

LEARNING SUSTAINABILITY THROUGH IN-CLASS DEBATES

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Abstract

The study aims to answer the research question: *How can in-class debates be used for learning sustainability in higher education?* The research was conducted as an action-oriented case study at a Finnish university in an international master's course for business and engineering students. In-class debates were used as part of a transformative pedagogical model aimed at developing learners' thinking, identity and agency in promoting sustainability. The results suggest that debates are particularly effective for learning a subject as complex as sustainability and related competencies and fit well with the transformative learning for sustainability, as they allow one to delve deeper into issues, justify points of view and weigh opposing points of view. It is also important to select debate topics where both of the perspectives are possible and worth pursuing from a sustainability perspective and to focus on the "how" of achieving sustainability. As a practical implication, this study provides a pedagogical model for learning sustainability through debates in higher education, including the identification of appropriate debate topics, when teaching sustainability transformation, implementation practices, a debate assessment rubric, and development ideas for improving the exercise further.

Keywords: *In-class debate, debating, sustainability, transformative learning, higher education.*

1. Introduction

In-class debates have been found to be an effective active learning method, but one that is relatively under-utilised in education (Osborne, 2010). Practices of using in-class debates in higher education have been studied in the previous literature (Goodwin, 2003; Roy & Macchiette, 2005; Oros, 2007; Kennedy, 2009; Cariñanos-Ayala et al., 2021), but not so much in the context of education for sustainable development (recent exceptions Rodriguez-Dono & Hernández-Fernández, 2021; Georgallis & Bruijn, 2022). However, the use of debate in education for sustainability could be a fruitful approach, as it could support competencies considered crucial for promoting sustainability, such as systems thinking, values thinking and interpersonal skills, as well as fostering the deep transformative learning considered essential in the context of sustainability, which requires challenging existing worldviews and paradigms (Käpylä & Auvinen, 2024). This study focuses on the use of classroom debates in learning sustainability. The study aims to answer the research question: *How can in-class debates be used for learning sustainability in higher education?* The research was conducted as an action-oriented case study at a Finnish university in an international master's course for business and engineering students, where a pedagogical model for learning sustainability through in-class debates was developed.

2. In-class debates in higher education and in education for sustainable development

Because argumentation is a fundamental process in constructing knowledge, it should also be strongly present in science education (Osborne, 2010). Significant learning gains can be achieved from interactive learning activities that require collaborative discussion and argumentation (Osborne, 2010). Classroom debates not only improve argumentation skills but also help to learn content, the substance in question, deeply, broadly and personally (Kennedy, 2009). Overall, there seems to be a consensus in the previous literature on the virtues of debating, for example in developing critical thinking skills and citizenship skills (Roy & Macchiette 2005; Oros, 2007) and better learning the course content (Goodwin, 2003; Kennedy, 2009). However, very different ways of organising debates have been studied; for example, ways of evaluating debates, the structure and length of debates, the degree of integration (i.e., continuous mode of operation in the course vs. one-off nature), preparation methods, the size of debate teams and the presence of moderators have varied widely across the study settings (cf. Roy & Macchiette 2005; Oros,

2007; Rodriguez-Dono & Hernández-Fernández, 2021). Previous studies on classroom debates in the education for sustainable development indicate that the learning method can be beneficial for developing sustainability and critical thinking competences (Rodriguez-Dono & Hernández-Fernández, 2021) and can elicit participation and enhance reflexivity by engaging students in the complex nature of and multiple viewpoints of sustainability issues (Georgallis & Bruijn, 2022). Despite their recognized potential, classroom debates have not been discussed a lot in the education for sustainable development.

