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To cite this article: Ane Eir Torsdottir, Astrid Tonette Sinnes, Daniel Olsson & Arjen Wals (2023): Do students have anything to say? Student participation in a whole school approach to sustainability, *Environmental Education Research*, DOI: [10.1080/13504622.2023.2213427](https://doi.org/10.1080/13504622.2023.2213427)

To link to this article: <https://doi.org/10.1080/13504622.2023.2213427>



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Published online: 16 May 2023.



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Do students have anything to say? Student participation in a whole school approach to sustainability

Ane Eir Torsdottir^a , Astrid Tonette Sinnes^a, Daniel Olsson^b  and Arjen Wals^{a,c} 

^aDepartment of Educational Sciences, The Faculty of Science and Technology, Norwegian University of Life Sciences, Ås, Norway; ^bDepartment of Environmental and Life Sciences, The Faculty of Health, Science and Technology, Karlstad University, Karlstad, Sweden; ^cDepartment of Social Sciences, Wageningen University & Research, Wageningen, The Netherlands

ABSTRACT

The article demonstrates how a questionnaire gauging students' experiences of participation in decision-making at their school can operationalise student participation in a whole school approach (WSA) to education for sustainable development model. Some 902 students in three upper secondary schools participated in the study by giving their answers to Likert-scale items developed to tap into their experience of participation in the decision-making at their school. The students identified four distinct pathways of participation: (i) School and Leadership, (ii) Teaching and Learning, (iii) Community Connections, and (iv) Student Council. The results are discussed in the light of focus group interviews with eleven of the participants. The student WSA participation questionnaire proved to be a reliable and valid instrument that, together with the student WSA participation model, can be used by school leaders wanting to increase student participation, and by researchers investigating student participation throughout the whole school.

ARTICLE HISTORY

Received 17 October 2022

Accepted 9 May 2023

KEYWORDS

Student participation; education for sustainable development; whole school approach; questionnaire development; scale validation

Introduction

To eradicate poverty, reduce inequalities and address climate change, the UN has defined 17 Sustainable Development Goals (SDGs) that humanity must aim to reach by 2030, and education is highlighted as having an important role in achieving the goals within that timeframe (Leicht, Heiss, and Byun 2018; Reis 2020). Education, in every educational setting, must empower students of all ages if they are to change both themselves and the societies in which they live (UNESCO, 2014, p. 12). As sustainability issues are highly complex and can only be meaningfully addressed by integrating a wide range of perspectives and relationships, education for sustainable development (ESD) must be approached holistically (Holst 2023; Mogren, Gericke, and Scherp 2019; UNESCO, 2014, 2020). However, research shows that ESD often consists of individual projects, which often fail to be integrated into the rest of the institution and education (Bjønness and Sinnes 2019; Sjaastad et al. 2014; Warner & Elser, 2015).

A whole school approach (WSA) is a way for schools to work holistically towards school improvement on complex matters like ESD (Gericke 2022; Holst 2023; Shallcross & Robinson,

CONTACT Ane Eir Torsdottir  ane.eir.torsdottir@nmbu.no  Department of Educational Sciences, The Faculty of Science and Technology, Norwegian University of Life Sciences, Kirkeveien 1b, 1430, Ås, Norway.

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2008). ESD shapes not only what teachers teach, but where and how they teach. It therefore requires them to work in interdisciplinary and holistic ways, which is a significant and complicated challenge (O'Donoghue, Taylor, and Venter 2014). Recognising this, UNESCO (2020) and the European Union (European Commission 2022) recommend a WSA as a strategy for promoting good sustainability education.

The concept of a WSA has no agreed-upon definition, but various conceptualisations have been offered from policy and theoretical perspectives (Buckler and Creech 2014; Henderson and Tilbury 2004; Mogren, Gericke, and Scherp 2019; Shallcross & Robinson, 2008; Wals & Mathie, 2022). Although these models differ, there are nonetheless many similarities. Whole school approaches aim to engage all aspects of the school in common efforts to enhance targeted characteristics at all levels (Gericke 2022; Scott, 2011). They are seen as a way for schools to integrate ESD meaningfully and ensure the participation of all stakeholders, from leaders to students. Models of a WSA promote a systemic approach to embed sustainability in the whole organisation, including all of its functions, and see the WSA as an active process that requires the involvement of all stakeholders, students included, and uses participatory approaches. One of the conceptualisations of a WSA is the Flower Model (see Figure 1) created by Wals and Mathie (2022).

Wals and Mathie (2022) describe a WSA to ESD as seeking to achieve a holistic education in which sustainability issues are integrated and investigated from different angles, while working systemically to include the whole organisation and all stakeholders collectively and reflexively. In their model, the school is represented as a flower in which each petal represents distinct

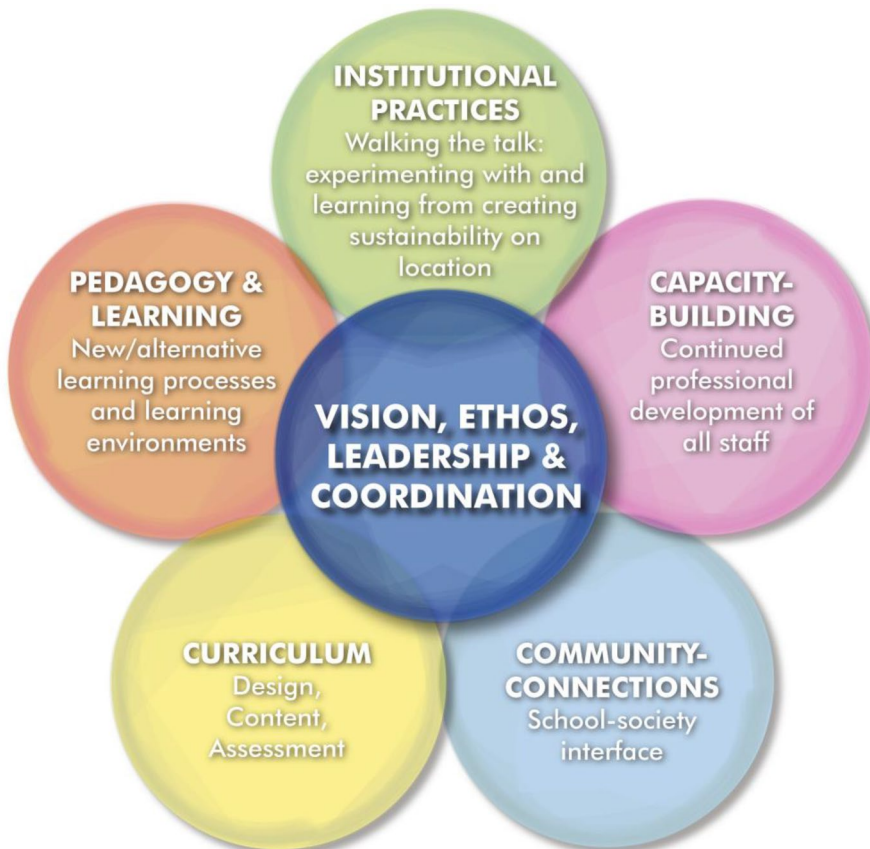


Figure 1. Flower model of the whole school approach (Wals & Mathie, 2022).

but interlinked aspects - institutional practices, employee capacity-building, community connections, curriculum, and pedagogy and learning - with the school's vision, ethos, leadership and coordination sitting at the centre (see [Figure 1](#)). Wals and Mathie (2022) refer to the importance of participatory, co-developed processes engaging multiple stakeholders' voices across the organisation within a WSA. 'In a WSA the pedagogical environment a teacher and the school create tends to be one of trust, curiosity, collaboration, participation, and democracy' (Wals & Mathie, 2022, p. 5). This highlights the need to include students in all aspects of school life, from the teaching to how the school is organised. Viewed in this way, a WSA can help students and schools 'walk the talk', developing the competencies they need to play their part in transforming themselves and their society towards sustainability (Holst 2023; UNESCO, 2017).

