

Sustainability-Across-the-Curriculum Audit at George Brown College

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Abstract:

Ontario's Ministry of Training, Colleges and Universities, together with industry, has emphasized the need for graduates to have social, environmental and economic sustainability skills and knowledge (Knibb, 2012; OECD, 2011). George Brown College has a strategic focus on ensuring its graduates understand how sustainability relates to their work and to society. These combined drivers led to George Brown College's inaugural Sustainability-Across-the-Curriculum Audit. The audit began in 2013¹ and was updated in 2014. The goal of the audit was to render visible all courses that deliver and measure student acquisition of sustainability skills and knowledge² within all active programs of instruction (cf. Rusinko, 2010; Bridges, 2008; Jahan & Mehta, 2007). Audit results provided useful data about the level of integration of social, environmental and economic sustainability themes in our programs. Overall, 85% (128 of 150) of programs were found to contain at least one course with a learning outcome relating to social, environmental and/or economic sustainability. As a result of our Sustainability-Across-the-Curriculum Audit we are better able to link our sustainable research mandate to broader industry productivity and graduate preparation (cf. United Nations Development Program, 2014; Sibbel, 2009; Tilbury, 2004).

Key Words:

Sustainability, environmental, social, economic, audit, learning outcomes, Sustainability-Across-the-Curriculum.

¹ The Sustainability-Across-the-Curriculum Audit grew out of earlier Green Team research (2012) into where within the College curriculum sustainability teaching and learning would have the greatest and most measurable pedagogical impact. Our conclusion was that in an outcomes-based learning environment, sustainability skills and knowledge would have the greatest effect when integrated within *course learning outcomes*. Integration of sustainability themes within learning outcomes allows the College to do two key things:

- provide valuable sustainability skills and knowledge to George Brown graduates
- quantify sustainability-related teaching and learning across programs

² Appendix C includes George Brown College's working definitions of social, economic and environmental sustainability.

Introduction

In May 2014, the Green Team completed a large-scale update of its 2013 Sustainability-Across-the-Curriculum audit. Expanded results showed improved detail and granularity, as significantly more course outlines were available for audit. We now know which programs already provide a framework for learning that emphasizes environmental, social and/or economic sustainability skills and knowledge, particularly as these relate to a student's own field of study. We know precisely in which courses this learning takes place, based on course learning outcomes, and we know how much of each type of sustainability learning (environmental, social, economic) is taking place within each course, program and Centre.

Methods

1. Develop framework to capture data on the integration of sustainability themes within program outcomes and course learning outcomes.
2. Define terms and concepts.
3. Identify key words, phrases and topics associated with general and discipline-oriented social, environmental and economic sustainability.
4. Search for and score the presence or absence (1/0) of sustainability themes within program- and course-level learning outcomes.

Where sustainability themes were found, the audit also captured the type (environmental, social and/or economic sustainability). As well, in accordance with a key requirement of the *Sustainability Tracking Assessment and Ratings System* (STARS), the audit distinguished between *sustainability-focused* (course contains three or more learning outcomes relating to sustainability) and *sustainability-related* courses (1-2 sustainability learning outcomes). Notably, the data from the audit satisfied the entire curriculum component of STARS, which the College has been using since early 2014 to measure overall College sustainability practices.

Results

85% of active programs already contain at least one course with a learning outcome relating to social, environmental and/or economic sustainability. Results were broken down across seven academic Centres:

- Centre for Business
- Centre for Arts & Design
- Centre for Construction & Engineering Technologies
- Centre for Hospitality and Culinary Arts
- Centre for Health Sciences
- Centre for Community Services and Early Childhood
- Centre for Preparatory and Liberal Arts

Percentage scores were derived based on number of active programs/courses published on each Centre's webpage, number of program standards and course outlines and available for audit, and number of program standards and course outlines found to contain sustainability-related learning outcomes. The audit confirmed that

sustainability teaching and learning *at the outcome level* is already occurring across all College Centres. Centre results are shown below. *Appendix A* contains graphed results; *Appendix B* depicts key sustainability topics by frequency; *Appendix C* contains the College-approved definitions of environmental, social and economic sustainability that informed our audit criteria.

Centre for Business

- Percentage of program standards audited: 92% (24 of 26)
- Percentage of course outlines audited: 100% (230 of 230)
- Percentage of programs with 1 or more sustainability-related program outcome: 81% (21 of 26)
- Percentage of programs with 1 or more courses containing sustainability outcomes: 100% (26 of 26)
- Percentage of courses with 1 or more sustainability-related learning outcomes: 32% (73 of 230) of which 11 courses met the criteria for sustainability-focused; 62 courses were sustainability-related.

