability to assist in the resolution of environmental issues, especially when combined with interdisciplinary factors and attitudes. Further, it has also been shown that the best delivery for environmental education programs is through classrooms at academic institutions. As a result, some suggest that environmental education programs for improving environmental literacy should be introduced into university programs. If universities implement required environmental and sustainable programs, the next logical question is; what would students outside of science programs think about being required to take these programs? Would there be extreme opposition or enthusiasm? Could personal attitudes hinder the positive effects of environmental education?

Investigating non-science student's interest in environmental initiatives may help to understand what potential repercussions could arise from implementing required environmental education programs. Knowing these demographics' attitudes towards these types of initiatives could help determine not only whether they should be implemented, but also how they should be implemented to better suit these attitudes and opinions. We chose to survey undergraduate students in the Faculty of Law, Justice, and Society (LJSO), and in the Faculty of Management (Commerce and Management), because these degrees have little to no crossover with science programs such as environmental science, so we believe they would be the group with the least experience with environmental science and sustainability. This would allow us to study the opinions of students with no perceivable interest or background in these subjects.

The goal of our research is to understand how these students perceive environmental issues and how this contributes to an interest in improving their environmental literacy. We seek to understand the current role environmental knowledge plays in the actions or decisions of students in these programs. Additionally, we aim to collect valuable data on the Management and Law student body's opinion on an inclination to improve environmental literacy to support future environmental education initiatives at Dalhousie. We sought to answer the following research questions:

1. Do undergraduate students in the Faculty of Management (BComm, BMgmt) and Law, Justice and Society (BA) perceive environmental issues as relevant to their field of study, and are they inclined to take personal action in environmental initiatives?

2. Do undergraduate students in the Faculty of Management (BComm, BMgmt) and Law, Justice and Society (BA) show interest in the idea of a required environmental science course to improve their environmental literacy?

2.0 Methods

This study aimed to answer the research questions using student perception data collected through an online survey. The online survey was created through Microsoft forms (see Appendix A), making it accessible to any Dalhousie Student using their school email. Non-probabilistic stakeholder sampling method was applied, as only students enrolled in the faculty of Management and Law, Justice and Society (LJSO) undergraduate programs in 2025 were asked to complete the survey. The target sample size for this study was chosen based on the total faculty enrollment for each program from 2024. The number of undergraduate students enrolled in the 2024/2025 school year is 1,916 in the Faculty of Management and 490 in the Faculty of Law (Dalhousie Registrar's Office, 2024). Based on this population size, our target sample size is 178 Management students and 140 Law students, with a confidence of 95%, a 5% margin of error and population proportion of 15%.

Student perception surveys are a quick and inexpensive way to gather a large quantity of data (Franklin, 2025), which is advantageous for this study given the time constraint. The survey requested students give their consent to use their responses in data analysis for this report and allowed respondents to remain anonymous to avoid any ethical concerns while completing the survey. The survey featured open- and close-ended questions to assess students' existing understanding of environmental concepts and how relevant they think environmental literacy is to their major. An ethics application was submitted by February 16, 2025, to the Department of Earth and Environmental studies, which was approved before sampling began. The survey was open on March 10 and closed on March 16, 2025.

To obtain the target sample size, the survey was advertised online to Commerce, Management, and LJSO students through Instagram. Posters were also posted inside the Kenneth C. Rowe Management Building, the Sir James Dunn Law Library, the Marion McCain Arts Building, the Killam Library, and the Life Sciences Center on the Dalhousie Studley campus (see Appendix B). These buildings were chosen as they are most likely to host classes for the students in the targeted programs and have the most student traffic throughout the weekdays. Furthermore, a request was sent to the Commerce Society Instagram page and the Law Society Instagram page to advertise the survey. Additionally, an email was sent to four Faculty of Management professors and two Law professors. Only one professor from the Faculty of Management responded to the email request and distributed our survey with their students.

The responses to the closed-ended questions were analyzed quantitatively by examining the distribution of survey responses and performing Chi-square tests to identify relationships between categorical variables. Specifically, Chi-square tests were performed on participant responses to identify differences between Management and Law undergraduate students on their opinion on improving environmental literacy, their past engagement with environmental or sustainability courses, their interest in sustainable literacy, their familiarity with Dalhousie sustainability policy and whether or not they believed environmental knowledge was important. We were interested in exploring whether faculties and levels of environmental literacy showed statistically significant associations. Open-ended question responses were analyzed qualitatively using a content analysis by coding the responses using an *a posteriori* approach to identify common themes between programs. An *a posteriori* process was chosen for this survey to allow for themes to emerge directly from the participants responses, rather than assuming pre-existing assumptions. Since students may express a wide range of opinions, experiences and levels of awareness, an emergent coding process helps capture unexpected themes that may appear.

3.0 Results

The online survey received 48 responses in total. Students were asked about their program of study to ensure that all respondents met our criteria. Two responses from students enrolled in graduate programs were removed as these participants were outside of our target population. Of the remaining 46 respondents, 32 were in enrolled Commerce, (n=32, 69.6%), 4 were in Management (n=4, 8.7%), 9 students were enrolled in LJSO (n=9, 19.6%), and 1 identified themself as 'Other' (n=1, 2.2%). The student answering 'Other' identified themself as a Political Science student. (Figure 1).

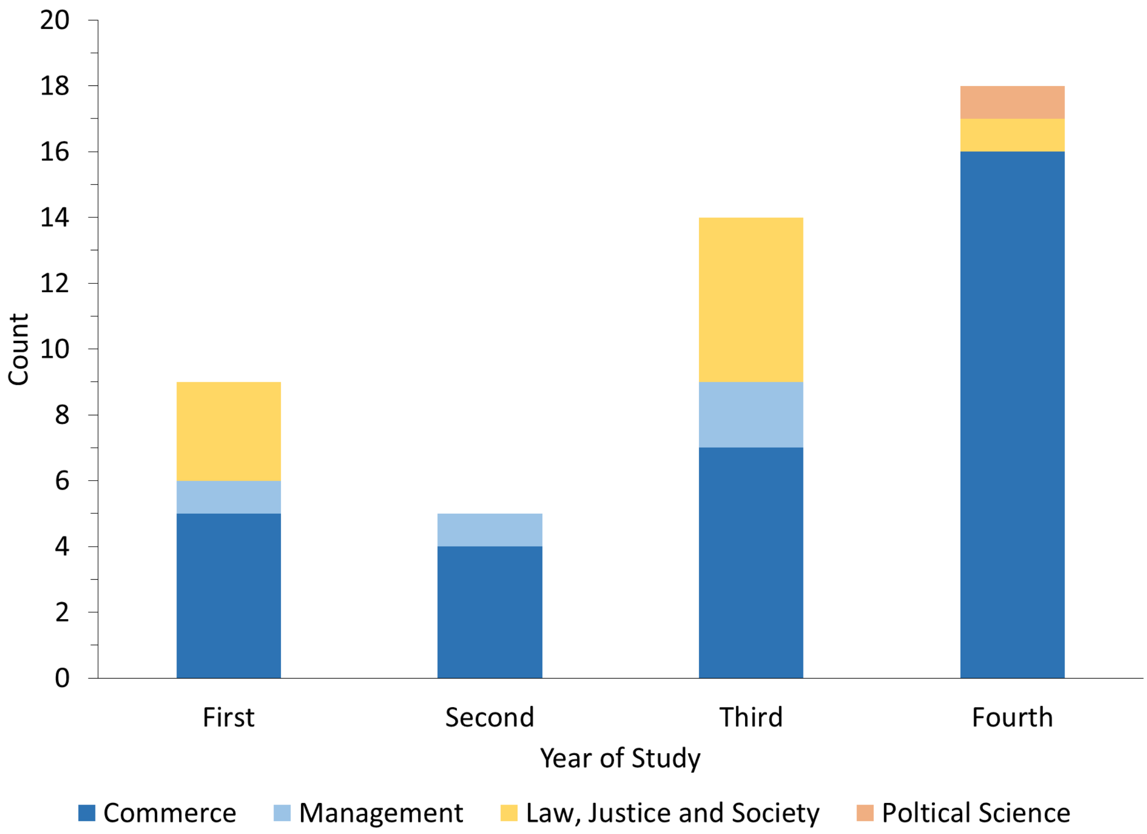

Figure 1. Year of study (*First, Second, Third, Fourth*) and program (*Commerce, Management, Law, Justice and Society, Political Science*) of 46 undergraduate students at Dalhousie University that participated in the online survey for this study.