Student participation has long been considered essential in ESD and as part of a WSA (Henderson and Tilbury 2004). In this way, it is comparable to the student voice movement, which recognises children and young people as able to express their views and experiences of school life and even engage in research with adult researchers (Barratt and Barratt Hacking 2008; Fielding 2001; Flutter and Rudduck 2004; Robertson, 2015; Robinson & Taylor, 2007). P. Hart (2008) argues that participation might be the most crucial factor for learning in ESD. However, Hart's ladder of participation (1992) illustrates that there are various types of participation, ranging from manipulation to child-initiated activities, that share decisions with adults. When reflecting on his model, R. Hart (2008) stresses that it is not a goal in itself to be at the top of the ladder. Different types of participation can be valuable in different settings, and students should also have the option not to participate (R. Hart, 2008; Reid et al. 2008). This is in line with the views of Jensen and Schnack (1997), who assert that members of a society should be able to choose causes and to what extent they want to be involved. According to Jensen and Schnack (1997), ESD should always be coupled with democracy. They argue that democracy should be about liberty, equality, solidarity and participation. Members of a democracy are not passive spectators, but participants (Jensen and Schnack 1997). Breiting and Mogensen (1999) reason that ESD seeks to teach students to ask questions in a critical but fair manner and to act according to the answers they produce. In this way, the students can practise taking part in democratic processes and framing their own criteria for decision-making (Breiting and Mogensen 1999). Thus, using participatory approaches, students have the opportunity to exercise their democratic rights and to participate in decisions that promote justice, equality, and well-being (Reid et al. 2008).

In a WSA to ESD, there is a recognition that we need more than information and knowledge to shift society in a more sustainable direction (Goldman et al. 2020; Henderson and Tilbury 2004; Parra et al. 2020; Sund, 2022). A WSA to ESD needs to help develop students' critical thinking skills, intercultural perspectives, citizenship skills and participation skills through participatory approaches (Henderson and Tilbury 2004; Holst 2023). One initiative showing the importance of participation in ESD is the ECO-School Programme, which seeks to empower students by involving them in decision-making processes around tackling sustainability issues. In the ECO-School Programme, students are responsible for steering an Eco-Committee, consisting of at least 50% students. The remainder includes other stakeholders related to the school, such as parents, teachers and other school staff (Andreou 2020; Eco-Schools 2017). Cincera et al. (2019) interviewed teachers and students about implementation strategies for ECO-school programmes and found that an emancipatory approach where students perceived that they had opportunities for participation and ownership was seen as essential for the success of the programme. This is reflected in the study of Cincera and Krajhanzl (2013), who found that students' participation in decision-making is the essential success factor for Czech Eco-School programmes.

Leo and Wickenberg (2014) found that, to succeed in meaningfully integrating ESD, it is essential that teachers and management feel that they themselves, students and policy documents all clearly set out individual involvement and expectations. Another study in Sweden

concluded that, to succeed, it is important that all levels of the school, including management, teachers, students, and others associated with the school, support the work (Mogren, Gericke, and Scherp 2019). Both studies highlight the importance of students supporting and being included in ESD, echoing other research arguing for the importance of student participation in ESD (e.g. Hargreaves 2008; Holst 2023; Schröder et al. 2020; Sinakou et al. 2019; Wals & Benavot, 2017).

Students investigating real-life problems in familiar contexts are common in a WSA to ESD and stem from project-based learning (Fielding 2001; Gough and Robottom 1993; Wals et al. 1990). Breiting (2018) argues that letting students investigate a problem of their choosing allows them to feel ownership regarding the issue under consideration, helping them to engage with it and understand the difference they can make to society. Rather than simply teaching solutions to problems such as recycling, students need to be supported to investigate the sustainability issues they are interested in for themselves. This is supported by the study of Uitto et al. (2015), who looked at the relationship between several sustainability-related school experiences and students' ecological behaviour. They found that the experience of having agency, involving a high-level of participation encompassing both influence and responsibilities, had the greatest impact on pro-environmental behaviour. Students also report that this type of teaching, in which they participate in choosing the content, the organisation and the way in which they are taught, is an enjoyable aspect of learning about environmental challenges (Breiting et al. 2009). This is in line with Cincera and Kovacikova (2014), who interviewed students in ECO-schools and found that in schools where teacher control dominated the programmes, the students felt dissatisfaction, frustration, a sense of hopelessness and burnout. However, in schools with a high level of student participation when it came to decision making, students felt empowered by their achievements.

If we want to help students develop knowledge, commitment and agency, Breiting (2018) argues that their feeling of ownership is crucial. Thus, student participation is key in achieving ESD and teaching student commitment and action competence. Not only can the experience of participation in decision-making help to promote action for sustainable development, but it can also create a more democratic school and prepare students to take an active part in a democratic society (Flutter and Rudduck 2004; Frost and Roberts 2011; Kronvald and Thyssen 2017; Robertson, 2015). However, previous research shows that schools focusing on ESD do not always achieve a high degree of student participation (Breiting and Mayer 2015; Henderson and Tilbury 2004; Olsson, Gericke, and Boeve-de Pauw 2022; Schröder et al. 2020).

In pedagogies trying to engage students in contributing to social and environmental development, evaluating student participation can be an effective assessment strategy (Parra et al. 2020). The concept of student participation and participatory learning is not new (e.g. Fielding 2001; Gough and Robottom 1993; Wals et al. 1990), and the research mentioned above shows that student participation is considered important in a WSA to ESD. Nevertheless, studies that have tried to measure student participation quantitatively have, to the best of our knowledge, only looked at student participation as an aspect of the teaching of ESD, not the advantages of student participation throughout the whole school. As far as we are aware, no previous studies have considered how student participation may be operationalised through a WSA.

Research aims and questions

Because student participation is so important in a WSA, the current study develops and operationalises an instrument for measuring and monitoring student participation in a WSA. There are different levels of student participation (Hart 1992; R. Hart, 2008). However, in this study we define student participation as students participating in decision-making and having an influence over what does, or does not, happen. Student participation is looked at, not just in

the pedagogy and learning, but in the broader aspects of a WSA. To do this, we adapted the WSA Flower Model by Wals and Mathie (2022) to explore how students perceive the opportunities for their participation in the various aspects of the whole school organisation. The research questions are:

RQ1: What are the reliability and validity of an instrument covering the students' experience of participation within a whole school approach?

RQ2: How do students perceive their opportunities for participation in the various components of a WSA?

Method

In this section, we present the context of the study and outline the development of the instrument for measuring how students perceive their ability to participate in the whole school. Guided by the two research questions, we describe the scale development process including focus group interviews, a pilot study, the main data collection and scale validation. Figure 2 shows an overview of the process.

Context

This study is part of a larger project at the Norwegian University of Life Sciences (NMBU) called *ESD in Practice*. In this project, the Institute for teacher education and educational science at NMBU, a county municipality, and four upper secondary schools are exploring how the schools and the Institute for teacher education can, together, develop a practice promoting education for sustainable development. The project focuses on the WSA as an agreed framework for school engagement in sustainability. The project started in 2017. All schools have received financing for freeing up one teacher to spend one day per week on coordinating the development of the WSA in the school. The school coordinators and principals of the four schools meet with representatives from the county municipality and NMBU twice a year to discuss the status of the project and the road ahead. The coordinators have extra meetings with representatives

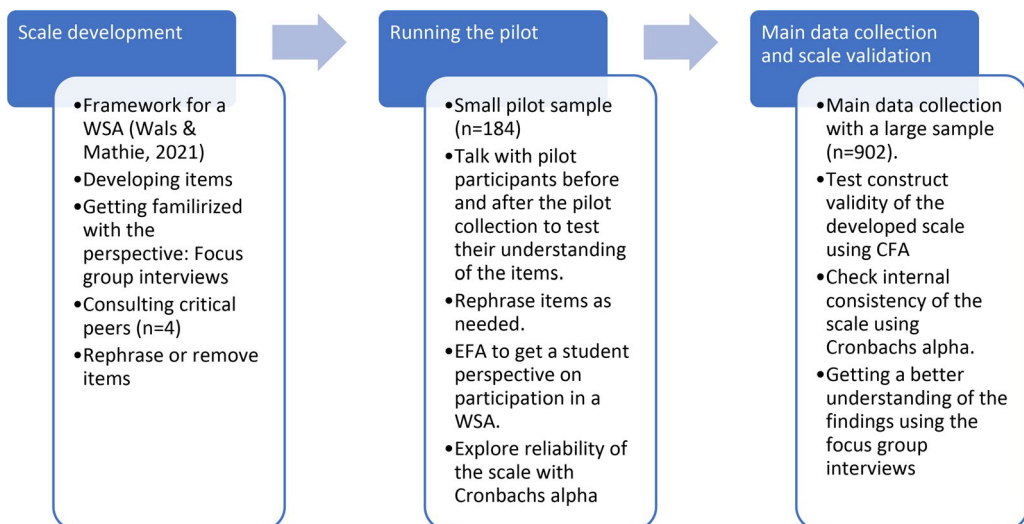


Figure 2. The steps involved in developing and validating the instrument, and in uncovering how students perceive their participation in the various components of a WSA.

from NMBU twice a year. In the past, the schools have not focused specifically on increasing student participation through ESD in Practice but, in meetings in early 2022, they expressed a wish to start focusing on it.