Sustainability type frequency: 63% social, 31% economic, 6% environmental

Key sustainability subject areas in CB: ethics, codes of conduct, human rights legislation, fair labour practices, microfinance, international/intercultural awareness.

Centre for Arts & Design

- Percentage of program standards audited: 75% (15 of 20)
- Percentage of course outlines audited: 99% (342 of 345)
- Percentage of programs with 1 or more sustainability-related program outcome: 10% (2 of 20)
- Percentage of programs with 1 or more courses containing sustainability outcomes: 65% (13 of 20)
- Percentage of courses with 1 or more sustainability-related learning outcomes: 10% (35 of 342) of which 3 courses met the criteria for sustainability-focused; 32 courses were sustainability-related.

Sustainability type frequency: 56% social, 22% economic, 22% environmental

Key sustainability subject areas in CAD: community health and wellness, sustainable design, international/intercultural awareness, materials handling & disposal.

Centre for Construction & Engineering Technologies

- Percentage of program standards audited: 96% (24 of 25)
- Percentage of course outlines audited: 91% (368 of 403)
- Percentage of programs with 1 or more sustainability-related program outcome: 56% (14 of 25)
- Percentage of programs with 1 or more courses containing sustainability outcomes: 92% (23 of 25)
- Percentage of courses with 1 or more sustainability-related learning outcomes: 19.5% (72 of 368) of which 8 courses met the criteria for sustainability-focused; 64 courses were sustainability-related.

Sustainability type frequency: 56% social, 3% economic, 41% environmental

Key sustainability subject areas in CCET: safety protocol, codes of conduct, materials handling & disposal, identification and selection of sustainable materials, LEED.

Centre for Hospitality and Culinary Arts

- Percentage of program standards audited: 63% (12 of 19)
- Percentage of course outlines audited: 94% (238 of 252)
- Percentage of programs with 1 or more sustainability-related program outcome: 37% (7 of 19)
- Percentage of programs with 1 or more courses containing sustainability outcomes: 84% (16 of 19)
- Percentage of courses with 1 or more sustainability-related learning outcomes: 19.76 (54 of 238) of which 5 courses met the criteria for sustainability-focused; 49 courses were sustainability-related.

Sustainability type frequency: 75% social, 11% economic, 14% environmental

Key sustainability subject areas in CHCA: Safety, hygiene, materials handling & disposal, identification and selection of sustainable products, fair labour practices, intercultural awareness.

Centre for Health Sciences

- Percentage of program standards audited: 85% (22 of 26)
- Percentage of course outlines audited: 82% (349 of 426)
- Percentage of programs with 1 or more sustainability-related program outcome: 58% (15 of 26)
- Percentage of programs with 1 or more courses containing sustainability outcomes: 77% (20 of 26)
- Percentage of courses with 1 or more sustainability-related learning outcomes: 39% (136 of 349) of which 23 courses met the criteria for sustainability-focused; 113 courses were sustainability-related.

Sustainability type frequency: 94% social, 4% economic, 2% environmental

Key sustainability subject areas in CHS: patient safety, community health, hygiene, ethics, materials handling & disposal, codes of conduct, intercultural awareness.

Centre for Community Services and Early Childhood

- Percentage of program standards audited: 90% (19 of 21)
- Percentage of course outlines audited: 87% (297 of 342)
- Percentage of programs with 1 or more sustainability-related program outcome: 81% (17 of 21)
- Percentage of programs with 1 or more courses containing sustainability outcomes: 100% (21 of 21)
- Percentage of courses with 1 or more sustainability-related learning outcomes: of which 65 courses met the criteria for sustainability-focused; 126 courses were sustainability-related.

Sustainability type frequency: 90% social, 9% economic, 1% environmental

Key sustainability subject areas in CSEC: ethics, equity, diversity, social justice, codes of conduct, human rights legislation, fair labour practices, international/intercultural awareness, community health and wellness.

Centre for Preparatory & Liberal Studies

- Percentage of program standards audited: 77% (10 of 13)
- Percentage of course outlines audited: 63% (100 of 158)
- Percentage of programs with 1 or more sustainability-related program outcome: 69% (9 of 13)
- Percentage of programs with 1 or more courses containing sustainability outcomes: 77% (10 of 13)
- Percentage of courses with 1 or more sustainability-related learning outcomes: 60% (60 of 100) of which 28 courses met the criteria for sustainability-focused; 32 courses were sustainability-related.