Our survey received responses from students in the first, second, third and fourth year of their programs (Figure 1). No students indicated they were currently in a fifth year. Of the four categories, we received the most responses from students in their fourth year of study (n=18; 39.1%), a high proportion of which were enrolled in the Commerce program (n=16).

Fourteen participants indicated they were in third year (30.4%), while only five disclosed that they were in second year (10.9%). Nine participants were in their first year of study (19.6%). We had no responses from LSJO students in their second year of study, nor from Management students in their fourth year of study. The only Political Science student that participated in the survey was in their fourth year.

3.1 Quantitative Results

For the remainder of this report, we grouped students in Management and Commerce programs under the category "Faculty of Management". This grouping was justified by both the BComm and BMgmt programs at Dalhousie operating under the Faculty of Management, where they have similar course requirements. We grouped the political science student responses with those of students in LJSO under the category "Law". The LJSO program at Dalhousie is described as an interdisciplinary program that incorporates courses from History, Sociology, Philosophy and Political Science (Dalhousie Faculty of Arts and Social Sciences 2025). We justified grouping these responses together due to the degree of overlap and similarities in content delivery between these programs.

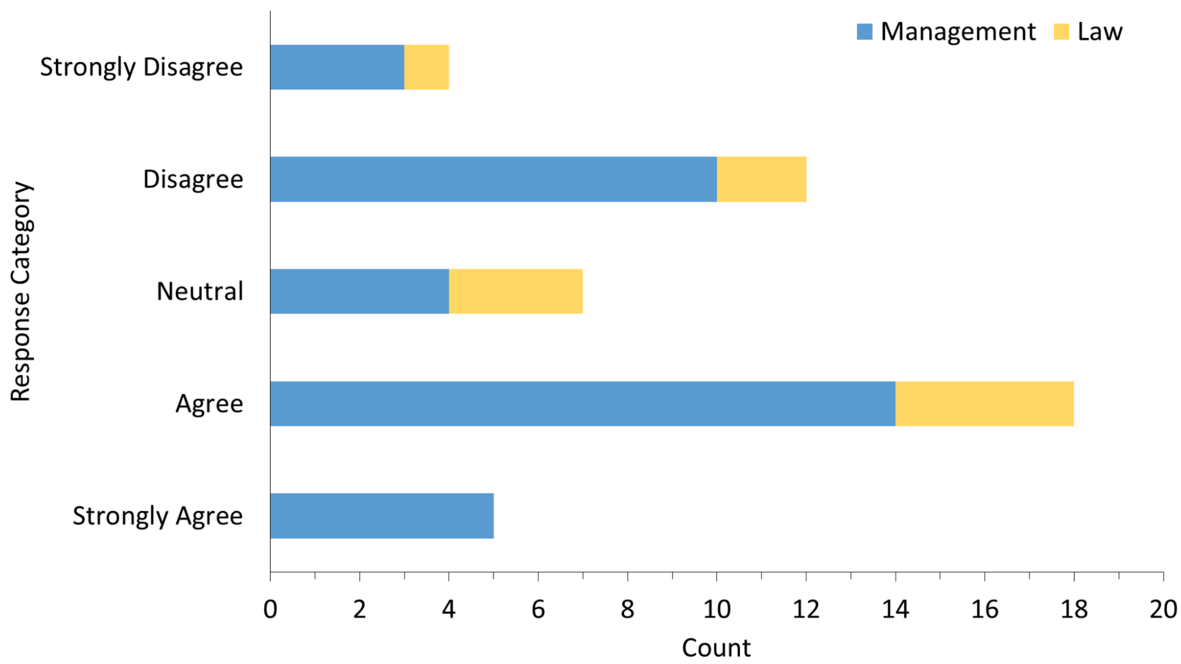

Figure 2. Survey responses from Management and Law undergraduate students on their level of agreement with the following statement: " *A first-year Environmental Science course should be a required credit in all undergraduate programs at Dalhousie University*".

To assess whether or not students in the targeted programs showed interest in taking a required entry-level environmental science course to improve environmental literacy, students were asked to identify their level of agreement with the following statement: "*A first-year Environmental Science course should be a required credit in all undergraduate programs at Dalhousie University*" (Question 14; Appendix A). Of the 46 responses, 23 participants (50%) expressed positive agreement with this statement by selecting 'Strongly Agree' (n=5; 10.8%) or 'Agree' (n=18; 39.1%; Figure 2). Seven participants selected 'Neutral' as their agreement with the statement (n=7; 15.2%). The remaining 16 participants (34.8%) expressed negative agreement with the statement by selecting 'Disagree' (n=12 ; 26.1%) or 'Strongly Disagree' (n=4; 8.7%).

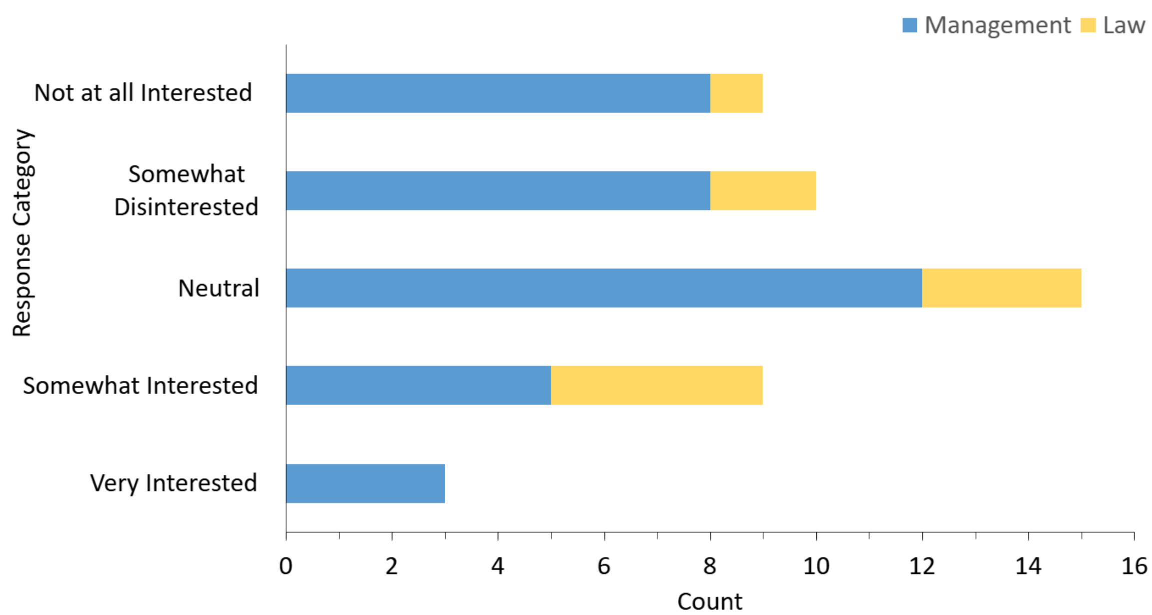

Figure 3. Survey responses from Management and Law undergraduate students on their interest in completing a 2-hour online module on sustainability literacy and practices.

To further explore student outlook on improving environmental literacy, we included a second closed-ended question in our survey where students were asked to indicate their level of interest in completing a 2-hour online sustainability module (Question 15; Appendix A). The majority of students (n=19; 41.3%) expressed negative sentiments towards a sustainability module by selecting 'Not at all Interested' (n=9; 19.6%) or 'Somewhat Disinterested' (n=10; 21.7%, Figure 3). Only 3 participants (6.5%) responded 'Very interested', while 'Somewhat Interested' had more selections (n=9, 19.6%). Fifteen participants (32.6%) selected 'Neutral' to express their interest in this module.

There was found to be no significant difference ($p = 0.489$) in responses between students in Law and students in Management on their agreement with the implementation of a required credit. Similarly, there was no significant difference ($p = 0.380$) in responses between groups on their interest in an online sustainability module. Both survey responses had minimal deviation from what was expected, but responses to student agreement with a first-year environmental science course had less deviation ($X^2 = 3.43$, df=4; Table 1) than student responses on interest in a sustainability module ($X^2 = 4.20$, df=4; Table 2).