The ESD in Practice project has included several events such as study trips, seminars, and webinars about ESD, some specifically for the coordinators and principals, and some for all teachers at the schools. Other activities include professional development for staff on interdisciplinary working and sessions to envision three-year plans for a WSA in their schools, considering both immediate and long-term actions. Two schools have created new study programmes which focus on exploratory and interdisciplinary work on ESD. Also, one school is including the students in improving the well-being of people in the local nursing home, and two schools are recreating the canteen as a teaching and social arena with more sustainable food. Ultimately, it is up to the schools themselves what they implement, and this has varied considerably from school to school.

In Norway, there are no national system or guidelines for implementing a WSA, and sustainability has traditionally been treated in the natural sciences (Straume, 2016). As a result, the schools themselves had to ascertain how best to integrate a WSA to ESD. However, the new Norwegian curriculum can help schools to work towards a WSA to ESD by providing space for interdisciplinary, in-depth learning, critical thinking, and ethical awareness. The new curriculum also puts an increased focus on student participation:

The school must be a venue where children and young people experience democracy in practice. The pupils must experience that they are heard in the day-to-day affairs in school, that they have genuine influence and that they can have impact on matters that concern them. They must gain experience and practise different forms of democratic participation in the day-to-day work with their subjects, and through such bodies as pupil councils and advisory bodies (Ministry of Education and Research 2017 p. 8).

All participants in this study were students at schools who were part of the ESD in Practice project. The largest school in the study has about 1400 students and is a combined school offering both general and vocational education programmes. The second-largest school has about 700 students and prioritises general education programmes. In contrast, the smallest school has about 530 students and prioritises vocational education programmes.

The study was registered by, and addressed ethical considerations as per, the ethical norms of the Norwegian Social Science Data Services (NSD).

Developing a student WSA participation questionnaire

In order to develop a tool for gauging students' participation in a WSA (see process in [Figure 2](#)), we developed items for the latent subconstructs within the Flower Model, as shown in [Figure 1](#). Initially, all six subconstructs were used in the model to address different aspects of school life in which students may or may not have opportunities to participate. These subconstructs are a) Capacity Building, b) Community Connections, c) Curriculum, d) Pedagogy and Learning, e) Institutional Practices and f) Vision, Ethos, Leadership, and Coordination. To capture student participation in decision making in a WSA, we looked at each subconstruct of the flower and asked whether the students agreed they had influence within the different areas of school life. In the Flower Model, the student council is part of the school's vision, ethos, leadership, and coordination because it is an element of the school's distributed leadership. The student council can be essential for enabling students to participate in decision making within a WSA. For this reason, we included in the questionnaire additional questions about student participation through the student council.

As the WSA Flower Model was not originally developed from the student perspective, some of the petals were difficult to operationalise in a questionnaire designed for students. One of these was Capacity Building, which concerns the Capacity Building of staff (Wals & Mathie,

2022). It seemed very unlikely that students would influence the courses or other professional development opportunities available to teachers. Thus, the following results do not include questions about capacity-building.

Initially, focus group interviews with students were used to become familiarised with the student perspective on student participation within a WSA, because young people may have perspectives that we, as researchers, might overlook or not prioritise (Kirby 2004). We conducted focus group interviews with eleven students divided into four groups before piloting the questionnaire. Through the analysis of the statistics and the interviews, it became clear that these interviews also provided important perspectives that could deepen the understanding of the statistical analysis. We decided to use the focus group interviews to understand our statistical results and our student WSA participation model better. Consequently, we undertook qualitative analysis of this data after we had statistically validated the student WSA participation questionnaire and our student WSA participation model. The method of qualitative analysis can be read at the end of the section entitled *Main data collection and scale validation*.

Before the pilot, the questionnaire was shown to critical peers within the ESD field to ascertain whether or not they thought it adequately captured student participation in a WSA, and whether any of the questions were confusing, double-barrelled, leading or otherwise flawed. This work with critical peers was the first step in ensuring the face and content validity of the questionnaire (Hardesty and Bearden 2004). Following input from the critical peers, we added further questions relating to student participation in a WSA, and rephrased or removed those that were felt to be unclear. Table 1 shows the items and their relationship to our theoretical categories.

Participants responded to the items on a five-item Likert scale, ranging from completely disagree to agree completely. We informed the students that we were looking for all kinds of participation, from overarching issues such as the running of the school to smaller opportunities during the teaching process where students' opinions are heard and taken into account. For the items regarding community connections (items 15–17), there was an option to indicate if the item was irrelevant, as not all students would necessarily have been working on local issues. The items relating to the student council (items 18–21) included an option to indicate if the students did not know, as some students may not have insight into how the student council works. The analysis treated the options 'Not relevant' and 'Do not know' as missing data. For the remaining questions, participants had to respond according to their experience regarding the items' content.

Running the pilot

The pilot data was collected from April to June 2021, through an online survey which participants completed in class during school hours. The main author was present while students filled out the questionnaire to answer any queries they may have had before, during or after completing it, to check their understanding of the questionnaire items and to identify any unclear or difficult questions. Where students found questions abstract or complicated, we modified the language of those questions before the next group completed the questionnaire used in the pilot phase. Aside from adding a few questions, modifications mainly related to how questions were worded. An example of this is adding a text explaining what a learning goal is (see item 3 in Table 1). This was the second step in ensuring the face validity of the questionnaire (Hardesty and Bearden 2004).

The pilot sample included 184 students of between 16–25 years of age ($M=17.9$ years, $SD=1.0$). Of this sample, 52.7% were female ($n=97$), 46.2% were male ($n=85$) and 1.1% did not disclose their gender ($n=2$). More than half were grade three students (57.6%, $n=106$), the next largest group being second year students (31.5%, $n=58$) and then first-year students (10.9%, $n=20$).

Table 1. Items used in the student WSA participation questionnaire.

Item	Question	Theoretical category
Item 1	I get to influence what we learn about when we work on the theme of sustainable development.	Curriculum
Item 2	The teachers let me choose my own projects when we work on the theme of sustainable development.	Curriculum
Item 3	I get to influence the learning goals in the subjects when we work on the theme of sustainable development. (A learning goal is designed by the teacher and is a concretisation of the curriculum's competence goals.)	Curriculum
Item 4	I get to influence the methods we use when working in class, when we work on the theme of sustainable development.	Pedagogy and Learning
Item 5	I get to influence where the teaching takes place when we work on the theme of sustainable development.	Pedagogy and Learning
Item 6	I get to influence how we are assessed in subjects when we work on the theme of sustainable development.	Pedagogy and Learning
Item 7	I get to influence what initiatives the school will take.	Vision, Ethos, Leadership, and Coordination
Item 8	I get to influence what the school spends money on.	Vision, Ethos, Leadership and Coordination
Item 9	At our school, the management makes it easy for us students to have our say before decisions are made.	Vision, Ethos, Leadership and Coordination
Item 10	I get to influence measures to increase students' influence at school.	Institutional Practices
Item 11	I get to influence measures that can make the school more environmentally friendly.	Institutional Practices
Item 12	I get to influence measures at school to increase students' well-being.	Institutional Practices
Item 13	I get to influence measures at school to promote students' health.	Institutional Practices
Item 14	I get to influence what food is served in the cafeteria.	Institutional Practices
Item 15	I get to influence who we collaborate with in our local environment (e.g. people, organisations, companies).	Community Connections
Item 16	I get to influence which places in our local environment we go to.	Community Connections
Item 17	I get to influence what local issues we are going to work on.	Community Connections
Item 18	The school involves the student council when making decisions.	Vision, Ethos, Leadership and Coordination
Item 19	The student council has a significant influence on the school.	Vision, Ethos, Leadership and Coordination
Item 20	The student council represents the students in a good way.	Vision, Ethos, Leadership and Coordination
Item 21	The student council receives the training they need to be able to influence the school.	Vision, Ethos, Leadership and Coordination