Sustainability type frequency: 85% social, 10% economic, 5% environmental

Key sustainability subject areas in CPLS: human rights, equity, diversity, ethics, fair labour practices, biological systems, conservation, ecosystems, intercultural awareness.

Conclusions

George Brown's goal is to ensure its graduates understand how sustainability relates to their discipline and their communities. Our commitment is that every certificate, diploma and degree program will contain at least one learning outcome that addresses sustainability. This responds to the needs of students, industry and Ontario's Ministry of Training, Colleges and Universities, which has placed increasing importance on students graduating with sustainability skills and knowledge.

A majority of programs (128 of 150, 85%) already meet or exceed the College commitment. For those that do not, one sustainability-related outcome can be articulated within a single course in order to meet the College's basic commitment.

The Sustainability-Across-the-Curriculum Audit has made George Brown a system leader in the objective confirmation of integration of measurable sustainability themes within core curriculum. It has allowed us to quantify the number of programs that already meet the College commitment that every program will contain at least one learning outcome that addresses sustainability, and how many as yet do not. This baseline information allows us to set clear, rational and evidence-based targets for increase.

The College has recently integrated a review of sustainability outcomes as a criterion of course outline analysis during program review. We are also considering assigning permanent responsibility to keep this audit up-to-date.

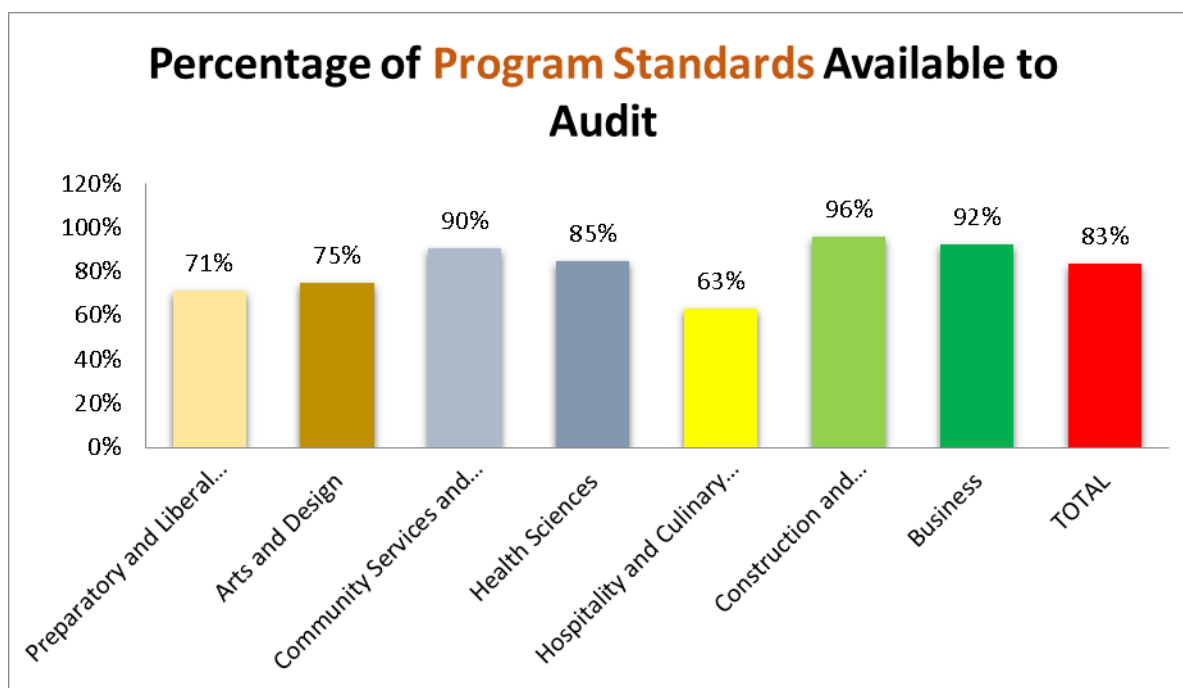
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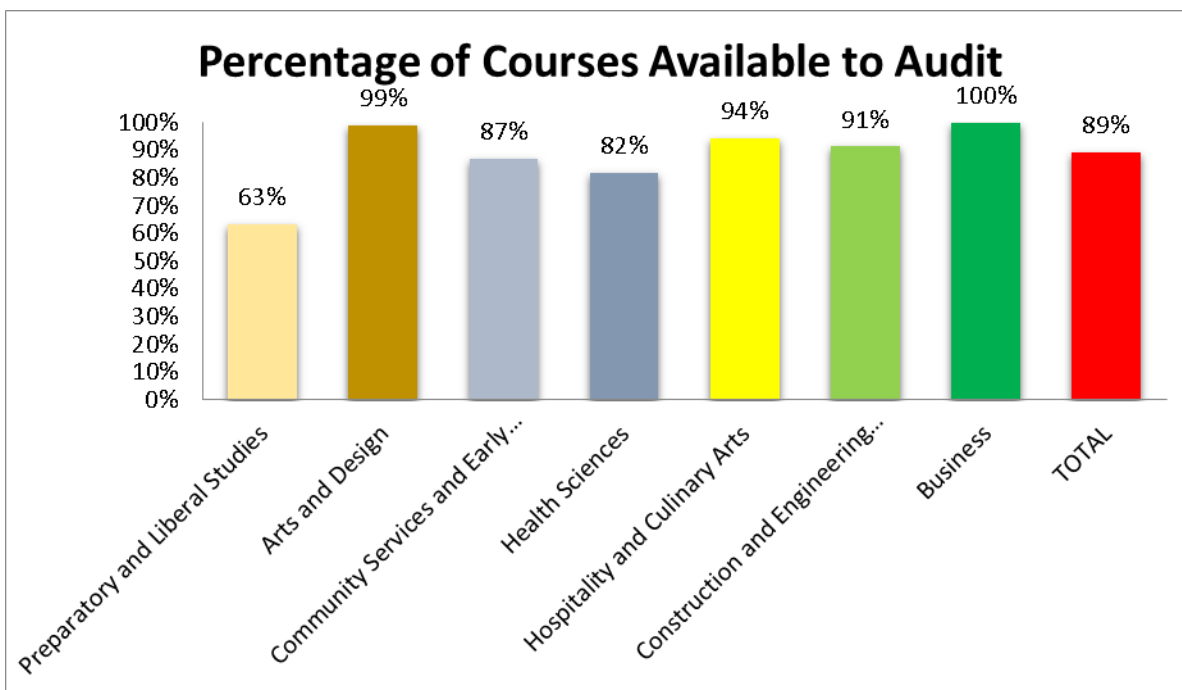
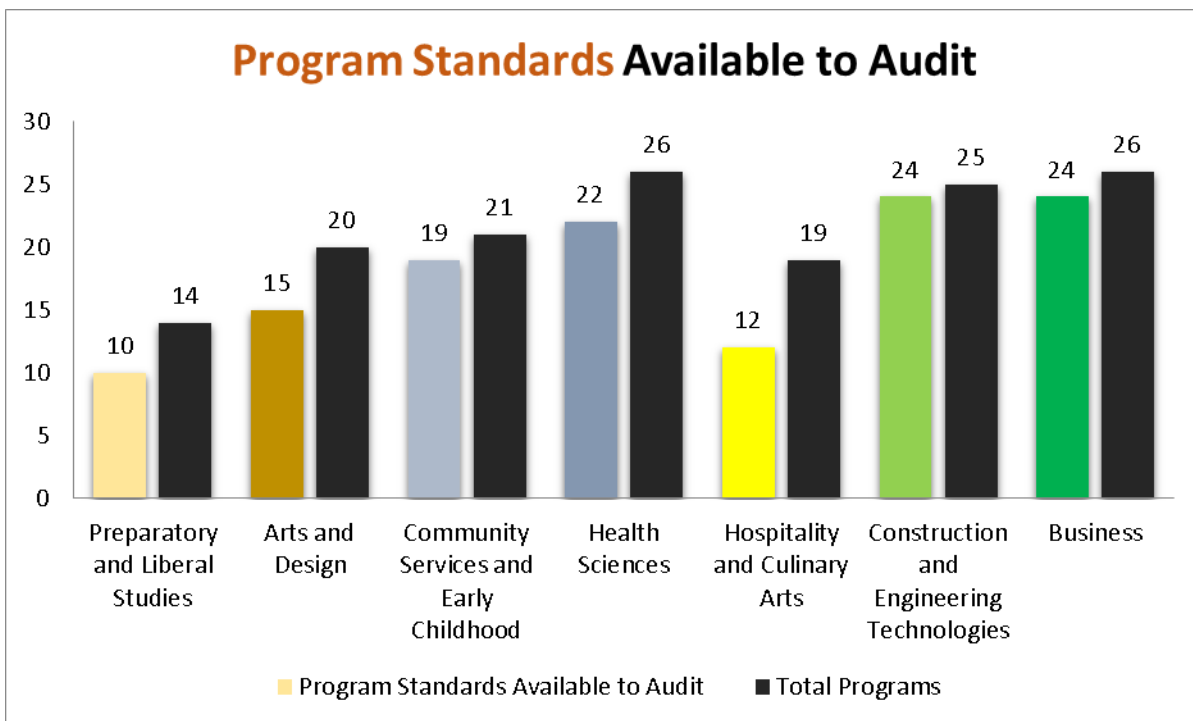
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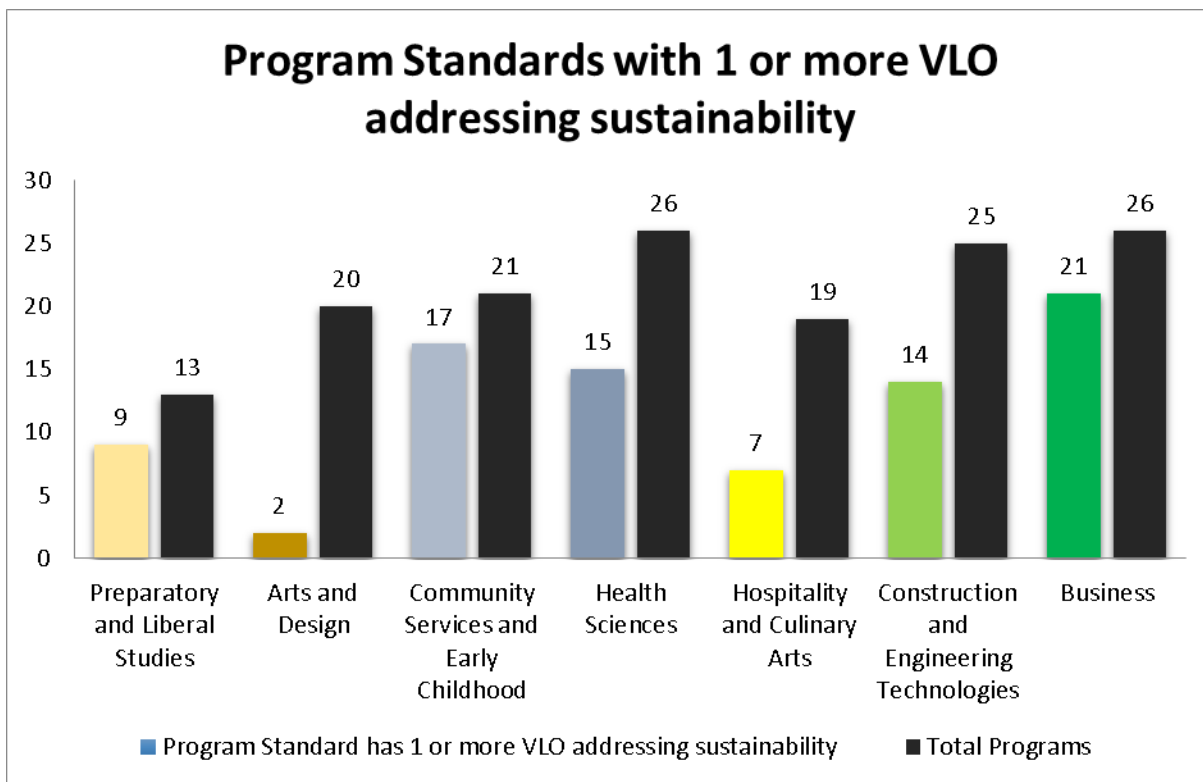