3. Research context and method

The research was conducted in the autumn of 2024 as an action-oriented case study at a Finnish university as part of an international master's course on "Knowledge-based Decision making for Sustainability" for business and engineering students. In total 58 students completed the course. The author of this paper worked as the course responsible teacher together with her colleague. In-class debates were used for the first time in the course as part of a transformative pedagogical model aimed at developing learners' thinking, identity and agency in promoting sustainability (previous version of the course is described and evaluated in Käpylä and Auvinen, 2024). The course consisted of various elements in which interactional and active learning methods played a key role. The course consisted of three lectures, three negotiation exercises, six workshops (one of which was a debate training session), a debate seminar, an exam and a personal written reflection. Data, which consisted of teachers' experiences, course feedback survey (n=50) and a survey about the students' experiences of the debate (n=16), was gathered from the course implementation of 58 participating students. Data was mainly qualitative and analysed using the principles of thematic analysis according to Braun & Clarke (2006).

4. Results and discussion

4.1. Pedagogical model for learning sustainability through in-class debates

The debate exercise part of the course, i.e., the pedagogical model for learning sustainability through in-class debates, consisted of preparation (to be done independently in the teams of two), debate training session and the actual debate seminar (including peer assessment), where four different-themed debates about issues relevant to sustainability transformation took place. Students debated in teams of two against the other debater team of two. Each debate seminar event was thus made for a total of 16 students, and altogether four debate seminars were held at the end of the course. Each student had to attend one debate seminar. The course teachers developed the debate topics based on the course themes, and taking into account that both perspectives should be grounded in sustainability and worth defending. The issues for debate on sustainability transformation are described in Table 1.

Table 1. Issues for debate on sustainability transformation.

Theme	Opposing perspectives of the debate
Economic models	The pursuit of green and sustainable growth vs. Degrowth as a goal
Twin transition	Digitalisation as a cause of sustainability problems vs. Digitalisation as a solution to sustainability problems
Sustainability transition	Business as a driver of sustainability vs. Political decision-making and governance as drivers of sustainability
Sustainability transition	Technological development as a driver of sustainability VS. Change in actions and mindsets as a driver of sustainability

In the debate training session, debate groups of four were formed (two against two) and each group received one debate topic on sustainability related matters. These topics concerned more detailed questions of sustainability compared with the final debate seminar topics in Table 1. Then the group divided the positions between the pairs, and both pairs dig into the topic independently and made a plan for their argumentation. Pairs had half an hour to prepare, after which they debated for 15 minutes and then reflected on their exercise. The aim was to familiarise students with debating as a way of working before the final debate seminar. Along with the timeline and assessment guidelines, students were also introduced to Toulmin's argument diagram, and for the training session, students prepared by watching Dhar's (2018) TED Talk. In the debate seminar, each debate was allocated 30 minutes, including 22 minutes of debate and 8 minutes of discussion and peer feedback. The timeline of the debates was following: 1. Opening speech by pair A (3 min. / 1,5 min. per person), 2. Pair B's response (1 min.), 3. Opening speech by pair B (3 min. / 1,5 min. per person), 4. Pair A's response (1 min.), 5. Free debate 10 min. (max. 30-second speeches per person), 6. Pair B's closing speech (2 min. / 1 min. per person), and 7. Pair A's closing speech (2 min. / 1 min. per person). Students were informed in advance about the evaluation matrix for the debate

(Table 2). Each criterion was considered equally important, and team members received the same grade. Peers provided immediate anonymous feedback after listening to the debate by filling in the feedback forms. After the debate seminars, teachers gave each pair of debaters written feedback on their own performance, along with a grade.

Table 2. Evaluation criteria for the debate performance.

Criterion	Grade 5	Grade 3	Grade 1
Reasoning and evidence	Information and arguments are well justified/motivated and reliable facts are presented.	Most of the information and arguments are presented clearly and accurately, but they are usually not thoroughly justified/motivated.	Information and arguments had some major inaccuracies or were usually not clear.
Strategy and method	The speech is clearly structured and responses to others' arguments are effective and objective.	The speech is mostly clearly structured and responses to others' arguments are for the most part effective and objective.	The speech is often not clearly structured and responses to others' arguments are affected by one's own opinions or upset.
Expression and delivery	The speech is clear and audible, and the speaker speaks at a calm pace. The speaker makes eye contact.	The speech is mostly clear and audible, and the speaker speaks at a calm pace. The speaker mostly makes eye contact.	The speech is unclear and/or inaudible or there is no eye contact.
Teamwork	The pair supports each other.	The pair mostly supports each other.	There are contradictions or repetition.
Communication and listening	All statements, body language, and responses were respectful and were in appropriate language. The debater listens when the others speak.	Most statements and responses were respectful and in appropriate language, but there was one sarcastic remark. The debater mostly listens when the others speak.	Statements, responses and/or body language were consistently not respectful. The debater often does not listen when others speak.