While the Flower Model identifies six categories within which student participation might occur, we recognise that students might not see the school through the same categories. Because we wanted to look at student participation from their perspective, the starting point for analysis was to consider how they categorised opportunities for participation. To find student's perspectives on their participation in a WSA, we conducted an exploratory factor analysis (EFA). Using an EFA allowed us to reduce the questionnaire items to those factors for which students perceive themselves to be able to participate. Later, these factors were validated using a confirmatory factor analysis (CFA) applied to data from the main data collection (see [Figure 2](#)).

Before this, we imported the data to IBM SPSS Statistics version 27, with which the data was analysed using descriptive statistics. The EFA was conducted using principal axis factoring (PAF). Because it was hypothesised, and later confirmed, that the factors would correlate, we used an oblique rotation (Promax) to help with the interpretation (Mehmetoglu and Jakobsen 2016). We chose the number of factors from a visual examination of a scree plot and eigenvector values of more than one. The factors along the top of the curve on the screen plot matched the eigenvalue rule, causing us to use factors with an eigenvalue larger than one.

To examine the reliability of the factors, we calculated Cronbach's alpha in SPSS, and coefficients greater than 0.7 were considered satisfactory (Mehmetoglu and Jakobsen 2016).

Main data collection and scale validation

The main data collection took place from October to December 2021. Students completed the questionnaire as an online survey, in class during school hours. A teacher or the class representative presented the questionnaire to the class, following the instructions provided. This ensured the reliability of the data collection process by giving all students the same information before filling out the questionnaire.

The main data collection included 902 students of between 15–24 years of age ($M = 16.8$ years, $SD = 1.3$). Almost half of the participants were first year-students (46.6%, $n = 420$), the next largest group being second-year students (31.3%, $n = 282$) and then grade three students (22.2%, $n = 200$). In the main data collection, 58.6% of participants were female ($n = 529$), 39.1% were male ($n = 353$) and 2.2% did not disclose their gender ($n = 20$).

To validate the scale and investigate how well the data from the main data collection fitted with our model, we performed a confirmatory factor analysis (CFA) in Mplus 8. As Likert scale variables can be treated as continuous variables, the CFA was performed using a robust maximum likelihood (MLR) estimator and analysis, and missing data were handled using full information maximum likelihood (FIML) methodology (Graham 2009; Robitzsch, 2020). To evaluate the CFA model, we looked at the chi-square values and four goodness-of-fit indices with the cut-off values recommended by Hu and Bentler (1999). These were: Root Mean Square Error of Approximation (RMSEA) < 0.06 ; Comparative Fit Index (CFI); Tucker-Lewis Index (TLI) > 0.95 ; and Standardised Root Mean Square Residual (SRMR) < 0.08 .

We calculated Cronbach's alpha in SPSS to examine the scale's internal consistency. As in the pilot study, we considered coefficients greater than 0.7 to be satisfactory (Mehmetoglu and Jakobsen 2016).

Following the data analysis, we used the focus group interview data to understand and discuss the quantitative results more thoroughly. We used NVivo 1.6.1 for the data transcription and analysis. As the analysis was meant to give a deeper understanding of the subconstructs already pointed out by the statistical analysis, we used a codebook approach to thematic analysis which is pragmatic to the demands around pre-determined information needs (Braun and Clarke 2021, 2023). We performed the codebook approach using a deductive and semantic approach inspired by Braun and Clarke (2006). First, we familiarised ourselves with the data by listening to the interviews repeatedly and transcribing the data. We then carried out a theoretical thematic analysis, using the factors from the exploratory factor analysis as themes. Units of text were grouped into our four theoretical themes. Individual units of text could be included under more than one theme, and text that was not relevant to the themes was excluded from the analysis. After organising the units of text into the four themes, we looked for any points which had implications for, or added meaning to, our statistical results. A selection of quotations was chosen to illustrate these points. In this article, the qualitative results are used to lend deeper meaning to the quantitative results.

Results

The results in this section help answer our two research questions. The first research question (*What are the reliability and validity of an instrument covering the students' experience of*

participation within a whole school approach?) is answered by the results from both the questionnaire used in the pilot phase and the main run. Together with the qualitative results from the focus group interviews, the statistical results also contribute to answering our second research question (*How do students perceive their opportunities for participation in the various components of a WSA?*).

Results from the pilot phase questionnaire

To respond to the research questions, we conducted an EFA on the pilot data. The standardised factor loadings of an item had to be ≥ 0.40 for the item to be included in a factor, and only factors with eigenvalues ≥ 1 were used (Mehmetoglu and Jakobsen 2016). As shown in Table 2, all items had factor loadings above the requirement. The data was adequate for EFA according to the Kaiser-Meyer-Olkin measure of sampling adequacy (.858) and Bartlett's test of sphericity ($= 1342$, $df = 210$, $p < .001$).

The EFA resulted in four factors (see Table 2). These factors generally fell into the existing theoretical categories, or combinations of them. The exception is the items relating to Vision, Ethos, Leadership and Coordination, which were divided between the Institutional Practices category and a separate factor.

Factor 1, labelled *School and Leadership*, includes the three items in Vision, Ethos, Leadership and Coordination that do not mention the student council, and the items from the theoretical category Institutional Practices. Factor 2, labelled *Teaching and Learning*, includes the items from the categories Curriculum, and Pedagogy and Learning. Factor 3, labelled *Student Council*, contains the items from the Vision, Ethos, Leadership and Coordination category that include statements about the student council. Factor 4 is labelled *Community Connections*, which is the same as the items' theoretical category. Based on these factors, we have developed a model that illustrates how students perceive the possibilities for student participation within a WSA (see Figure 3). The four factors in our scale had good reliability, with Cronbach's α well over the limit of 0.70 (see Table 3).

Table 2. Rotated factor loadings after principal axis factoring with a promax rotation.

Theoretical subconstructs of the Flower Model	Variable	Factor 1	Factor 2	Factor 3	Factor 4
Curriculum	Item 1		0.799		
Curriculum	Item 2		0.772		
Curriculum	Item 3		0.935		
Pedagogy and Learning	Item 4		0.501		
Pedagogy and Learning	Item 5		0.886		
Pedagogy and Learning	Item 6		0.898		
Vision, Ethos, Leadership and Coordination	Item 7	0.780			
Vision, Ethos, Leadership and Coordination	Item 8	0.770			
Vision, Ethos, Leadership and Coordination	Item 9	0.531			
Institutional Practices	Item 10	0.771			
Institutional Practices	Item 11	0.843			
Institutional Practices	Item 12	0.739			
Institutional Practices	Item 13	0.770			
Institutional Practices	Item 14	0.642			
Community Connections	Item 15				0.899
Community Connections	Item 16				0.717
Community Connections	Item 17				0.793
Vision, Ethos, Leadership and Coordination	Item 18			0.696	
Vision, Ethos, Leadership and Coordination	Item 19			0.997	
Vision, Ethos, Leadership and Coordination	Item 20			0.408	
Vision, Ethos, Leadership and Coordination	Item 21			0.644	

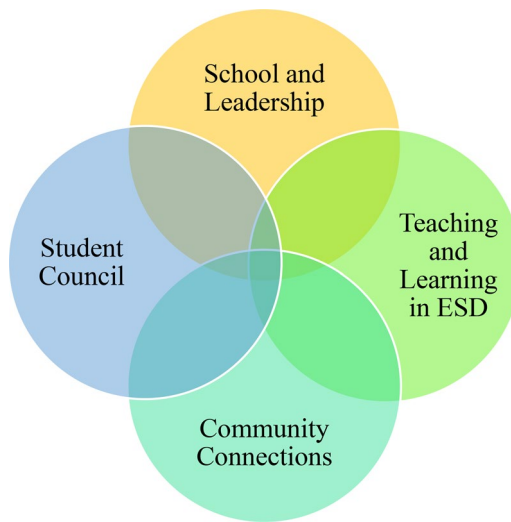


Figure 3. Model of how student WSA participation is perceived by the students.