Table 1. Chi-square $[(Observed_i - Expected_i)^2/Expected_i]$ values for responses from Management and Law students to the question *"Indicate your level of agreement with the following statement: A first-year environmental science course should be a required credit in all undergraduate programs at Dalhousie University"*.

Program	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Management	0.30	0.00	0.40	0.04	0.01
Law	1.09	0.00	1.44	0.14	0.02
X^2 = 3.43					

Table 2. Chi-square $[(Observed_i - Expected_i)^2/Expected_i]$ values for responses from Management and Law students to the question *"Indicate your level of interest in completing a 2-hour online module on sustainable literacy and practices."*.

Program	Very Interested	Somewhat Interested	Neutral	Somewhat Disinterested	Not at all Interested
Management	0.18	0.59	0.01	0.00	0.13
Law	0.65	2.13	0.02	0.01	0.47

X^2 **= 4.20**

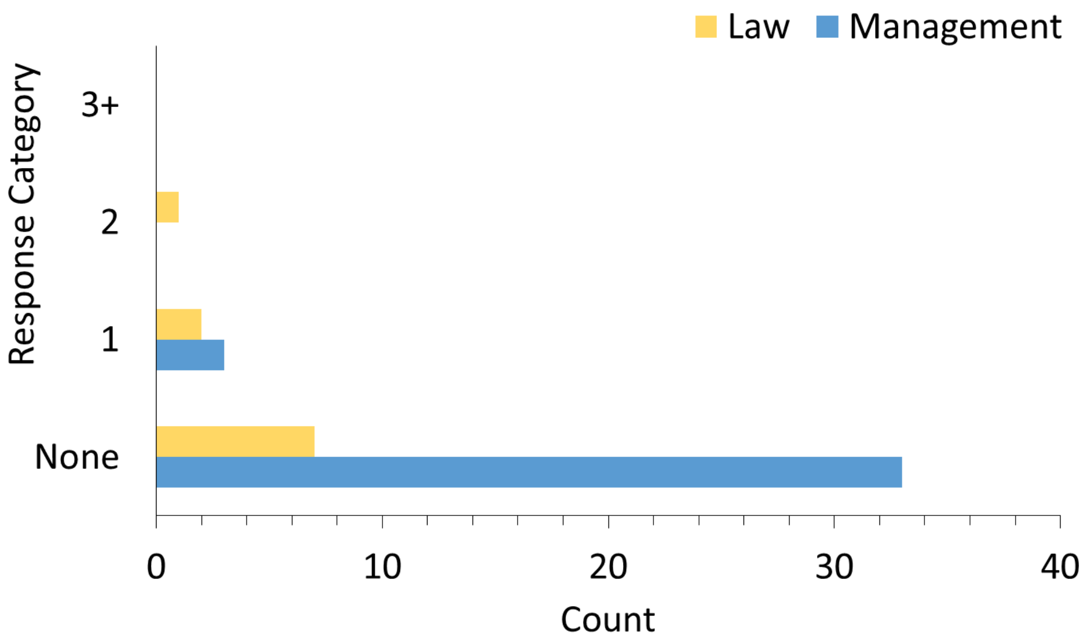

Figure 4. Survey responses from Management and Law undergraduate students on the number of courses they have completed in Sustainability and/or Environmental Science at Dalhousie.

To assess whether students had prior education in Sustainability or Environmental Science, we asked students "*How many Sustainability (SUST) or Environmental Science (ENVS) courses have you completed so far in your undergraduate degree?*" (Question 4; Appendix A). 40 out of the 46 students indicated that they had not (n=40, 86.9%). 5 students indicated that they had completed 1 course (n=5, 10.9%). Only 1 student indicated that they had taken 2 courses (2.1%), and none indicated that they had taken 3 or more SUST or ENVS courses. A Chi-square test conducted on the responses for this question revealed that there was a marginal significant difference between responses from Law students and those from students in Management, with a test statistic on the verge of significance (X^2 = 5.00, df=2, p= 0.082; Table 3).

Table 3. Chi-square $[(Observed_i - Expected_i)^2 / Expected_i]$ values for responses from Management and Law students to the question "*How many Sustainability (SUST) or Environmental Science (ENVS) courses have you completed so far in your undergraduate degree?*".

Program	None	1	2
Management	0.09	0.21	0.78
Law	0.33	0.77	0.22
X^2= 5.00			

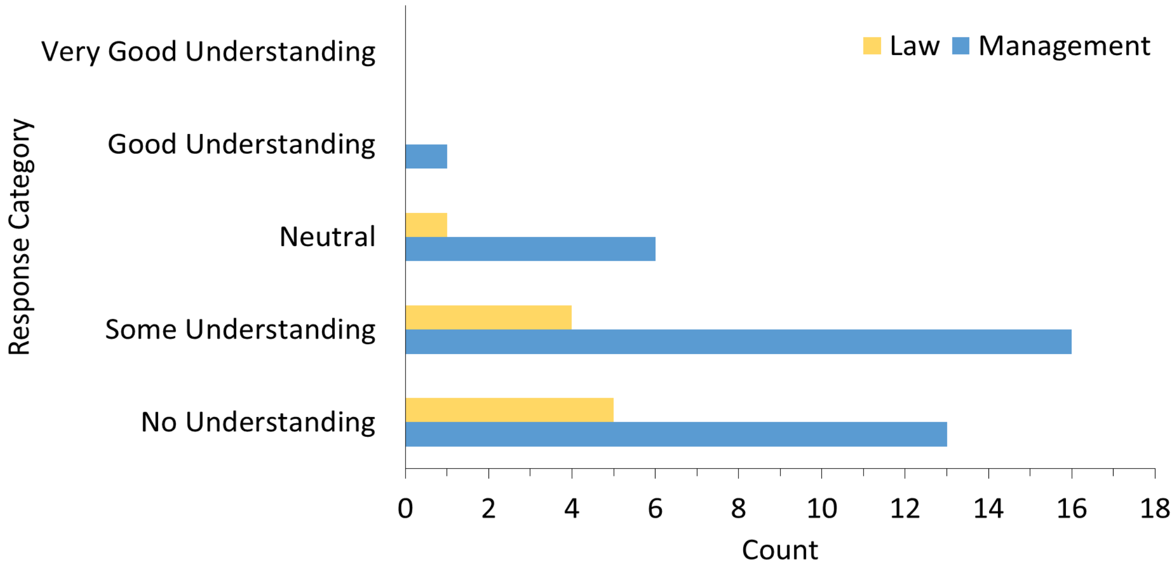

Figure 5. Survey responses from Management and Law undergraduate students on their level of understanding of Dalhousie's sustainability policies.

To ascertain students' level of knowledge of Dalhousie's sustainability policies, we asked "*How well do you know or understand Dalhousie's sustainability policies, either through your own research or through classes?*" (Question 8; Appendix A). Most students answered that they had minimal understanding, with the majority answering that they had either 'No understanding' (n=18, 39.1%) or 'Some understanding' (n=20, 43.5%). Almost all of the other respondents indicated 'Neutral' (n=7, 15.2%), while only 1 student indicated 'Good understanding' (n=1, 2.2%). No students indicated having a 'Very Good Understanding' of sustainability policies at Dalhousie. A Chi-square test found there was no significant difference between Management and Law students, and that there was very little deviation in observed values from expected values ($X^2 = 0.93$, df=3, $\alpha = 0.05$; Table 4).

Table 4. Chi-square $[(Observed_i - Expected_i)^2/Expected_i]$ values for responses from Management and Law students to the question "*How well do you know or understand Dalhousie's sustainability policies, either through your own research or through classes?*".

