



Proceeding Paper

The Impact of a General Elective Course on Sustainability of the Environmental Citizenship of Undergraduate Students [†]

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Abstract: The aim is to evaluate the effect of a sustainable development-oriented course on the environmental citizenship attributes of undergraduate students at a technical university. We discuss the pedagogical and didactic aspects of the course and its linkages to sustainable development education, define the elements of the educational intervention, and present the case study from Kaunas University of Technology. The presentation discusses results from a randomized pre-group–post-group quasi-experimental survey. The results prove the positive effect of the studied educational intervention on the environmental citizenship of undergraduate students.

Keywords: environmental citizenship; education for environmental citizenship; pedagogical approaches in environmental education; higher education; educational evaluation



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1. Rationale

University students are a crucial audience for environmental citizenship education [1] due to their anticipated roles within citizenry and work environments. Taking a primary interest in active environmental citizenship, we aim to evaluate an educational intervention designed to foster environmental citizenship among undergraduate students at a technological university in Lithuania. We explore the impact of a unique undergraduate sustainable development course on students by implementing a recently developed instrument for measuring the dimensions of environmental citizenship [2]. The instrument is comprised of items measuring past, present, and future actions as environmental citizens and agents of change, as well as the knowledge, conceptions, skills, attitudes, and values for environmental citizenship.

2. Research Question

The group of researchers implemented a quasi-experimental survey design to answer questions about the reliability and validity of the environmental citizenship questionnaire, about the environmental citizenship characteristics of first-year undergraduate students in a large technical Lithuanian university, as well as the impact of the designed educational intervention. These questions are answered, and the survey results are discussed in detail in a separate article [3]. This abstract from the iREEC 2022 conference presentation will further discuss the following research question:

What is the impact of students' participation in a general elective course 'Sustainable Development' on their environmental citizenship?

The research question was answered while testing a general overall hypothesis: the general elective course focusing explicitly on sustainable development (by implementing it via learner-oriented pedagogical methods identified as effective in developing sustainable development competences) will foster increased environmental citizenship in participating students.

3. Methodology

Using a randomized pre-group/post-group quasi-experimental survey design, we explore the students' environmental citizenship before and after the intervention course 'Sustainable Development', compared to students in a general elective course 'Media Philosophy'. Students were divided into two main groups (experimental vs. control) and then randomly assigned to either a pre- or post-intervention survey, resulting in four groups with unique respondent membership. Each of the nine subscales of the environmental citizenship questionnaire showed excellent reliability (alpha values ranging between 0.830 and 0.930); the entire instrument also had excellent internal consistency (0.929).

4. Findings

ANOVA showed that, when comparing the four groups for each of the EC scales, no main effects were present (all $p > 0.05$), suggesting no effect of the intervention on the subscales. However, when the four groups were compared based on the overall EC construct (overall mean of all items of all scales), the results indicate meaningful and significant differences ($p = 0.016$). Two-by-two post hoc analyses showed, as expected, no differences between the pre-intervention group and the pre-control group, and between the pre-control group and the post control group (all $p > 0.05$). However, as hypothesized, the post-intervention group displayed significantly higher EC than the pre-intervention group ($p = 0.007$), and significantly higher EC than the post-control group ($p = 0.025$). Cohen's d shows a medium effect size for both estimates (both $d = 0.52$).

5. Conclusions

The results support that participation in the 'Sustainable Development' course induced positive changes in the students' environmental citizenship. The presentation at iREEC2022 will also highlight the specific pedagogical design of the 'Sustainable Development' course and relate it to the learning outcomes that we observed in our study. As such, our paper provides a timely contribution, shedding light on how specific pedagogical approaches in higher education can foster environmental citizenship.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: A publicly archived dataset with a questionnaire is available through LiDA: <https://hdl.handle.net/21.12137/RZJ0FL> (accessed on 22 December 2021).

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