Table 3. Cronbach's α for the student participation questionnaire and the four factors.

Scale	Whole school student participation	Teaching & Learning in ESD	School & Leadership	Community Connections	Student Council
Items	21	6	8	3	4
Cronbach's α	0.928	0.909	0.902	0.881	0.811

Results from the main data collection

The results from the main data collection contribute to answering both research questions. With the exploratory and confirmatory factor analysis and Cronbach's α , the descriptive statistics speak to the first research question about whether the instrument is reliable and valid. Together with the results from the focus group interviews and the EFA from the pilot data, the descriptive statistics help answer the second research question, by showing how students perceive student participation in the various components of a WSA.

To show how participants responded to each item we calculated the percentage distribution of their answers across the response options on the Likert scale. To test for reliability, Cronbach's α was computed for the instrument as a whole and the individual factors (see Table 4). Table 4 shows the mean and standard deviation results for each item. The results show that participants used the whole scale for every item, and the α -values indicate that the instrument has good reliability.

To test the validity of our hypothesised model, following the main data collection we ran a confirmatory factor analysis (CFA) using structural equation modelling (SEM) and the statistical software Mplus on a two-order model containing all 21 items. Our hypothesised two-order model contains four first-order latent subconstructs - i) Teaching and Learning in ESD, ii) School and Leadership, iii) Community Connections, and iv) Student Council - and a second-order latent construct, Student Participation in a WSA (see Figure 4). The CFA model for student participation within a WSA for sustainable development had good model of fit RMSEA = 0.052 [.048, .057], SRMR = 0.048, CFI = 0.949, and TLI = 0.942. As shown in Figure 4, all standardised loadings in the latent factors were higher than 0.5.

Table 4. Descriptive statistics for the student participation questionnaire items and the different factors.

	Likert scale answers					Missing	Estimates	
	1	2	3	4	5		M	SD
Teaching and Learning in ESD ($\alpha=0.95$)							2.74	0.89
Item 1	12.2 %	20.4 %	48.9 %	13.9 %	4.7 %	0 %	2.78	0.99
Item 2	14.2 %	19.4 %	46.1 %	15.9 %	4.4 %	0 %	2.77	1.02
Item 3	14.9 %	20.8 %	49.0 %	11.5 %	3.8 %	0 %	2.69	0.99
Item 4	11.4 %	18.8 %	47.0 %	18.6 %	4.1 %	0 %	2.85	0.99
Item 5	13.7 %	20.0 %	47.6 %	14.7 %	4.0 %	0 %	2.75	1.00
Item 6	17.0 %	22.0 %	46.5 %	11.1 %	3.5 %	0 %	2.62	1.00
School and Leadership ($\alpha=0.91$)							2.87	0.80
Item 7	12.7 %	22.8 %	44.0 %	16.2 %	4.2 %	0 %	2.76	1.01
Item 8	20.3 %	23.9 %	33.9 %	17.4 %	4.4 %	0 %	2.62	1.12
Item 9	7.5 %	14.2 %	40.8 %	30.8 %	6.7 %	0 %	3.15	1.00
Item 10	9.6 %	16.2 %	47.5 %	22.3 %	4.4 %	0 %	2.96	0.97
Item 11	12.7 %	18.2 %	42.6 %	21.7 %	4.8 %	0 %	2.88	1.04
Item 12	7.5 %	13.4 %	39.8 %	31.8 %	7.4 %	0 %	3.18	1.01
Item 13	11.0 %	17.1 %	45.9 %	21.0 %	5.1 %	0 %	2.92	1.01
Item 14	25.6 %	22.1 %	35.7 %	12.6 %	4.0 %	0 %	2.47	1.12
Community Connections ($\alpha=0.88$)							2.74	1.01
Item 15	15.4 %	16.3 %	34.7 %	12.6 %	5.3 %	15.6 %	2.72	1.12
Item 16	15.4 %	17.2 %	34.5 %	13.1 %	4.5 %	15.3 %	2.70	1.10
Item 17	15.0 %	15.3 %	36.1 %	12.9 %	4.1 %	16.6 %	2.71	1.08
Student Council ($\alpha=0.89$)							3.59	0.88
Item 18	2.9 %	3.9 %	22.3 %	33.3 %	13.3 %	24.4 %	3.66	0.95
Item 19	3.9 %	7.1 %	25.7 %	28.3 %	10.2 %	24.8 %	3.45	1.01
Item 20	3.2 %	4.0 %	22.2 %	34.5 %	17.2 %	19.0 %	3.72	0.98
Item 21	3.8 %	6.0 %	27.2 %	21.3 %	7.5 %	34.3 %	3.35	0.99

Note: $N=902$, Cronbach's α for the whole scale was 0.95.

As a discriminant validity analysis, we used a correlation-related technique proposed by Rönkkö and Cho (2022) called $CI_{CFA}(sys)$. The test is based on the correlations of the standardised factor solution and its 95% confidence intervals (CIs). The correlations and the upper level of its confidence interval were below 0.8 (see Table 5), thus indicating no evidence of a problem with discriminant validity (Rönkkö & Cho, 2022).

Results from the focus group interviews

The results in this section are organised according to the whole school student participation categories derived from our statistical results. These interviews took place before we developed the student participation model. Therefore, the focus group discussions did not cover all aspects of this model to the same degree. The number of codes related to each theme in the analysis reflects this unevenness: School and Leadership = 59 codes, Teaching and Learning = 116 codes, Student Council = 59 codes, and Community Connections = 17 codes. Findings from the focus group interviews are presented as direct quotes to amplify the students' voices in the research whilst deepening our exploration of the quantitative results by explaining them more fully. The results are presented in the following order: School and Leadership, Student Council, Community Connections, and Teaching and Learning.

School and leadership

The interviewees felt there were few opportunities to participate at the school level. At one of the schools, there is a place to deposit bottles, a feature that the interviewees believed was initiated by the students, but that had happened before they started at the school. While they

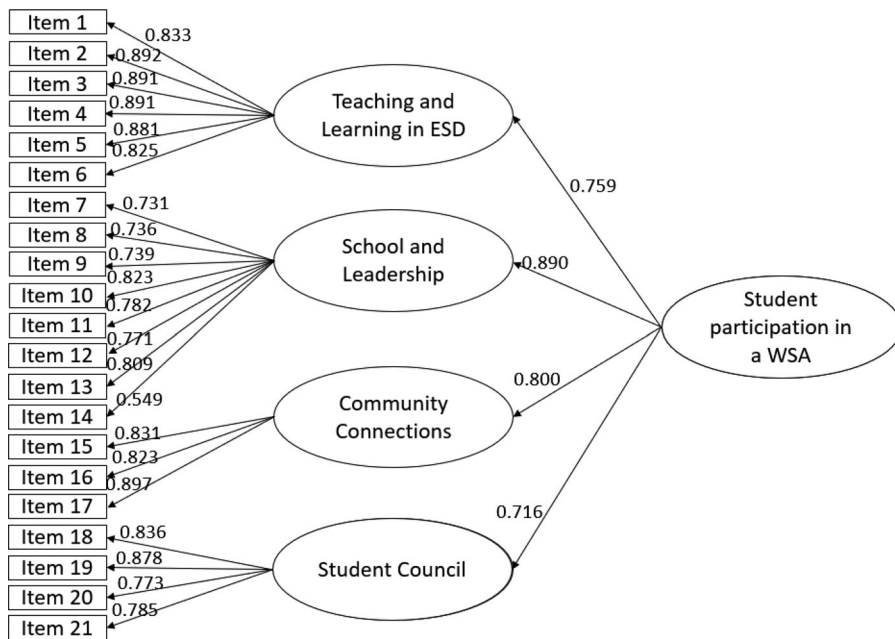


Figure 4. Factor loadings from the CFA for the model for student participation within a WSA for sustainable development.