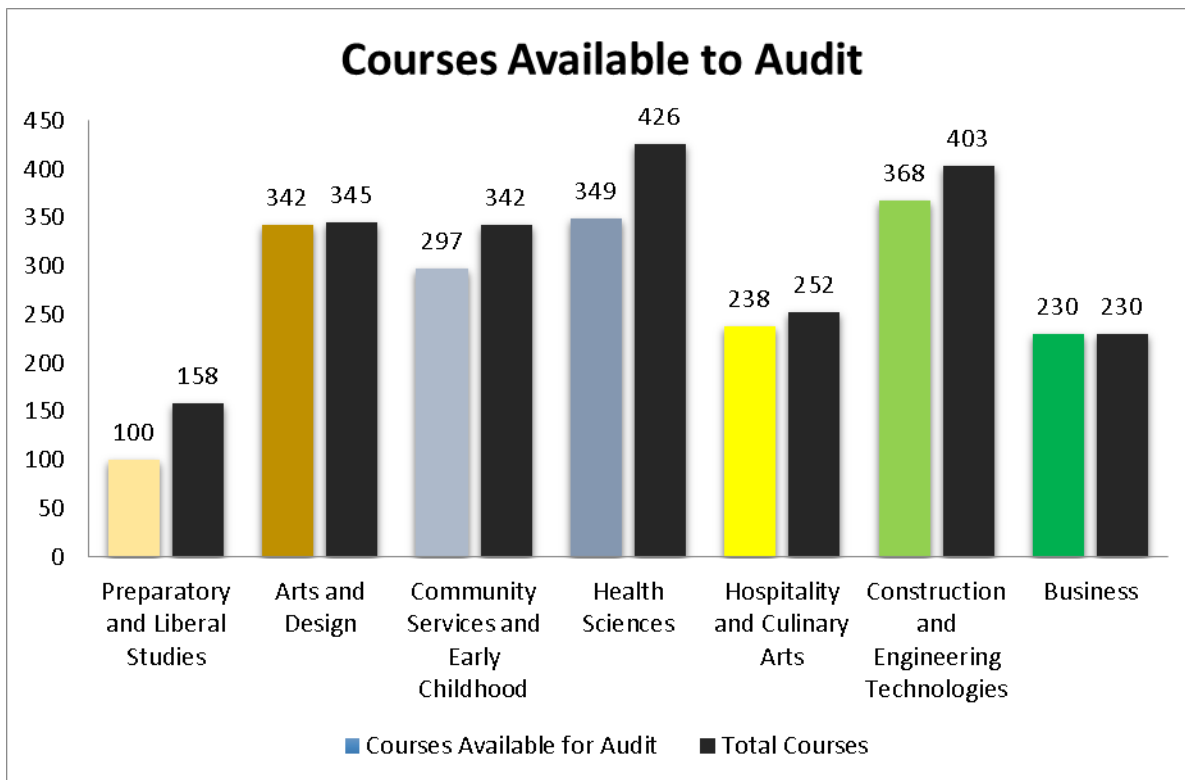
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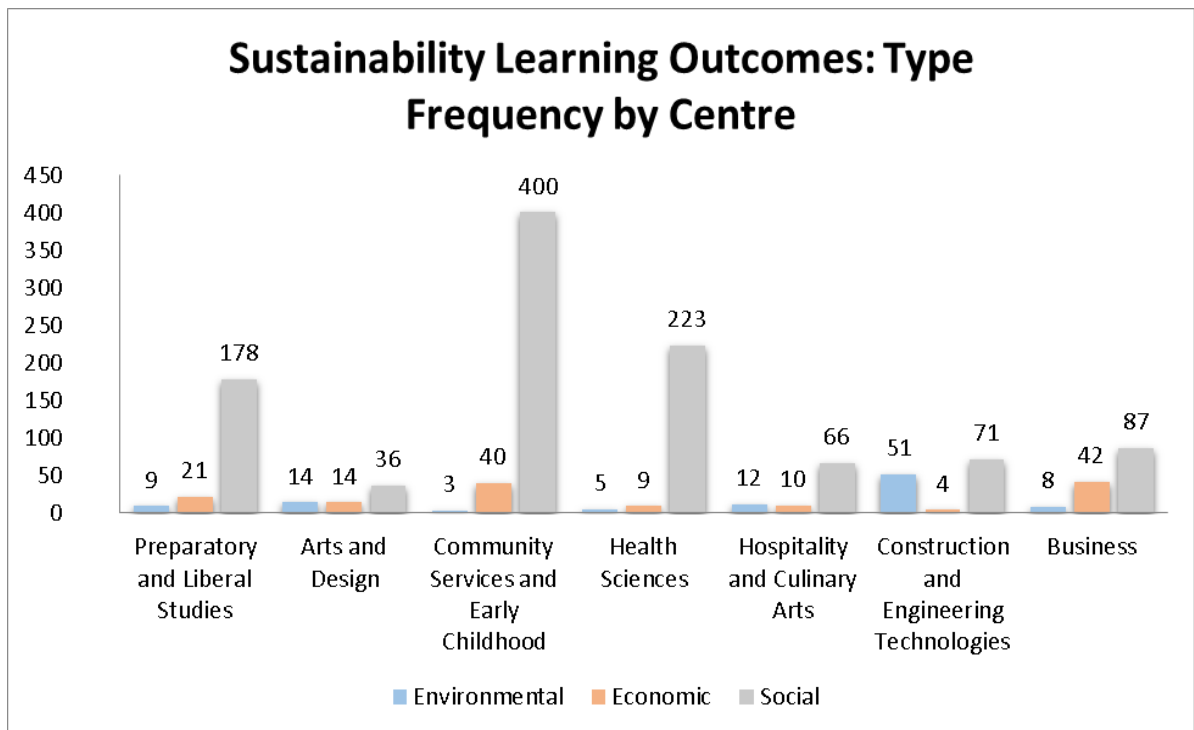
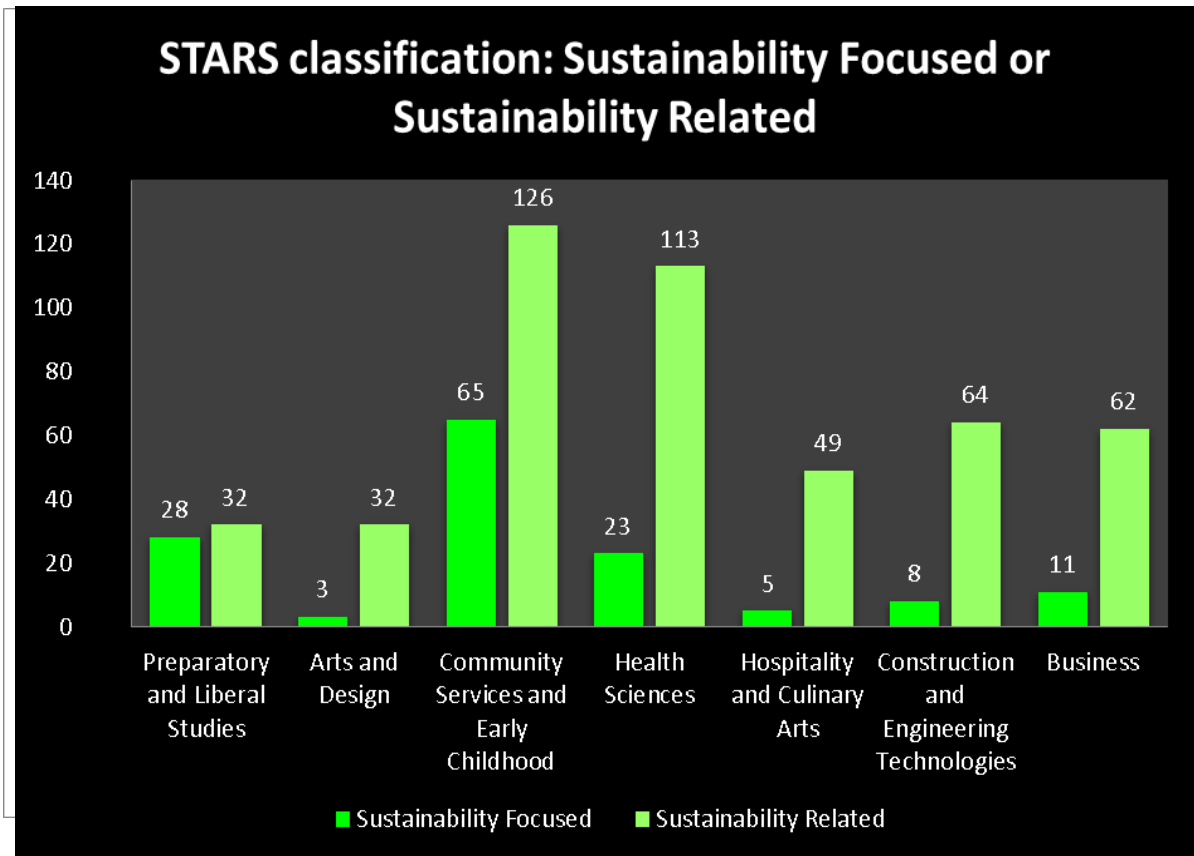
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- Jason Ngan, Cooperative Education Student, Business Administration (HR) program
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- Nancy Sherman, Dean, Centre for Construction & Engineering Technologies and Green Team co-chair
- Helene Vukovich, Associate Dean, Centre for Business