Program	No Understanding	Some Understanding	Neutral	Good Understanding
Management	0.08	0.01	0.05	0.06
Law	0.31	0.03	0.18	0.22
X^2 **= 0.93**				

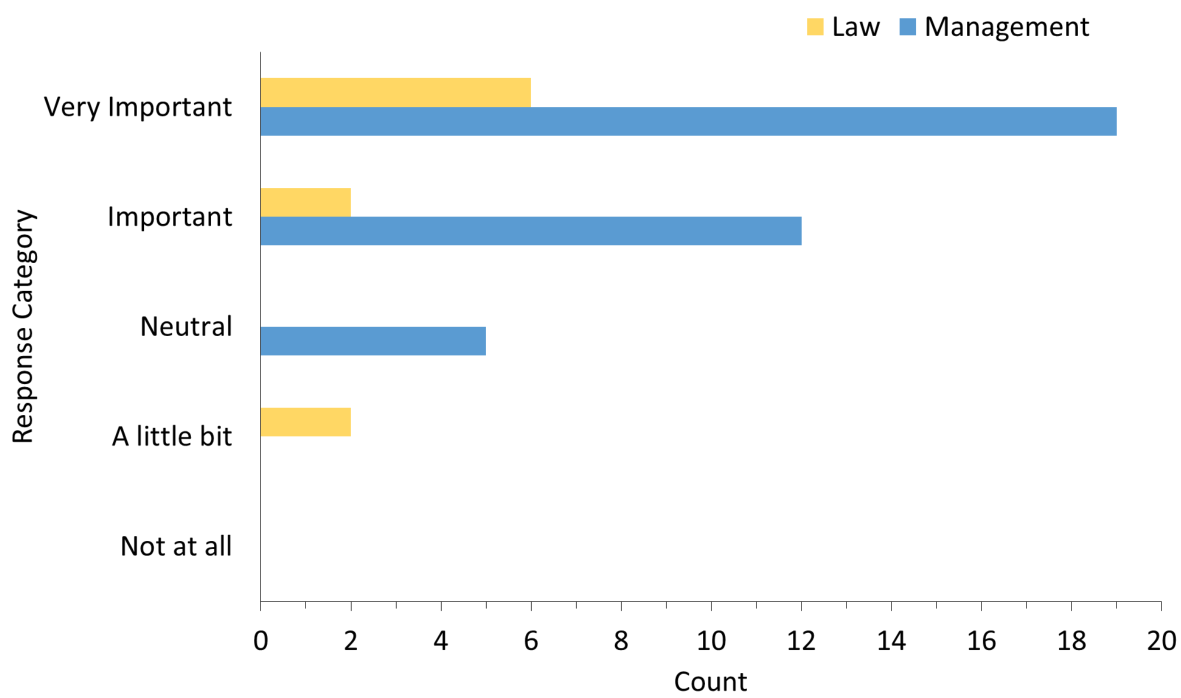

Figure 6. Survey responses from Management and Law undergraduate students when asked their opinion on the importance of environmental knowledge.

To assess whether or not students in the targeted programs showed perceived environmental knowledge as important, students were asked to indicate their level of agreement with the question: "*Environmental knowledge is defined as the amount of information an individual has about environmental issues which helps to inform people's beliefs and decisions surrounding the environment. How important do you think environmental knowledge is today*?" (Question 10; Appendix A). Of the 46 respondents, 39 students (84.8%) had a positive response, indicating that they felt environmental knowledge was either 'Very important' (n=25, 54.3%), or 'Important' (n=14, 30.4%). 5 participants responded 'Neutral' (n=5, 10.9%). The remaining 2 participants had a negative response, selecting 'A little bit' (n=2, 4.3%). 'Not at all' was not selected by any of the participants.

A Chi-square test found that there was a significant difference in responses between Law and Management students on their belief in the importance of environmental knowledge ($X^2 = 9.12$, df=3, $\alpha = 0.05$; Table 5). Deviance between observed and expected survey responses was high, most notably under the response selection 'A little bit', which had no Management responses and higher than expected Law responses despite calculated predictions. Observed responses under the other three options were closer to the expected values.

Table 5. Chi-square observed values (O), expected values (E) and calculations for responses from Management and Law students to the question "*How important do you think environmental knowledge is today*?".

Variables	A little bit	Neutral	Important	Very Important
$O_{Management}$	0	5	12	19
O_{Law}	2	0	2	6
$E_{Management}$	1.57	3.91	10.96	19.57
E_{Law}	0.43	1.09	3.04	5.43

$(O - E)^2/E_{Management}$	1.57	0.30	0.10	0.02
$(O - E)^2/E_{Law}$	5.63	1.09	0.36	0.06

X^2 = 9.12

3.2 Qualitative Results

The open-ended questions asked students to elaborate on perceived environmental education concepts and how they are, or could be, integrated into their program. Seven open-ended questions and their responses were colour coordinated in excel by colour coding the two responses to create a clear separation between the two faculties. Each response was encoded with an *a posteriori* theme based on their response. If a response has more than one theme, they were noted as separate responses in the coding trees.

Students were asked if they have taken sustainability or environmental courses, and to state which they have taken (Figure 7; Question 4, Appendix A). The majority of the faculty of Management (75%) reported having not taken any sustainability or environmental courses. Among those who had taken a course, the following courses were listed: SUST 3108, SUST 1000, ENVS 1200, and Sustainable Transportation, which we were not provided with a course code. The majority of the faculty of Law (70%) reported not having taken any sustainability of environmental courses. The courses students have taken were listed: SUST 1400, SUST 2100, and ENVS 3200.

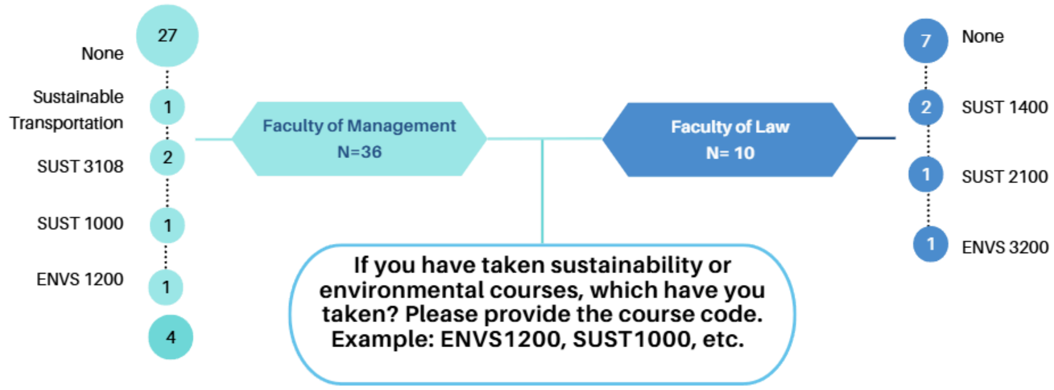

Figure 7. Themes for an open-ended question on sustainability or environmental courses taken by Management and Law students.

Students were asked if they think their program integrates environmental education concepts into its courses and which concepts they have learned about (Question 5, Appendix A). The responses were categorized into three groups identifying how in-depth the participant's program integrates environmental education into their courses (Figure 8). Among the 32 Management students surveyed, 50% stated that their program included no environmental education into their courses, 41% reported that their program included some level of environmental concepts into their courses, and only 9% believed their program provided comprehensive coverage of environmental education concepts in the classroom.

Management students indicated that sustainable businesses, climate change, sustainable solutions and business ethics were some key environmental topics covered comprehensively in the classroom. A larger proportion of Management respondents said that environmental education was present in some courses but was not a core focus. Within these responses, the environmental topics mentioned were natural resources, sustainable business, business ethics, climate change, profit-focused discussions related to sustainable businesses, and economic perspectives related to sustainability.