Table 5. Standardised correlations between the different factors and the CIs of the correlations.

	Correlations	CI Lower	CI Upper
School and Leadership <--> Teaching and Learning	0.655	0.596	0.713
Community Connections <--> Teaching and Learning	0.697	0.644	0.750
Community Connections <--> School and Leadership	0.688	0.633	0.743
Student Council <--> Teaching and Learning	0.477	0.406	0.549
Student Council <--> School and Leadership	0.709	0.655	0.763
Student Council <--> Community Connections	0.500	0.427	0.573

felt that the student council did have some influence, there are few opportunities to participate for students who are not part of the student council.

No, we are not involved in anything. It is just the student council somehow. Other than that, it is nothing.

One of the students felt that it was hard to get through to the school leadership if they had a different opinion.

They are determined about what they think is right. At least, I feel, not necessarily that they look at us as stupid or anything, but that they are adults, so they will make the decisions. At least I feel it is like that.

Students miss better explanations when their input is not taken into account. For example, some of the students' timetables were changed several times to a timetable that did not work as well as the old one, but no explanation was given despite their requests.

Yes, we have realised that what happens to the timetable is about what happens to the teacher's timetable. However, we haven't really been given a detailed reason for that.

Although they felt that school leaders do not consult students outside the student council, some students have found the means to influence. As part of a school assignment, one group of students tried to affect recycling practices by hanging information about recycling around

campus. In addition, after the school started passing messages through a messaging app, the students were able to give thumbs up and thumbs down to the messages. Using the reaction buttons feels like a way to be heard, and a decision made at one of the schools was reversed after receiving hundreds of thumbs-down reactions.

Student council

The interviewees felt that the student representatives at their school represent their classes well. The representatives inform their fellow students about discussions in the student council, and they seek input from their peers. However, the lack of routines and training makes this process vary considerably from class to class.

Yes, yes. Like. My impression is that the problem is that there is no fixed framework for it. So, I think that if we had established routines and training for students to lead a session with the class. Of course, with the help of teachers, but not with the teacher overriding it. A bit like management training for the representatives.

Six of the students interviewed were part of the student council and felt they had some influence through these roles. However, this influence was limited and not necessarily about the issues they considered most important to them.

The management follows up some issues, but not all. And these are not necessarily the issues that students think are most important.

One reason for why the student council has less influence over the issues that are most important for them might be because it is easier to let students affect the smaller issues.

It may have something to do with the fact that it is much easier to take the things that are easy to complete, the simpler things, than having to go into the deepest water first somehow. You can take it gradually, but because there will always be new things, you only stay at the bottom of the shallow water.

While the student council members found it hard to influence the school leaders, they still felt that they could make a difference, especially with the students.

Yes. Maybe not as much as I would like. At least when it comes to management, because they are a bit stubborn, if you can put it that way. But at least with the students. I feel we reach out to the students more than we used to.

Community Connections

Before the Covid-19 pandemic, the schools used to work more with the local community. The restrictions during the pandemic made this difficult for some time. However, several interviewees agreed that there had been some collaboration with the local community and study trips in nature.

Yes. It was more when it was not corona, of course. However, we have a vocational week where we will be with a company that operates on sustainability, the environment, or something relevant to our profession [to their vocational education programme]. And then we went on trips... there have been a lot of trips in the woods and fields and some mountains and things like that.

Some students had yet to work within the local community, so they were unsure if they could influence this type of work. However, students who had experienced working within the local community were clear that they had no influence on deciding what actually took place.

No. It always tends to be the teacher who decides that [how to work within the local community].

Teaching and learning

All the students interviewed felt that they could influence teaching and learning to some degree. However, this influence was limited. Although some students mentioned that some of their teachers spent more time on the topics the students find interesting, most students felt they had very little say when it came to what topics they would be taught.

We don't have much say about what we learn.

One of the aspects of teaching and learning that the students got to participate in at times was deciding on the teaching methods used. Still, some of the students felt that several teachers asked what methods they preferred, but did not necessarily follow up by adopting them.

Several teachers have asked us how we like to work, but then we just continue to sit and write assignments. Reading books and doing assignments. I feel that some teachers only ask because they are forced to and are not so interested in it themselves. And then they do not feel like putting much energy into it.

Several students in the interviews mentioned assessment as something in which they do sometimes participate in decisions. In Norway, the national curricula contain competence goals that the students should master on completing a given year. These goals are framed as concrete learning goals by the teacher, sometimes in cooperation with the students. The learning goals therefore specify what students need to know, understand and be able to do, and what is required of them, while assessment relates to how this is measured. One of the interviewees mentioned that his class had tried to set their own learning goals on one occasion.

We recently had a science class where we were to decide the learning goals. It ended up being very difficult because we set very vague goals. But at least it was a new challenge and way of doing it.

This episode, in which a teacher attempted to let the students participate in setting learning goals without much success, shows that participation is not always easy but could be practised. The interviewees recognised this experience, stressing that this was a challenging task, and that they needed to learn how to do it properly before trying to set learning goals themselves.

We need to learn basic methodology to make assessment criteria. ... That we are not just being thrown into it without the toolbox to do it.

When asked about what makes participation difficult, and what would help increase it, interviewees mentioned teachers' stubbornness, and that teachers think that they know best how students should learn. Students also recognise that they need to practise participating, even though they are given the opportunity as it is not necessarily easy. Several interviewees recognised that many teachers had good intentions. However, restrictions - such as time, the national curriculum and examinations - make it difficult to address other considerations, such as student participation, when deciding what the students should learn.

Also, more teachers are needed. Because if we are to achieve this with student participation, it does not help to have overworked teachers. Eh, but at the same time, my teachers are overworked, and certainly not just during the exam period, but they have way too much to do.

Although the students interviewed in this study all felt that they did not have as many opportunities as they would like for participating in decision making at school, they all mentioned at least one teacher who was good at making them feel that they could participate in their teaching. According to the interviewees, these teachers do not follow set rules about how to teach but, to a significant degree, follow the students' lead. Students feel a connection to these teachers, sensing that they understand and want what is best for them.

They don't follow specific sheets on how to teach. They kind of follow the students. They listen to what we want. And then they kind of do it. ... Or of course, we must read something, so sometimes it becomes theoretical and boring, but they manage to mix it in, so it doesn't become so boring in the end. And it's actually pretty good.

Summary of qualitative findings

The results of the focus group interviews help answer the second research question: *How do students perceive their opportunities for participation in the various components of a WSA?* The results show that the students can influence several aspects of school life, although only to a

limited extent. Regarding School and Leadership, students felt they had little influence if they were not on the student council. Students felt that it was difficult to get through to the school's leadership, and that the school leaders and management gave few opportunities for participation outside the student council. The interviewees who were part of the student council did feel that they had some influence within the school, although this was not necessarily over the issues the students found most important. Still, the student representatives felt that they were able to reach the student body and represent them well. However, the lack of structure makes this representation up to the individual representative, rendering the process random. The students say that they have worked a bit in terms of Community Connections, despite the restrictions due to the Covid-19 pandemic. However, they do not have any influence over this type of work. All groups reported having some influence over assignments, working methods and assessment in terms of Teaching and Learning, although not as much as they would like. It can be challenging to influence effectively, and students need practice and instruction.

Discussion

Based on the statistical analysis and the theoretical foundation, we argue that the student WSA participation questionnaire is a reliable and valid instrument. The instrument can be useful for researchers within the field of a WSA to ESD where student participation has been of interest for a long time (e. g. Henderson and Tilbury 2004; Mogren, Gericke, and Scherp 2019; Shallcross & Robinson, 2008; UNESCO, 2014; Wals & Mathie, 2022). Our research has shown that students identify four *pathways of participation* in school life. We identified the pathways through the determination of the statistical factors in our exploratory factor analysis. In the following section, we first discuss the reliability, validity and potential use of the student WSA participation questionnaire. Then we follow up with a discussion of the student WSA participation model and the four pathways on how the students perceived the possibility of participation throughout the whole school in light of the statistical results and the qualitative findings from the focus group interviews.