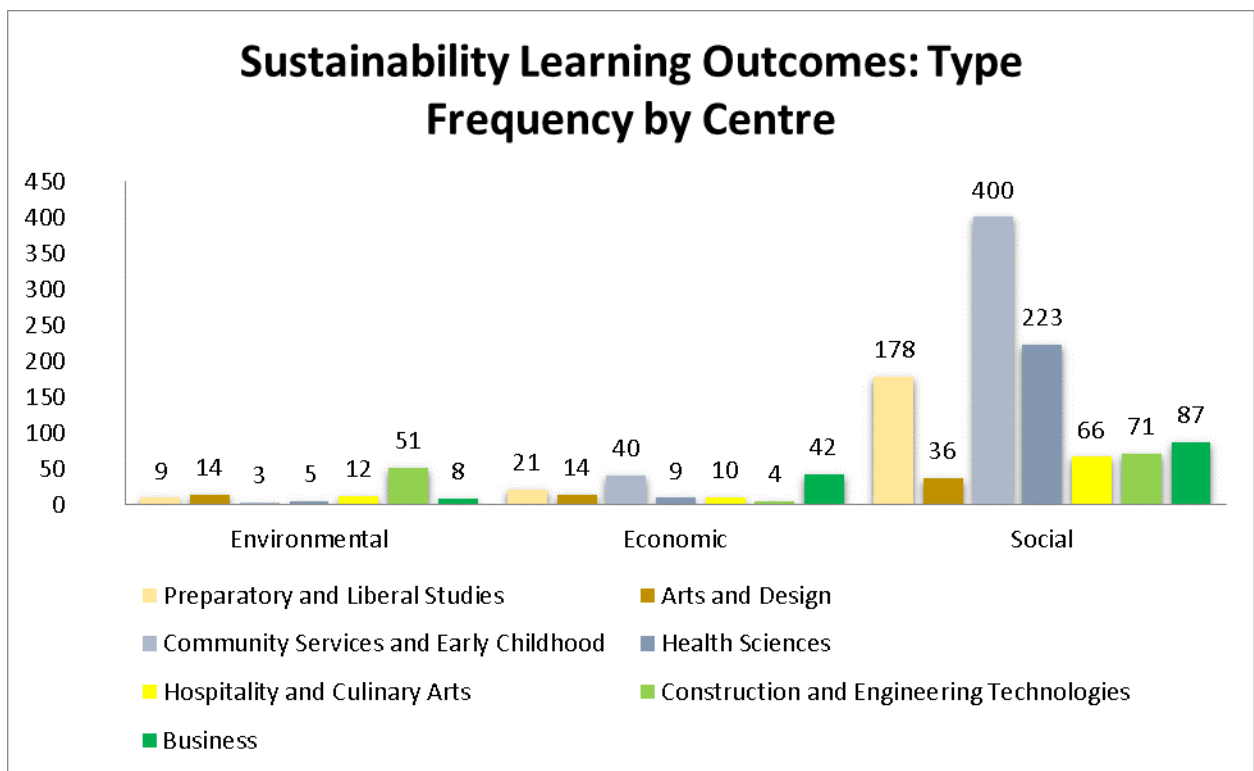
Appendix A: Graphed Results











APPENDIX B: Key Sustainability Subject Areas (by frequency)



APPENDIX C: Definitions of Sustainability

Environmental Sustainability

Environmental sustainability is concerned with reducing human consumption of resources and mitigating human impact on the natural environment. A sustainable approach to the physical environment entails improved understanding of the interrelation of ecosystems and the life-giving services they provide. It promotes behaviours that minimize harm to air and water quality, and that reduce greenhouse gas emissions.

Social Sustainability

Sustainable social practices promote “social justice, conflict resolution, access, human well-being, social equity, diversity, intercultural fluency, quality of life, global citizenship, [and] community building” (University of British Columbia, no date).

Economic Sustainability

Healthy local and national economies are fundamental elements of liveable, equitable and prosperous communities. The Canadian International Development Agency’s Sustainable Economic Growth Strategy prioritizes economic practices that:

- “Foster a stable foundation for viable businesses and industries to thrive;
- Increase opportunities for meaningful employment, particularly in the formal economy;
- Maximize the contribution of growth to the public resources available for investment in the welfare of the population”

Sustainable, ethical economic practices “[...] integrate environmental sustainability, equality between women and men, and governance as essential considerations to achieve sustainable economic growth” (CIDA 2011).

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