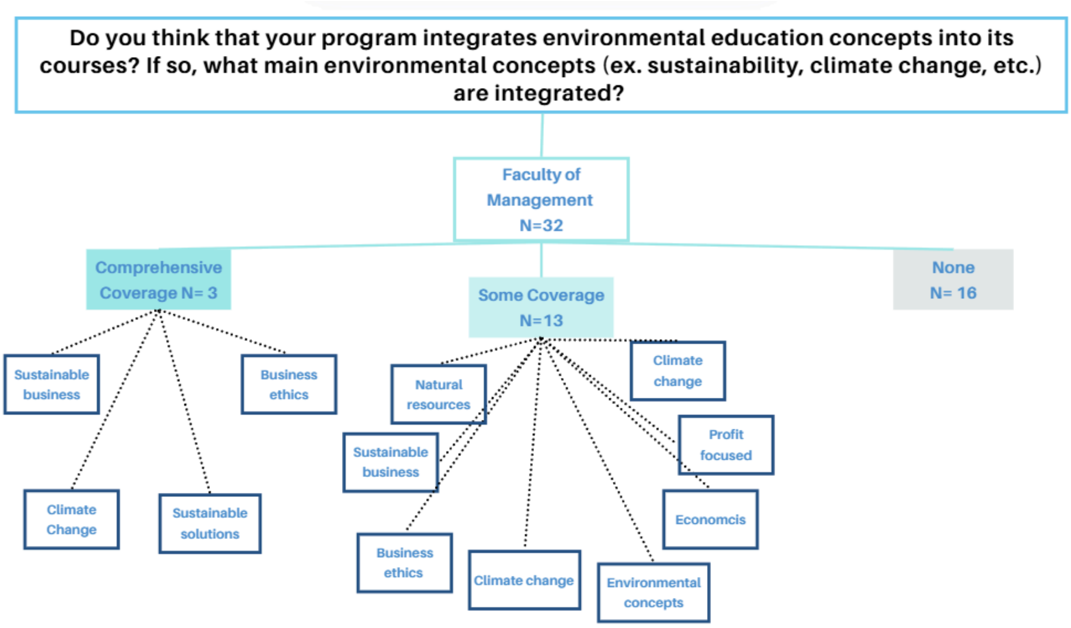

Figure 8. Themes from management students on the integration of environmental concepts in the Faculty of Management curriculum.

Among the 10 law students surveyed, the majority (40%) reported that their program integrated comprehensive coverage of environmental education (Figure 9). A smaller proportion (30%) indicated that their program included some coverage of environmental topics, and the rest of the respondents in Law (30%) indicated that their program integrated no environmental education topics. Of these respondents, they mentioned topics such as environmental law, sustainability, policies, and environmental justice.

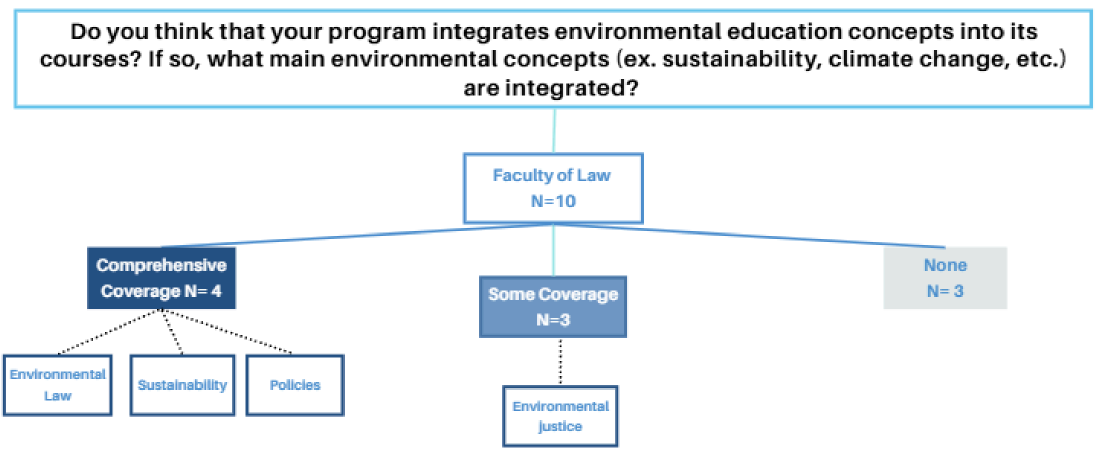

Figure 9.Themes from law students on the integration of environmental concepts in the Faculty of Law curriculum.

Students were asked to give their definition of sustainability (Question 6, Appendix A). The most common responses by Management students were efficient resource use (12) and intergenerational responsibility (8) (Figure 10). Of these main themes found, these students emphasized responsible consumption of natural resources such as oil and gas, lumber, and freshwater resources. These students believed that sustainability is when consumers balance present needs while preserving our resources for future generations. Among the Law students, the most commonly mentioned theme was efficient resource use (5). Two Management students indicated that they did not have a definition.

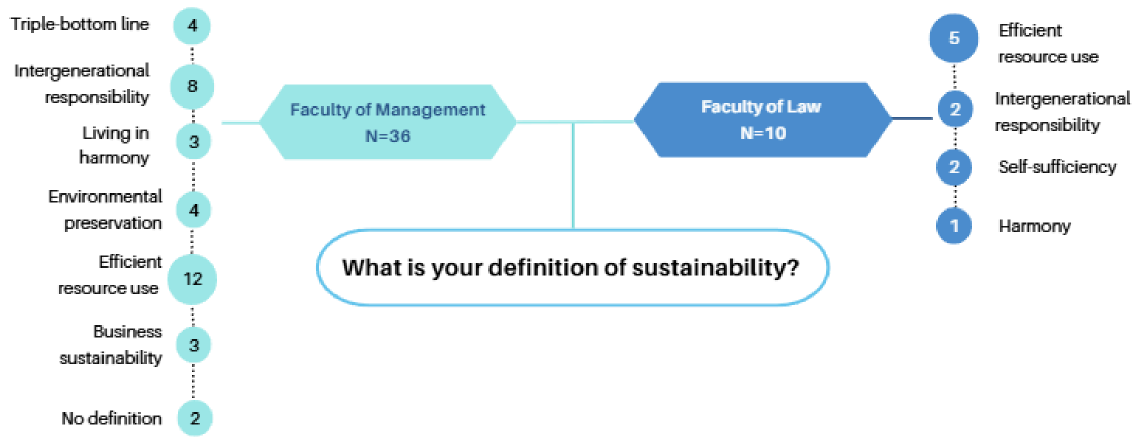

Figure 10. Themes from student responses to the question: what is your definition of sustainability?

Students were then asked whether they had participated in any sustainability initiatives at Dalhousie University, and if not, whether they would be open to getting involved (Question 8, Appendix A). Of the responses, a majority of Management students (92%) had not yet participated in any sustainability initiatives, of which 8 students indicated they were not interested and 23 students expressed interest in future events (Figure 11). Only 3 Management students reported having participated in a sustainability initiative, providing examples such as the Loaded Ladle, Dal Sustainability Challenge, Sustainability events through residence, and a clothing swap. Of the law students that responded, most students

(70%) reported not having participated, with 6 students expressing interest and one who was not interested in future involvement. The law students who had previously participated in sustainability events (30%) mentioned examples such as the Loaded Ladle and recycling programs.

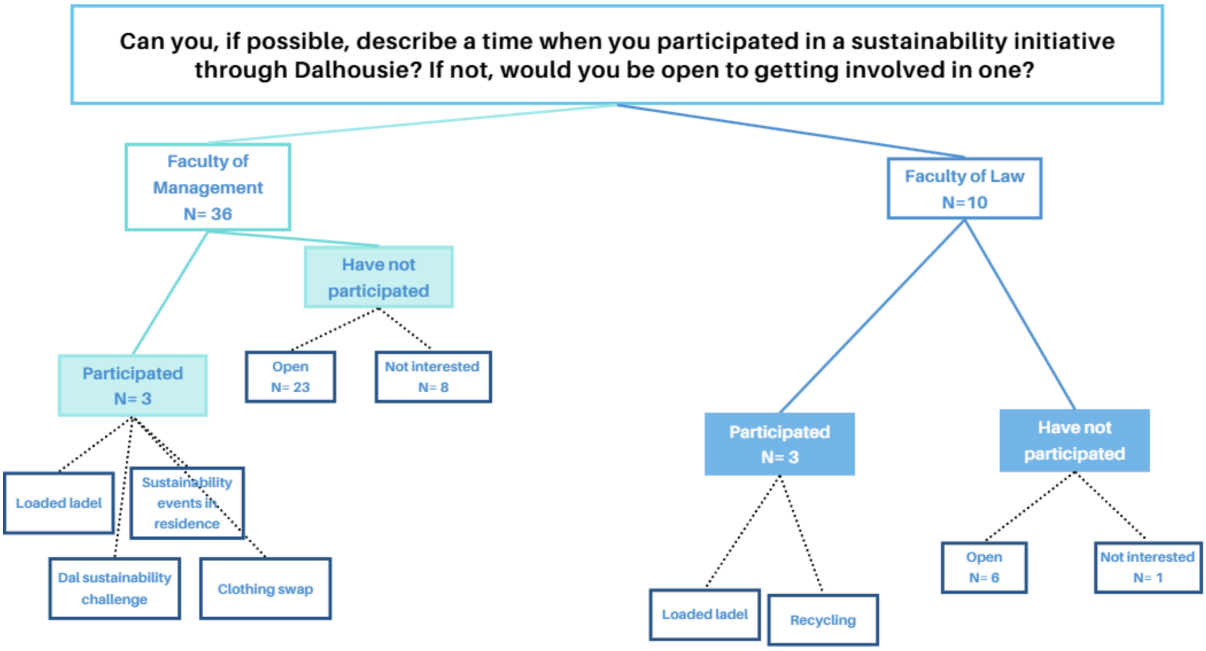

Figure 11. Themes from student responses to participation in or openness to sustainability initiatives at Dalhousie University.