The student WSA participation questionnaire

The first research question was about the reliability and validity of the questionnaire. The student WSA participation questionnaire is fairly short, containing only 21 items. A short questionnaire can be particularly useful, as it is easy to fill out and allows for the inclusion of other measures in the same investigation. In Table 4, the descriptive statistics show that the respondents used the full scale of the response options. The latent construct measuring student WSA participation contains four subconstructs. Because of this, we calculated Cronbach's alpha for the instrument as a whole and for the different sub-scales (factors). The α -values were between .88 and .95, which is well above the acceptable coefficient of .7 (Field 2013; Mehmetoglu and Jakobsen 2016), and the fit indices for the CFA presented in the results section show a good model fit (Hu and Bentler 1999). Based on these findings, the instrument can be considered valid for the measuring of student WSA participation.

Bearing in mind that democratic participation and stakeholder influence are important within a WSA (Wals & Mathie, 2022), the student WSA participation questionnaire could be used by researchers and school leaders who want to investigate student participation throughout the school organisation. Previous research has argued that evaluating student participation within school life and the wider community can be an effective assessment strategy in pedagogies trying to engage students in contributing to environmental and social development (Parra et al. 2020). Other questionnaires exist that include attention to student participation in ESD (e.g. Cincera and Krajhanzl 2013; Olsson, Gericke, and Boeve-de Pauw 2022). However,

to our knowledge, these questionnaires are limited to participation in specific aspects of school life, such as ESD teaching, and do not consider the broader picture of student participation. Our novel student WSA participation questionnaire can be used to monitor how students perceive the opportunities to participate in various aspects of their school's life. It could also be used to measure the effects of student participation interventions if used in the context of a longitudinal design or pre-and post-tests. Moreover, it could be used to measure the relationship, if any, between student participation and the capacities that are important in ESD; for example, action competence (Olsson et al. 2020) and constructive hope for the future (Ojala 2012).

The student WSA participation model

Our second research question concerned how students perceive their opportunities for participation in the various components of a WSA. While there are several models of a WSA from policy and research (Buckler and Creech 2014; Henderson and Tilbury 2004; Mogren, Gericke, and Scherp 2019; Shallcross & Robinson, 2008; Wals & Mathie, 2022), the current study seeks to identify participation in a WSA from a student perspective. Talking about the student perspective might be problematic as it might imply that students have one unified perspective (Robinson & Taylor, 2007). It is essential to recognise that there is a range of voices to be listened to and that the schools should try to hear all students, regardless of gender, ethnicity, disability or social class, instead of just the voices of the students with similar culture and language to that of the teachers and leaders of the school (Robinson & Taylor, 2007). Although mean values and factor analyses from a questionnaire will not highlight all the different views of the student, we believe they can show how students, in general, experience student WSA participation. We also wanted to see whether this differs from the Flower Model, created from the researchers' perspective. Our results show a student WSA participation model organised into four participation pathways (see Figure 3). While the different modes of participation overlap, demonstrating that they all influence each other, they have different features that lead to four participation pathways.

The *School and Leadership* pathway incorporates Institutional Practices and those items in Vision, Ethos, Leadership and Coordination that do not relate to the student council. It is not surprising that these two categories seem similar to students, as participation in institutional practices would be difficult without cooperating with the leadership and governance of the school. The *Teaching and Learning* pathway refers to various aspects of student participation in the classroom, and includes the items from Curriculum, and Pedagogy and Learning. The *Student Council pathway* refers to the items in Vision, Ethos, Leadership and Coordination that connect to the student council. Although the WSA Flower Model places the student council in the centre of the flower, as part of Vision, Ethos, Leadership and Coordination, the students did not experience student participation *via* the student council in the same way. This might be because, while the WSA Flower Model sees the student council as one form of distributed leadership in a school where all actors collectively share the leadership, the students in the current study do not experience school leadership as being distributed in this way. The *Community Connections* pathway is the only pathway which remains the same as in the WSA Flower Model. Thus, the student WSA participation model derived from a student perspective has fewer categories than the original theoretical model. We discuss the key aspects of the student WSA participation model below.

The School and Leadership Pathway is about how school leaders support student participation by involving students in decisions about the school - for example, the school's vision and priorities - and how students are engaged in making the school a model for sustainable development. Active student participation can transform both the students and the school itself

(Flutter and Rudduck 2004), and in a WSA to ESD, the whole school community is involved in promoting sustainable development (Henderson and Tilbury 2004). Thus, School and Leadership is about all students and staff being able to develop the school's vision and how the school can walk the talk, e.g. by including students in 'greening' the school, increasing their well-being or improving school democracy (Holst 2023; Wals & Mathie, 2022). By allowing students to participate in shaping how sustainability is practised in various aspects of school life, students get to practise the competencies they need to transform themselves and take an active part in a democracy, practising transforming their surroundings into a sustainable society (Rieckmann 2017).

The School and Leadership item that the fewest students agreed they could participate in was the canteen. In Norway, it is often difficult for students to influence canteens because their provision is often outsourced, meaning the school loses control over what food is served (Bjønness and Sinnes 2019). Many students also felt they could not participate in the school's initiatives or how it spends money.

The items within the School and Leadership factor that most students scored more highly were 'At our school, the management makes it easy for us students to have our say before decisions are made' and 'I get to influence measures at school to increase students' well-being'. If management lets students have a say before making decisions, but few students feel they can participate in other aspects of school life, this might imply that the school allows students to express their opinions, but does not follow through on those opinions. If this is the case, students may not be motivated to try and participate in other ways at their school (Rudduck & Fielding, 2006). Another reason might be that schools only ask students for their opinion on other, and perhaps smaller, issues than those covered by the student WSA participation questionnaire. Both these explanations were supported by the interviews, however, genuine student participation, requires students to be able to discuss what is important to them (Flutter and Rudduck 2004).

The other School and Leadership item that most students felt able to influence was measures to promote students' well-being. The revised curriculum focuses on students' well-being and identifies health and well-being as one of three interdisciplinary topics which schools should prioritise (Ministry of Education and Research 2017). During the Covid-19 pandemic, there was a focus on how the pandemic and lockdowns have affected young people which may have led school management to work harder on student well-being and, in turn, seek more student input on addressing this issue.

The Student Council Pathway concerns students' opportunities to participate in school life through their representatives. The question is whether students feel that the student council has the ability actually to influence decisions at the school and how well it represents the students who elected them. In a well-functioning student council, participation is not limited to a few selected students. It is expected of representatives - and facilitation is provided for them - that they inform and consult with fellow students about the student council's work. On each of the student council items, about 20% or more answered 'Don't know'. This supports Shallcross and Robinson (2008), who argued that there is reason to doubt that elected representatives can reflect the views of their peers. However, 52% of the students agreed or partly agreed that the student council represented them well, making this the highest scoring of all items in the student WSA participation questionnaire. The interviews supported this, showing that representatives inform and seek input from their fellow students, but that this process varies between representatives due to a lack of structure and training. These findings are consistent with research from Norway saying that student representatives feel they receive little training in what opportunities they have to influence the school (Bjønness and Sinnes 2019). Thus, the schools in the current study might be lacking some of the routines and structures that are important in a WSA to give stability and security to the stakeholders at the school (Mogren, Gericke, and Scherp 2019).

The Education Act (2020) states that every school in Norway has to have a student council. Therefore, in theory, all Norwegian schools have a formal channel through which students can participate and express their opinions. Nonetheless, the law does not specify how the schools should follow up on these opinions, which can result in student councils becoming tokenistic without much opportunity for student involvement (Jones and Bubb 2021). In general, students felt their participation through the student council was more significant than their participation in the School and Leadership items. However, just as students responded that management lets them have their say, but they still feel they have little influence, the same is true of the student council. While 47% responded that the school does involve the student council in decisions, only 38% answered that the student council had a significant influence on the school. Again, this indicates that students can participate, but only sometimes feel they are being heard, which was supported by the interviewees who were members of the student council, who experienced that they did not necessarily get to influence the things they found most important. That the student council is, or can choose to be, involved in important issues is essential to school democracy (Børhaug 2007). Still, the representatives interviewed explained that it was difficult to get through to the leaders if they had a difference of opinion. They experienced that they mostly got to influence smaller matters.

