

Environmental and sustainability education in the mandatory Ontario secondary curriculum: analyzing for content and impacts on student engagement

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Background

Importance of environmental and sustainability education (ESE)

- ESE can provide students with the skills and knowledge needed to navigate today's complex sustainability challenges¹²
- Public high school education is widely available to youth across the developed world, serving as a critical ESE platform³
- Despite recognition that ESE should be taught in a holistic manner, it is often taught from a purely scientific lens and relegated to electives and extracurriculars⁴⁵

ESE in Ontario

- In 2009, the Ontario Ministry of Education published *Acting Today, Shaping Tomorrow: A Policy Framework for Environmental Education in Ontario Schools*⁶
 - This policy framework outlined that “environmental education [would be] part of every child's learning” and called for integration of ESE across high school grades and subjects⁷
 - Major curriculum updates were made, but little research has been done on the outcome or quality of these updates

Why focus on mandatory courses?

- Mandatory courses are required by every student across the province
- This curriculum material reaches the greatest number of youth in Ontario & does not require that students seek it out themselves

Research Questions

1. How much is ESE integrated into the compulsory Ontario secondary curriculum?
2. To what degree does ESE in the Ontario secondary curriculum influence student engagement with sustainability?

Grade 9 Courses Examined



Methodology

Curriculum Content Analysis	Manual search and count of ESE content in curriculum expectations, examples/teacher prompts, and additional curriculum content Creation of code set using NVivo to identify key themes in ESE-related expectations
Student Engagement Survey	Student survey (n=824) on received ESE content and its influence on engagement Spearman's Rank Correlation Analysis used to identify response relationships
Interviews	Conversations with 5 individuals (mix of educators and students) to identify best and worst practices Analysis using NVivo to identify key themes

Key Findings

Curriculum Content

Course	# Expectations (Overall + Specific)	# ESE Expectations	% of Expectations Containing ESE Content
Science	60	23	38.3%
Geography	70	28	40%
English	71	1	1.4%
Math	56	0	0%
HALE	43	1	2.3%
TOTALS	300	53	17.7%

Significant amounts in Science and Geography

Almost none in other 3 courses

Major ESE Themes

Physical processes & CC (21%)	Human systems and products (19%)	Technology and energy (17%)	Resource sustainability (17%)
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Lessons from Students

- Less ESE content received than found in curriculum
- Weak but significant relationships between amount of ESE content and:
 - a) Reliance on courses as main source of sustainability info
 - b) Attribution of courses to further sustainability engagement
- Lack of actionable opportunities → less engagement
- Engagement from teachers largely dictated ESE experiences

Discussion and Conclusions

1. ESE in the mandatory Ontario grade 9 curriculum lacks range, relevance, and prescriptiveness
 - A lack of interdisciplinary and action-oriented learning opportunities keeps students from making important connections and relating ESE to “real life”
2. More and higher quality ESE may help develop sustainability leaders
 - Survey analysis suggests that students show higher engagement with sustainability when more ESE is received
3. Quality of ESE largely depends on the attitudes and motivations of educators
 - This is neither fair nor feasible in many classrooms
4. More research is required, but should not prevent action from being taken
 - Future studies should use a more representative survey pool & examine how ESE can be added without overcrowding the curriculum

To prepare youth to navigate the complex sustainability challenges of the future, the Ontario grade 9 curriculum should be updated to include a more holistic and application-based focus on ESE



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