When asked what environmental issues they were familiar with, Management students demonstrated a broad awareness of environmental issues, covering main topics such as climate change, pollution (air, water and land pollution concerns), and the depletion of natural resources (Figure 12; Question 10, Appendix A). Four Management students had no response to this question. Due to the lower number of respondents within law students, a smaller range of environmental issues were mentioned with the majority of respondents listing climate change as their main concern. The different topics that were mentioned by Management students were the emissions emitted by Artificial Intelligence usage and overproduction/overconsumption of products. One response demonstrated a unique response from a law student stating that the U.S. withdrawing from the Paris Agreement was and how this will affect the environment was a concern for them.

Figure 12. Themes from student responses to: what current environmental issues are you aware of or familiar with?

Students were asked to identify the environmental issues they were most concerned about and interested in potentially learning more about (Question 11, Appendix A). The Management students most frequently responded with answers such as climate change and pollution (Figure 13). MNC environmental harm was mentioned where a Management student's concern focused on the corporate impacts on the environment. Similarly, most law students mentioned climate change as their biggest environmental concern. One law student mentioned human behaviour, recognizing the importance of societal actions in environmental degradation. Three students did not specify any environmental concern or interest in further learning.

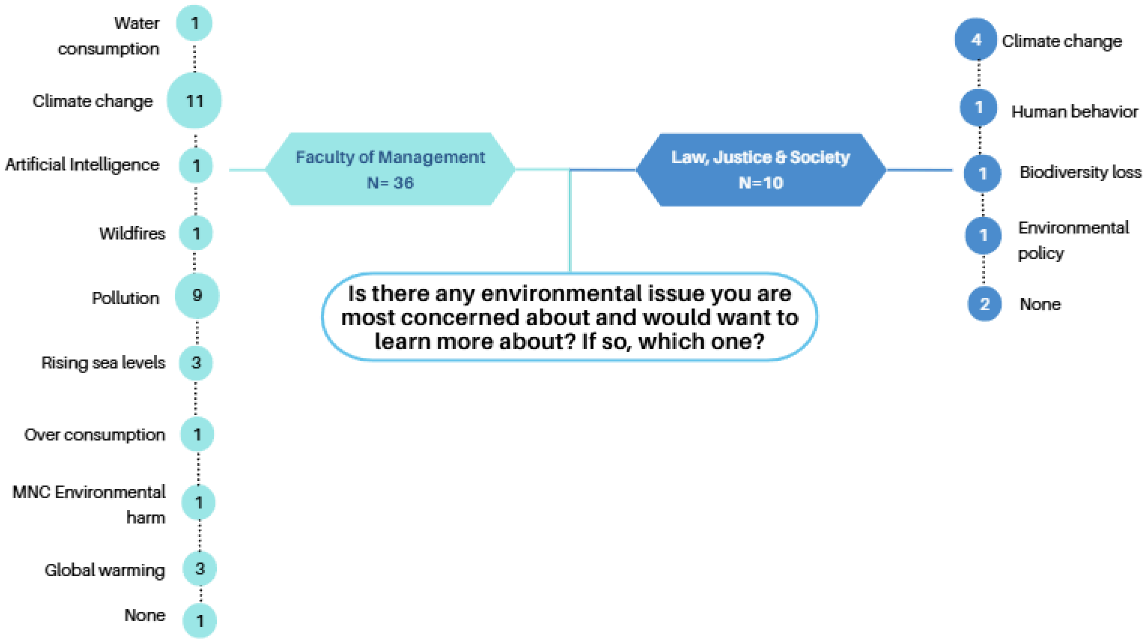

Figure 13. Themes from student responses to which environmental issue are you most concerned about and interested in learning more about?

Lastly, students were asked if they think they would benefit from introducing environmental education into their program (Question 12, Appendix A). The majority of Management students (78%) expressed that environmental education would be beneficial for several reasons. A lack of existing environmental education, overall awareness, and the feeling of being uninformed about environmental issues were mentioned. Incorporating learning about how sustainability can be integrated into business operation profits, overall environmental responsibility, and the importance of preparing our future leaders to deal with environmental challenges were also listed as reasons why students could benefit from improved environmental education. A smaller portion of Management students (11%) felt that environmental education was unnecessary as they felt the content was unrelated to their degree and some felt that their program already had sufficient coverage of environmental education. Additionally, most Law students (70%) supported integrating environmental education into their programs. These students recognized that environmental issues are important in legal and policy domains. They also acknowledged the need for education and awareness for general environmental literacy. Some students did not see the benefit as they don't see the connection between existing curriculum. Students also mentioned not having interest or were uncertain about learning environmental topics and how it overlaps with their career paths.

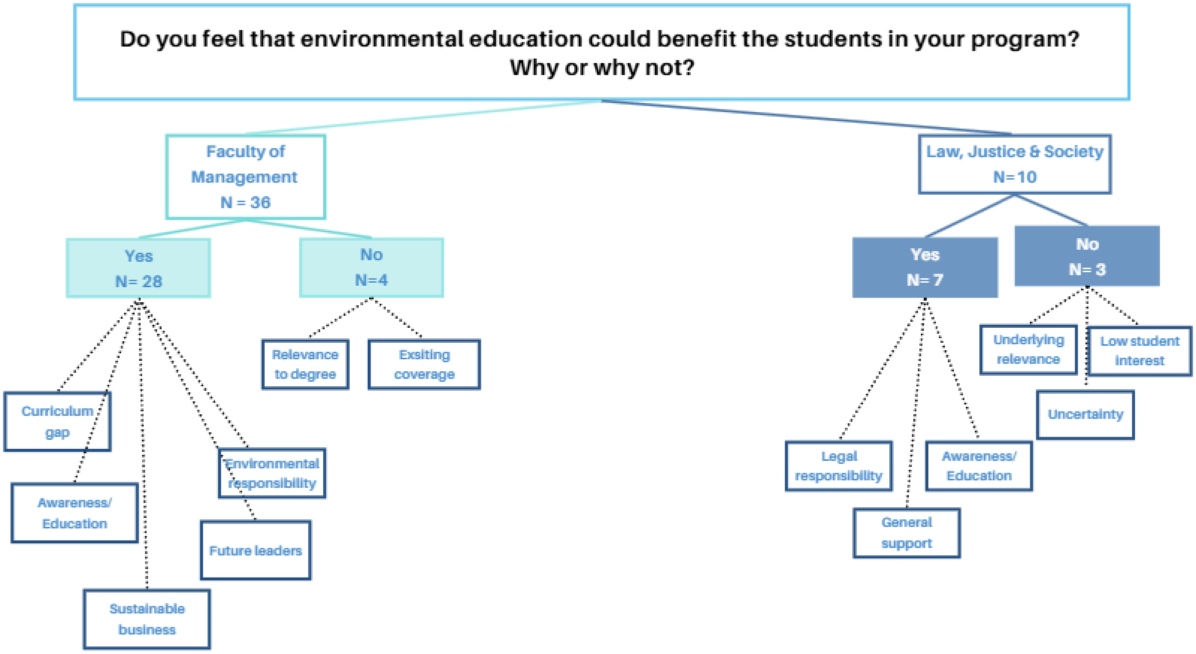

Figure 14. Themes from student responses to: do you feel environmental education could benefit students in your program, why or why not?