4.2. Experiences of learning sustainability through in-class debates

In total of 58 students completed the course. In the course feedback survey (n=50, 86 % of course participants), the overall assessment of the course was 3.8 (on a scale of 1–5, meaning close to very good). In the open course feedback, debates were often mentioned in response to the question “Which aspects of the course went well in terms of your learning?”. Based on the feedback survey, it seems that debating was one of the most valued elements in the course:

- *“I really enjoy the negotiations and debate, so these parts were great.”*
- *“I found the negotiation exercises and debates useful, and it was interesting to learn about them, because they are not emphasised much in other courses but they are useful in working life.”*
- *“I liked that the negotiations and the final debate were relaxed occasions, and there was no need to excite them in advance.”*
- *“The debate was the most useful part of learning. I liked the fact that the course had a variety of different activities.”*

16 students (28 % of course participants) responded to a separate questionnaire about their experience of the debate. Of these, three found the debate (preparation, debating practice, debate event, evaluation) very useful in terms of learning, eleven found it useful and two found it quite useful. None of the students found it to be ‘not very useful’ or ‘not at all useful’. When students were asked which factors in the debate (preparation, debate practice, debate event, evaluation) promoted their learning, the following aspects were highlighted: 1. forming arguments and justifications, 2. a deeper understanding and better retention of the issues, 3. choice of topics relevant to the real life and studying the course material in more depth through them, 4. an understanding of different alternative perspectives, and 5. gaining practical experience of debating and thereby increasing self-confidence and academic competence.

Many stressed the importance of the preparatory phase for learning, although the debate event itself was also seen useful. The value of debating was seen as forcing you to form reasoned arguments and think about the alternative position on the issue as well, as described by three students:

- *“It forces you to form in depth arguments about a specific topic and also to understand the opposing side's point of view.”*
- *“The preparation phase is the longest and, of course, the most important phase for learning the substance. Debate as a concept offers two positive things for the preparation: everything learned must also be able to justify and, on the other hand, one must consciously try to put oneself in the position of the opposing party. This brings a considerable depth to the learning compared to, for example, reading for exams.”*
- *“Hearing other people's debate was a great way of finding out alternative perspectives to the topics.”*

Classroom discussions also revealed that most students had not participated in debates during their studies, so the debate event itself (without the substance) provided a new experience, as one student said: *“The event itself, I’d never had the chance to take part in a debate before in my life, and taking part in one has enriched my academic training.”* Some practical aspects were also appreciated such as written feedback from teachers together with the grade given, appropriate number of participants at the debate event, pre-supplied scientific material on the topic of the debate and the possibility to choose the language (English or Finnish) of the debate.

When asked in the open course feedback “How would you develop the course?” the final debate was mentioned as something that needed more training and guidance.

- *“Preparing for the debate was challenging, and the workshop did not prepare well for it.”*
- *“Maybe practice the debate exactly as it will be in one of the workshops.”*

In the individual mention, the debate was also perceived as exciting. There was also a hope that the topics of the debate would be more contradictory or more specific.

- *“I also didn’t understand what lessons should have been learnt from the debate. All the energy went just to excite the debate.”*
- *“Debate topics could be either more specific or more “contradictory”.”*

