



School Geography and Sustainability Education in Romania – Teachers' Views

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Abstract. As a signatory of Agenda 2030, Romania assumed the responsibility to work towards reaching the Sustainable Development Goals (SDGs), but studies about the need to integrate education for sustainable development into the national curriculum are rare. Though steps towards sustainability have been made, sustainability education is lagging behind without a clear vision of whether it should be integrated into the formal education system, and how and where it fits. Our study appraised the perspectives of 38 geography upper secondary school teachers in Romania regarding the sustainable themes of interest to them, the importance of teaching SD via school geography, their self-assessed knowledge of sustainability concepts and their readiness in learning more about sustainable development (SD).

Through an online questionnaire-based survey we found that teachers consider topics such as climate change or alternative sources of energy as more relevant than innovation and technology for SD or Responsible global production and consumption. We also identified a strong belief that SD is important in educating our young and that geography is the subject viewed as the most appropriate in promoting education for sustainable development (ESD). Overwhelmingly, teachers showed great interest in participating in professional development courses about SD.

Keywords: sustainable development, geography, education, questionnaire, the SDGs

Résumé. En tant que signataire de l'Agenda 2030, la Roumanie a assumé la responsabilité de travailler à la réalisation des objectifs de développement durable (ODD), mais les études sur la nécessité d'intégrer l'éducation au développement durable dans le curriculum national sont rares. Bien que des étapes vers la durabilité aient été franchies, l'éducation à la durabilité est à la traîne sans une vision claire de savoir si elle doit être intégrée dans le système d'éducation formelle, et comment et où elle peut s'intégrer. Notre étude a évalué les perspectives de 38 enseignants de géographie du secondaire supérieur en Roumanie concernant les thèmes durables qui les intéressent, l'importance d'enseigner le DD via la géographie scolaire, leur connaissance auto-évaluée des concepts de durabilité et leur volonté d'en apprendre davantage sur le développement durable (DD). Grâce à une enquête en ligne basée sur un questionnaire, nous avons constaté que les enseignants considèrent des sujets tels que le changement climatique ou les sources d'énergie alternatives comme plus pertinents que l'innovation et la technologie pour le DD ou la production mondiale responsable et la consommation. Nous avons également

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identifié une forte conviction que le DD est important dans l'éducation de nos jeunes et que la géographie est la matière considérée comme la plus appropriée pour promouvoir l'éducation au développement durable (EDD). La très grande majorité des enseignants ont manifesté un grand intérêt à participer à des cours de perfectionnement professionnel sur le DD.

Mots-clés: développement durable, géographie, éducation, questionnaire, les ODD

Education for Sustainable Development – Context

Often quoted as 'development which meets the needs of the present without compromising the ability of future generations to meet their own needs' (World Commission on Environment and Development, 1987:16), Sustainable Development (SD) places responsibility on looking after the environment, whilst also ensuring the growth of the economy and society at the same time. Though it may have its roots in conservation and sound ecological principles, SD became a much more complex problem that requires more complex solutions (Blewitt, 2018) because development and growth at all costs are part of what threatens the ability of our planet to meet the upcoming needs of humanity and what jeopardises the very idea of development in the future. This is of importance, as we are warned that humanity has already reached a level where it exceeds the ecological limits of the planet (Steffen, Richardson, Rockström, Cornell, Fetzer, Bennett, Biggs, Carpenter, Vries, de Wit, de Folke, Gerten, Heinke, Mace, Persson, Ramanathan, Reyers & Sörlin, 2015).

Since the publishing of the Brundtland Report in 1987 which proposed the above-mentioned definition of SD, several milestone moments aiming at implementing this concept can be identified. Perhaps one of the most important in terms of highlighting ways in which SD can be achieved was the United Nations' (UN) initiative to name the period from 2005 to 2014 as The Decade of Education for Sustainable Development (DESD). The main aim of the Decade was to 'integrate the values inherent in sustainable development into all aspects of learning to encourage changes in behaviour that allow for a more sustainable and just society for all' (UNESCO, 2005a). Throughout time, the focus on the paramount role of education in achieving SD has been highlighted by different organisations such as the OECD which stated that 'connecting education to the trends which shape the world in which we live has never been so urgent' (OECD, 2019:13) or UNESCO itself which pleaded for Ministries of Education to 'ensure that education systems integrate ESD into curricula and national quality standards, and develop relevant indicator frameworks that establish standards for learning outcomes' (UNESCO:48). Several other follow-up documents, reviews and official declarations (UNESCO 2005b, 2009; Wals, 2009, 2012) acknowledged the same special role education holds in achieving sustainability.

Given the existing global problems, the transformative education needed to achieve SD requires learners to not only gain knowledge and thorough understanding and skills of these global problems, but also to help shift their behaviours, attitudes

and lifestyles, to question and develop their agency towards sustainability. Education for sustainable development (ESD) is therefore a different kind of education; one which no longer relies on information, but on the concept of action competence for sustainability, debate and critical perspectives to views one holds (Varela-Losada, Vega-Marcote, Pérez-Rodríguez & Álvarez-Lires, 2016; Chen & Liu, 2020; Sandell, Öhman & Östman, 2005); one in which personal interest and personal investment with the topics studied is of far greater importance and leads to a more secure change in behaviours than general transcending values regarding the future of the planet (Evans, Maio, Corner, Hodgetts, Ahmed & Hahn, 2012). Hence, SD topics of personal relevance to learners and teachers alike and relentless education in the spirit of sustainability across different school subjects could inform the content being taught in schools if we want to convince towards a change in behaviour. Investigating the sustainability themes of immediate relevance and importance to a group of Romanian geography teachers is part of our research focus in this study.