4.0 Discussion

4.1 Overview

Our research sought to answer the following questions:

Do undergraduate students in the Faculty of Management (BComm, BMgmt) and Law, Justice and Society (BA) perceive environmental issues as relevant to their field of study, and are they inclined to take personal action in environmental initiatives?

Do undergraduate students in the Faculty of Management (BComm, BMgmt) and Law, Justice and Society (BA) show interest in the idea of a required environmental science course and a sustainability module to improve their environmental literacy?

This research was conducted for the purpose of investigating the attitudes of Management and Law students on environmental topics in order to gauge their knowledge and personal beliefs on this subject, with a final goal of assessing student interest in environmental science courses or a sustainability education module. We hypothesized that undergraduate students in Commerce, Management, or Law would perceive environmental issues as relevant to their field of study. Our findings support this, with a majority of students in both the faculties of Law and Management/Commerce agreeing that environmental education could benefit the students in their program. Students also rated environmental knowledge very highly, with a majority (84.8%) of students indicating that they believed environmental knowledge was either 'Very important' or 'Important'. This could be because most undergraduate students are young adults, with younger adults generally exhibiting higher levels of environmental knowledge than older adults (Statistics Canada, 2007; Yamane & Kaneko, 2021). This may be due to a higher consumption of social media, which could contribute to a heightened environmental awareness, making students more likely to think that environmental knowledge is an important facet of non-environmental science degrees (Li & Noor, 2022).

We also hypothesized that undergraduate students in Commerce, Management, or Law would not be personally inclined to take action in environmental initiatives. Our findings did not support this hypothesis, with most students indicating that they had either already participated in a sustainability initiative at Dalhousie or that they would be interested in doing so. Only 9 participants (19.5%) said that they had not, and would not want to, participate in a sustainability initiative. These findings contradict existing studies, as prior research suggests that although younger adults display environmental commitment and concern, they are less likely than older adults to translate these concerns into pro-environmental behaviours (Wiernik et al., 2013). While most students had not yet participated in any sustainability initiatives, many reported that they would be willing to take part in one. However, these students indicated they would do so only if the activity took little time and energy.

Finally, we hypothesized that undergraduate students in Management and Law programs would not be interested in improving their environmental literacy through the implementation of a first year required environmental science course. The results from our survey suggested most students support this idea by agreeing with the concept. However, when asked if they would complete an online module on sustainability practices, a majority of students (41.3%) showed no interest. These results suggest that while students believe in the need for environmental education to improve environmental literacy, they are less inclined to participate in initiatives to do so unless required.

4.2 Interpretation of Findings

Within the responses to the open-ended questions, a key finding across both faculties is the limited exposure to formal sustainability or environmental courses within their programs. The majority of students reported not having taken any courses with such curriculum, this suggests a lack of accessibility, promotion, or perceived relevance of environmental or sustainability courses within their program curriculum. Most students cited courses that came from SUST or ENVS course codes rather than from their programs specific offerings. Institutions often face internal challenges that make it hard to include sustainability topics in all programs. Some departments, such as Law and Management, tend to work separately and limit the ability to share sustainability content across disciplines. Each department also has its own curriculum, which might not be easy to incorporate into sustainability, which has been noted in studies such as Moore., (2005). This study helps to support our research as it highlights how sustainability and environmental science is often isolated or missing from core curriculums in Management and Law programs.

Moreover, students reported having low understanding of Dalhousie’s sustainability policies, with over half having no understanding or some understanding. This indicated a significant gap in the university's communication and engagement in existing environmental actions, suggesting that students are not being introduced to university-led sustainability efforts. Dalhousie needs to diversify its outreach strategies to engage students in existing sustainability initiatives on campus. Dalhousie's current environmental policies provide a foundation for integration into the law curriculum for future law and policy makers. These policies intersect with legal concepts such as governance, public policy, and regulatory frameworks (Jekabsone & Ratniece, 2023). Furthermore, these policies touch on core areas of business ethics, strategic planning operations, and corporate responsibility, which are all relevant to future business leaders (Perkiss et al., 2020).

When asked whether their programs integrate environmental concepts, Management students were more likely to report a lack of integration, while law students were more evenly split with recognition of some comprehensive coverage. This may reflect that the law program is structured to integrate more environmental concepts such as environmental law or policy, whereas Management programs emphasize financial or operational concerns of sustainable businesses. Another notable finding was that Management students reported that the environmental content they covered was primarily focused on profit, such as discussions on how sustainable business practices or economic policies can be profitable. When students are asked for their definitions of sustainability, Management students were more likely to reference business contents or consumer behaviour, while Law students emphasised legal and policy structures. This suggests that if sustainability is discussed, it is often related to the program's curriculum rather than ecological or ethical importance. Furthermore, students' understanding of sustainability is strongly influenced by the disciplinary lens of their program. This reinforces that environmental literacy is shaped by academic structures (Sterling, 2004). Future research should explore how personal beliefs affect environmental learning outcomes within university students.

The majority of students (84.8%) believed that environmental education is important and would be beneficial to students in their program. Similarly, half of the students expressed support for a required first-year environmental science course at Dalhousie. Although, when asked about their interest in completing a 2-hour sustainability module, their reactions were mostly negative. There was no significant difference found between Management and Law students' responses to question 14 and 15, indicating that these attitudes towards environmental education are shared across disciplines. This contrast highlights a common issue in sustainability education, while students support the idea of environmental education, they may be reluctant to engage when it requires additional time or effort when presented outside of their core curriculum. Similar findings were noted by Lozano et al. (2013), who found that students were only willing to engage with environmental learning when it is already a part of their required coursework and are framed into their field of study. These findings support the need for universities to incorporate sustainability education into core curriculum rather than offering it as separate offerings. To engage students, it is suggested that environmental concepts are embedded in their current course work framing it as relevant to their current studies. Creating more interdisciplinary courses within both programs that incorporate topics such as climate policy, environmental ethics, and sustainable business practices, rather than only focussing on scientific or technical content, could make environmental education more relevant to students in law and management.

4.3 Limitations

The major limitations of our study were a smaller-than-expected sample size due to external constraints and a lack of a representative sample. Our target sample size was 178 Management students and 140 Law students. However, we were only able to get 46 total participants, with 36 of these students enrolled in Management and 10 students enrolled in Law. As this sample size is not a true representative sample, our findings may not be indicative of true results and may be best used as a foundation for future surveying. The skew of responses towards the Commerce program and the limited sample size increases the risk of a high margin of error, meaning that detecting true relationships between variables may be more difficult. There were also more respondents in their third or fourth year of study, which is likely due to the distribution of the survey by the research team, all of whom are in their third or fourth year. The survey was advertised on social media platforms such as Instagram that were more likely to reach Management students than Law students, likely contributing to the greater number of responses from Management students. Emails were also sent to four professors in the faculties of Management and five professors in the faculty of Law. However, only one professor from the faculty of Commerce responded to our email and distributed the survey to their students, further skewing our responses towards Management students.

4.4 Suggestions for Future Research

In future research, a larger sample size and a representative sample would ensure more generalizable findings. Research participants could also be expanded to include students from all non-Environmental Science/Sustainability programs in order to attain more accurate findings for all undergraduate students. A more diverse range of responses would allow us to determine whether environmental literacy and attitudes about environmental issues differ between programs. Future researchers could also investigate the barriers preventing students from engaging in environmental initiatives. Understanding whether students are limited by time, a perceived lack of impact, a lack of interest, or other reasons could help tailor future sustainability initiatives to better suit student wants and needs and encourage participation.

Another key addition to our research would be investigating whether engaging in sustainability initiatives enhances student environmental literacy and pro-environmental behaviours. Addressing the gaps in our research and building upon our findings would allow researchers to understand student attitudes toward environmental issues. It would also allow us to create the most effective strategies for integrating environmental topics into undergraduate non-Environmental Science programs.

5.0 Conclusion

This study aims to investigate the perceptions, awareness, and attitudes of undergraduate students in Management and Law programs at Dalhousie University toward environmental and sustainable education. Our findings show insights into the current state of environmental and sustainable literacy within non-science programs, and also highlight areas of opportunity for possible integration of sustainability into Dalhousie's various programs.