The Community Connections Pathway relates to how students can participate in determining the content, and the teaching and learning processes whilst working on local problems in collaboration with people or organisations outside of the school itself. A school is a community in itself, but it is also part of the wider community. Forming partnerships with local people, organisations, businesses or municipalities is an excellent way of exposing students to real-life experiences. These partnerships can give students the opportunity to learn about and act upon issues that feel real and relevant to them, and can encourage a deeper engagement (Gericke 2022; Goldman et al. 2020; Henderson and Tilbury 2004; Holst 2023; Laurie et al. 2016; Schröder et al. 2020; Shallcross & Robinson, 2008; Sund, 2022). Collaborations like these can create opportunities for local people to design solutions to local problems, helping the students learn and develop a feeling of belonging in a community (Laurie et al. 2016).

About 85% of the students responded that they had collaborated with the local community. Several interviewees also agreed they had had opportunities to work with the local community, although less during the pandemic. However, none of the students in the focus group interviews and fewer than 20% of the questionnaire respondents, agreed or partly agreed that they can influence this teaching. One reason might be that teachers need to have everything under control when receiving visitors or leaving the school premises, so they prefer to make decisions about the relevant activities themselves. It is, however, possible to keep the same amount of control, but still let the students participate by involving them in planning the work with the community.

The Teaching and Learning Pathway concerns how students can participate in shaping the teaching content, how teachers teach it, and how students work with it. An atmosphere of trust is essential for students practising democratic decision-making. For students to participate in the teaching and learning in a good way, they can practise making inquiries, collaborating, discussing, listening to others, and taking the needs of themselves and others into account (Sinakou et al. 2019). This type of participatory decision-making engages students and can affect their pro-environmental behaviour and civic engagement (Breiting and Mayer 2015; Parra et al. 2020; Reis 2020; Robertson, 2015; Uitto et al. 2015). It can also help students understand that they have something to contribute and that they can make a difference in society (Breiting 2018; Breiting et al. 2009; Flutter and Rudduck 2004; Rudduck, 2007; Uitto et al. 2015). The challenge for teachers is facilitating students in investigating the issues they find most interesting. The results from the interviews showed that although the students said they had some influence over topics, methods and assessment, this influence was much smaller than they would like. This is reflected in the descriptive statistics, which show that, although methods

had the highest mean score of the Teaching and Learning items, only 23% of students agreed that they had an influence.

Several students in the interviews mentioned assessment as something in which they sometimes participated. Still, shaping the assessment and learning goals were the questionnaire items in which students felt least able to participate. Both how to assess and what to assess is relevant in ESD. A changing world requires new skills, but how can we assess these skills? Wals and Mathie (2022) have argued that teachers should use creative assessment methods for students to demonstrate new types of knowledge, perspectives, and skills.

All the students interviewed mentioned at least one teacher who made them feel they could participate in the teaching and learning process. However, not to the extent they desired. While they attributed some of this lack of opportunity to participate to what they perceived as the teachers' stubbornness, the students also showed much insight into what makes student participation in decision-making difficult, insisting on the need for training and practise. Thus, it is important that teachers do not give up immediately if letting students participate yields undesirable results. At the same time, the students recognised that prioritising participation is not always easy for teachers, due to various factors. Teachers need structures, time and support to work with student participation, as the routines and structures at a school are important for pedagogical practices (Frost and Roberts 2011; Gericke 2022; Mogren, Gericke, and Scherp 2019; Rudduck & McIntyre, 2007; Sund, 2022).

Students experience little participation

The student WSA participation questionnaire is not intended to measure what is a sufficient, good or poor level of participation. This would assume that an ideal level of student participation can be defined, but in practice this will vary from situation to situation and student to student (R. Hart, 2008). However, in the current study, the student council is the only factor with an average score higher than 3. The low values overall show that the schools in the study have a great deal of potential for giving their students better opportunities to participate, and to help them recognise and take these opportunities.

When pupils are denied the opportunity to participate actively, Cincera and Kovacikova (2014) argue that the educational potential of ESD can become compromised. Nevertheless, building an open, dependable school structure that facilitates student participation takes time and patience (Fielding 2001; Flutter and Rudduck 2004; Sund, 2022). Our results suggest that, just as ESD is not yet embraced as a whole-institution priority and part of schools' core educational purpose (Bjønness and Sinnes 2019; Sjaastad et al. 2014; Warner & Elser, 2015), the schools' enactment of a WSA does not currently foster a culture of authentic student participation. However, it must be remembered that we collected data during the Covid-19 pandemic, which had a significant impact on how, and how much, students were able to participate in school life.

Limitations of the study

The present study is not without limitations. We tested the questionnaire in a Norwegian context. If used by researchers in other countries, the user may wish to perform a confirmatory factor analysis to ensure that the measurements have validity in their particular school culture. The current study does not specify what kind of participation the students had in mind while filling out the questionnaire, other than that they experienced that they had an influence. When using the student WSA participation model for a specific type of participation, researchers are at liberty to include an explanatory text for the respondents or to alter the questions to fit their research interests.

The focus group interviews had a double role in this study. First, for the authors to familiarise ourselves with how the students perceived their possibilities to participate within a WSA before we created the questionnaire, and again after the data collection to give a deeper insight into

our quantitative results. This might have increased the chances of confirmation bias when analysing our results. Still, we do not see this as a problem in this study, as the questionnaire was largely developed from a theoretical perspective based on the Flower Model. Also, only 11 students were interviewed, while 902 students answered the questionnaire. While we interviewed these 11 students to gain insights into the students' perspectives, we acknowledge that there is no one unified student perspective but that students have a range of different views (Robinson & Taylor, 2007).

It is essential to note that we conducted the study in 2021, which was an abnormal school year for the students in our sample due to the Covid-19 pandemic. The students involved in this study had a different experience of student participation than they would have had in a regular school year. Student interviews before the questionnaire showed that this period involved a significant amount of home-schooling and stress due to lockdowns caused by the pandemic. While some interviewees felt that they had greater influence than usual, because teachers were unsure about how to teach during the pandemic, most felt that they had many fewer opportunities for influence. Because of this, it would be interesting to test the questionnaire in a more typical school year.

Concluding remarks

Rieckmann (2017) encourages schools to 'walk the talk' with regards to sustainability, so that students can experience sustainability in practice. Part of walking the talk is letting students influence how the school practises sustainability through the teaching and other aspects of school life. Although we carried out this study in an abnormal school year, the results indicate that the student WSA participation model can provide a framework to describe the potential for the four pathways of student participation in the whole school. Together with the student WSA participation questionnaire, the four pathways of participation can help schools that want to improve their students' opportunities for influence, as well as researchers in analysing student influence in a WSA, its various pathways, and the interactions between them. We suggest that the student WSA participation model can serve as a reflection tool for school leaders, teachers and students who want to develop democratic student participation in their schools, monitor how participation is developing, and initiate interventions when needed. Moreover, the model can be used to inform discussions about where there are possibilities for authentic student participation and where there are not, helping schools to anchor student participation within the whole school. These conversations can lead to questions about what type of influence students can have, and how they can achieve student participation within different aspects of school life.

There is increased satisfaction and a sense of empowerment among students who feel they have a chance to participate in decision-making (Cincera et al. 2019), and this study shows that students identify pathways to participation that are broader than teaching and learning. UNESCO (2020) recommends a WSA to ESD, and we argue that this includes students participating in the whole life of the school. We invite researchers and school leaders to use the student WSA participation questionnaire and the student WSA participation model when developing ESD in schools. Students can be engaged and creative, and can also be a catalyst for change, if given the opportunity.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by the Faculty of Science and Technology at the Norwegian University of Life Sciences and by Viken County Municipality.

ORCID

Ane Eir Torsdottir  <http://orcid.org/0000-0003-1607-4410>

Daniel Olsson  <http://orcid.org/0000-0001-7976-4860>

Arjen Wals  <http://orcid.org/0000-0003-4735-1126>

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