These three challenges were also brought up in the separate debate survey. When students were asked how the debate (preparation, debate practice, debate event, evaluation) could be developed to be more useful in terms of learning, some issues were mentioned more than once: 1. more training and better guidance for the preparation, 2. stress and tension of performing (debating in front of others), 3. more confrontational debate topics, 4. more comments on topics and feedback from the teachers immediately after the debate, 5. peer assessment practices not useful or not very useful for learning, and 6. too little time for the debate. Some students hoped for more debate training before the seminar, and a clearer idea of what is expected of debate performance. For example, one student argued that *“It is better to explain to the students what you expect them to do in the debate. In this case they would be more prepared and less confused.”* Some felt stress and tension of performing, which affected their ability to learn from the seminar: *“I think what makes a debate difficult is the tension of the presentation. As in my case, when I’m presenting, I always feel like I’m forgetting everything. So, there’s not much memory of my own performance.”* In addition, more immediate feedback from the teachers was hoped for, and one student wished that the shared reflection in the classroom after the debates could have been more fruitful: *“Students could be better motivated to share their own thoughts and ideas.”* Some felt that there was too little time for the debate, and there was also a concern that *“one’s performance and grade depended a lot on the other team”*. There was also an idea to better link the debates to current affairs. Table 3 summarises the perceived benefits and challenges in debating as experienced by the students.

Table 3. Perceived benefits and challenges in debating.

Perceived benefits	Perceived challenges or suggestions for development
<ul style="list-style-type: none"> ▪ Forming arguments and justifications ▪ Deeper understanding and better retention of issues ▪ Choice of topics relevant to the real life and studying the course material in more depth through them ▪ Understanding of different alternative perspectives ▪ Practical experience of debating: increased self-confidence and academic competence 	<ul style="list-style-type: none"> ▪ More training and better guidance needed for preparation ▪ Stress and tension of performing (debating in front of others) ▪ More confrontational debate topics ▪ More comments on topics and feedback from the teachers immediately after the debate ▪ Peer assessment practices not useful or not very useful for learning ▪ Too little time for the debate ▪ Better linked to current affairs

4.3. Evaluation of the pedagogical model

The pedagogical model worked in many respects. Debating itself suited well for learning sustainability, because it enabled active, personal and interactive learning allowing students to delve deeper into issues, justify points of view and weigh opposing points of view. Implementation needs some improvements though. First, the chosen issues for debate on sustainability transformation, seemed to work, especially if the guidance is sharpened. Teachers noticed that some aspects need to be clearly highlighted for the students. It is important to guide students to focus on the “how” of achieving sustainability, i.e., to broadly consider with practical and theoretical examples for example, *how* business is the driver of sustainability, instead of just answering *why*. Because some students felt that opposing topics were too close to each other, teachers should make it clearer what is expected of the performance, e.g. that the idea is to argue and justify one’s own point of view even though it is also possible to change one’s own perspective during the debate. In the negotiation exercises, students had learnt a collaborative approach to negotiations,

which was reflected in the debates as an attempt to build common ground rather than to defend one's own position. It should be also highlighted to the students that *their job* is to link their rather broad topics to current affairs and independently look for practical and theoretical knowledge on the topic. Second, because the idea of debating was strongly appreciated, debating as a learning method could be used more extensively in the workshops. This would allow students to practice debates much more, which could relieve the tension, stress and anxiety of performing that hindered some students' learning. It would also familiarise students with the timeline of the debate. Third, the evaluation criteria could be further developed by putting more emphasis on the use of relevant knowledge and evidence as well as argumentation. Now the matrix guided students to focus more on communicating successfully. Finally, the peer assessment could be further developed by better training the students for the task and emphasising the learning benefits of giving and receiving feedback. If the peer assessment could be developed as the main assessment method, there would also be also opportunities to scale up the pedagogical model for mass classrooms.

5. Conclusions

The results suggest that debating has many advantages as a learning method for sustainability. It allows students to delve deeper into issues, justify points of view and weigh opposing points of view. However, the implementation needs to be well-designed, and students should be carefully guided. Previous literature presents different ways in which classroom debates can be implemented and provides evidence of their many benefits for learning. However, there is no systematic comparison of the advantages and disadvantages of different debate formats. This is particularly evident in the field of education for sustainability, where there is a lack of studies on classroom debates. The findings of this study are based on the experiences of students and teachers and the data was gathered from one implementation. Further research is therefore needed to develop the pedagogical model and validate its learning benefits, particularly from the perspective of transformative learning for sustainability.

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