In total, the survey received 46 valid responses from undergraduate students in Commerce (69.6%), Management (8.7%), and Law, Justice and Society (19.6%), with one respondent studying Political Science.A significant number of participants, especially from the Faculty of Management, reported little to no formal exposure to Sustainability (SUST) or Environmental Science (ENVS) courses throughout their academic careers so far. Despite this, most students still recognized the importance of environmental knowledge, with over 84% putting it as either "Important" or "Very important." Furthermore, 78% of Management students and 70% of Law students indicated that they believe that environmental education would benefit their programs, stating reasons such as increased awareness, relevance to future careers, and the need to prepare for global environmental challenges. While half of the surveyed students agreed that a first-year environmental science course should be required for all undergraduates, interest in an optional two-hour online sustainability module was noticeably lower. This difference suggests that while students support the concept of environmental education, they may be less inclined to engage with it when presented as an extracurricular responsibility, rather than as an academic requirement.

5.1 Recommendations for Action

Based on the study's findings, there are a few actions that we recommend to increase environmental understanding among undergraduate students at Dalhousie University. First, environmental education should be incorporated directly into the curriculum across faculties, with content being specifically tailored towards the relevant program; such as integrating environmental law into justice studies or corporate sustainability into business courses. In addition, Dalhousie should consider introducing a required first-year environmental science/sustainability course for all undergraduate students, as half of the participants supported the initiative when asked in the survey. This would provide students with an immediate foundation for environmental literacy, helping with their long-term awareness towards sustainability throughout their academic career. To address the already existing knowledge gap, Dalhousie should improve communication about its sustainability policies through orientation sessions, classroom discussions, and campus-wide campaigns. From the survey responses, we saw that many students would be less likely to engage with extracurricular forms of environmental learning, especially students with limited time in their schedule. However, through opportunities that will fit both the student's interests and their schedules, such as short-term challenges with accompanying academic credit, these seminars would be much more appealing to students, and would fit around their busy schedules. In conclusion, by integrating environmental education within the academic framework, Dalhousie University can create a deeper and more widespread understanding towards environmental and sustainability topics among its undergraduate students.

6.0 References

Dalhousie Registrar's Office. (2024). Enrolment reports and data. Dalhousie University. https://www.dal.ca/study/registrars-office/enrolment-reports-data.html

Frank, D. J., Robinson K. J., Olsen, J., (2011). The global expansion of environmental education in universities. *Comparative Education Review.* 55(4), https://doi.org/10.1086/661253

Franklin, C., (2025). *Data Collection* [PowerPoint slides]. Brightspace.

Hsu, S. J. (2004). The Effects of an Environmental Education Program on Responsible Environmental Behavior and Associated Environmental Literacy Variables in Taiwanese College Students. *The Journal of Environmental Education*, *35*(2), 37–48. https://doi.org/10.3200/JOEE.35.2.37-48

Jekabsone, I., & Ratniece, L. (2023). Integrating Sustainability Into Curriculum of Legal Education in Latvia: An Insight Into the Main Issues. *Journal of Teacher Education for Sustainability*, *25*(2), 60–75. https://doi.org/10.2478/jtes-2023-0016

Kollmuss, A., & Agyeman, J. (2002). Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, *8*(3), 239–260. https://doi.org/10.1080/13504620220145401

Lozano, R., Lukman, R., Lozano, F. J., Huisingh, D., & Lambrechts, W. (2013). Declarations for sustainability in higher education: becoming better leaders, through addressing the university system. *Journal of Cleaner Production*, *48*, 10–19. https://doi.org/10.1016/j.jclepro.2011.10.006

Li, P., & Noor, S. M. (2022). A study on the influence of social media on college students' pro-environmental behaviour. *Eurasian Journal of Educational Research, 102*(102). DOI: 10.14689/ejer.2022.102.007

Michel, J. O., & Zwickle, A. (2021). The effect of information source on higher education students' sustainability knowledge. *Environmental Education Research*, *27*(7), 1080–1098. https://doi-org.ezproxy.library.dal.ca/10.1080/13504622.2021.1897527

Moore, J. (2005). Barriers and pathways to creating sustainability education programs: policy, rhetoric and reality. *Environmental Education Research*, *11*(5), 537–555. https://doi.org/10.1080/13504620500169692

Perkiss, S., Anastasiadis, S., Bayerlein, L., Dean, B., Jun, H., Acosta, P., Gonzalez-Perez, M. A., Wersun, A., & Gibbons, B. (2020). Advancing Sustainability Education in Business Studies through Digital Service Learning. *American Business Review*, *23*(2), 283–299. https://doi.org/10.37625/abr.23.2.283-299

Pihui Liu, Minmin Teng, Chuanfeng Han. (2020) How does environmental knowledge translate into pro-environmental behaviors?: The mediating role of environmental attitudes and behavioral intentions. *Science of The Total Environment,* 728, https://doi.org/10.1016/j.scitotenv.2020.138126.

Schultz, P.W., Shriver, C., Tabanico, J.J., Khazian, A.M. (2004). Implicit connections with nature. *Journal of Environmental Psychology*, *24*, 31-42. https://doi.org/10.1016/S0272-4944(03)00022-7

Steg L, Vlek C. (2009) Encouraging pro-environmental behaviour: An integrative review and research agenda, *Journal of Environmental Psychology,* 29 (3), https://doi.org/10.1016/j.jenvp.2008.10.004.

Sterling, S. (2004). Higher Education, Sustainability, and the Role of Systemic Learning. *Higher Education and the Challenge of Sustainability*, 49–70. https://doi.org/10.1007/0-306-48515-x_5

Wals, A. E., & Jickling, B. (2002). “Sustainability” in higher education: From doublethink and newspeak to critical thinking and meaningful learning. International Journal of Sustainability in Higher Education, 3(3), 221-232. DOI: 10.1108/14676370210434688

Wiernik, B. M., Ones, D. S., & Dilchert, S. (2013). Age and environmental sustainability: a meta-analysis. *Journal of Managerial Psychology, 28*(7). DOI: 10.1108/JMP-07-2013-0221

World Economic Forum. (2019). *The Global Risks Report 2019* (14th ed.). World Economic Forum. https://www.weforum.org/publications/the-global-risks-report-2019/

Yamane, T., & Kaneko, S. (2021). Is the younger generation a driving force toward achieving the sustainable development goals? Survey experiments. *Journal of Cleaner Production*, *292*: 125932 DOI: 10.1016/j.jclepro.2021.125932

Appendices

Appendix A: Survey Questions

1. What current program are you in at Dalhousie?
    a. Commerce (BComm)
    b. Management (BMgmt)
    c. Law, Justice and Society (BA)
    d. Other
2. What year of undergraduate study are you in within your program?
    a. First
    b. Second
    c. Third
    d. Fourth
    e. Fifth+
3. How many sustainability (SUST) or environmental science (ENVS) courses have you completed so far in your undergraduate degree
    a. None
    b. 1
    c. 2
    d. 3+
4. If you have taken sustainability or environmental courses, which have you taken? Please provide the course code. Example: ENVS1200, SUST1000, etc.
5. Do you think your program integrates environmental education concepts into its courses? If so, what main environmental concepts (ex. Sustainability, climate change, etc.) are integrated?
6. What is your definition of sustainability?
7. How well do you know or understand Dalhousie's sustainability policies, either through your own research or through classes?
    a. No understanding
    b. Some understanding
    c. Neutral
    d. Good understanding
    e. Very good understanding

8. Can you, if possible, describe a time when you participated in a sustainability initiative through Dalhousie? If not, would you be open to getting involved in one?
9. Environmental knowledge is defined as the amount of information an individual has about environmental issues which helps to inform people's beliefs and decisions surrounding the environment. How important do you think environmental knowledge is today?
    a. Not at all
    b. A little bit
    c. Neutral
    d. Important
    e. Very important
10. What current environmental issues are you aware of or familiar with?
11. Is there any environmental issue you are most concerned about and would want to learn more about? If so, which one?
12. Do you feel that environmental education could benefit the students in your program? Why or why not?
13. Indicate your level of agreement with the following statement: A first-year environmental science course should be a required credit in all undergraduate programs at Dalhousie University.
    a. Strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree
14. Indicate your level of interest in completing a 2-hour online module on sustainable literacy and practices.
    a. Not at all interested
    b. Somewhat disinterested
    c. Neutral
    d. Somewhat interested
    e. Very interested

Appendix B: Recruitment Poster