Education for Sustainable Development and school Geography

Though many studies promote the interdisciplinary nature of ESD (Fernandes & Rauen, 2016; Klein, 2010; Casey, 2010; Lam, Walker & Hills, 2014), many others advocate for the geography 'advantage' (Meadows, 2020; Day, 2017; Maude, 2017, 2018; Haubrich, 2007). Van der Schee (2016), for example, argues that geography is a fundamental science in ESD as it is located at the very crossroads between the natural, social and economic environments and because of its capacity to identify and project in the future the interrelationships between these three sustainability pillars. The sustainable development goals (SDGs), as formulated in Agenda 2030, are based on complex global issues of a social, environmental and economic nature that influence each other. Addressing them requires the systemic approach that a modern and relevant geographical education offers. School geography should no longer limit itself to describing the reality around us, but it should help understand interdependence and develop the holistic approach through which our students understand the world (Qiu, 2017:141). The specific geographical concepts of scale, space, change, interdependence gives school geography the 'integrated advantage over most, if not all, of the other sciences and is critical to a more holistic understanding of the processes, patterns and trajectories that characterise the disrupted earth system' (Meadows, 2020:89).

The purposeful and strategic introduction of the SDGs and sustainability concepts in school geography curricula raises learners' awareness regarding the organic dynamic between man and environment; it challenges them to think systemically and critically about the diversity of Earth's regions, their characteristics, and past, present and future relationships. Geography as a school discipline stands out as the vehicle for teaching about sustainability because, in essence, it is a discipline of

systems; 'the transdisciplinary requirements of sustainability research and the transdisciplinary characteristics of geography dictate that sustainability requires input from geography' (Fu, 2020:2).

Challenges for school geography to take the lead in ESD however, exist. The general set-up for school geography is a weak one because it 'continues to maintain the traditional epistemological physical-human divide' (Bagoly-Simó, 2022) which slows down the systemic thinking processes needed to approach sustainability concepts. To add to this, the environmental, economic and social aspects of geographical study 'are diverting from one another due to an accelerated specialisation' Werlen (2015:106) and though this brings the advantage of increased specialised knowledge, it also loses focus on the interconnections between human and physical parts and its potential for transdisciplinary competence is not capitalised on. Thus, 'geography's true and strongest potential, one worth working for, is this integrative capacity [...] as it could – not in a traditional way, but in new ways – be a solid bridge builder' (Werlen, 2015:107). Attention is therefore drawn to the fact that ESD is not only about updated content, but updated teaching and learning methods too. Caution should be exercised, however, that upon sliding towards transdisciplinarity, teachers do not lose focus of the solid knowledge-based, scientifically sound expectations of geographical education (Bagoly-Simó, 2022).

Considering both sides of the argument, the relationship between education for sustainability and school geography is a symbiotic one: geography has a lot to offer sustainability education in terms of methods, perspectives, clarity and understanding. Through its mission statement and its practicality, it can address both the variety and the depth of global sustainable issues. Sustainability, on the other hand, offers school geography relevance, currency and the transformational agency it needs in educating our young.

If the above are some conclusions drawn from our literature review, we set off in our study to gain a deeper understanding of what geography teachers think about the appropriateness of teaching sustainability via their discipline.

Education for Sustainable Development in Romania

Despite the multitude of international studies highlighting the urgent need for sustainability education and the importance of school geography in this endeavour, Romania's initiatives remain at a declarative level. Other countries such as the USA, Indonesia, Germany, Canada, China, Norway, etc. have already incorporated SD content into their primary and secondary school curricula (Miao, Meadows, Duan & Guo, 2022) and are already reviewing the efficiency and changes in student behaviour towards a more sustainable approach (Boeve-de Pauw, Gericke, Olsson & Berglund,

2015; Sass, Boeve-de Pauw, Olsson, Gericke, De Maeyer & Van Petegem, 2020; Sinakou, Donche & Van Petegem, 2021).

Romanian school education proves very resistant to the accelerated changes produced by globalisation. In school geography education, strong soviet influences from the Stalinist reform of 1948 continue to be the norm (Dulamă & Ilovan, 2017). Though changes were made to the lower secondary geography curricula, these changes continue to place a large emphasis on regional and territorial descriptions, with little focus on systemics and the dynamic interdependencies between geospheres.

In a comparative study of the Romanian school geography textbooks from before and after the fall of communism, Jucu (2012) noted that post-communist textbooks have been adapted to the European requirements by having introduced the general and specific competencies, but textbooks were still difficult to use as they continued to be content driven with little emphasis on skill development. As regards sustainability education, Jucu (2012) identified the major changes brought to the Year 11 textbook which included SD content, globalisation, territorial planning, geo-politics and economic and cultural geography, but again, with little emphasis on skills and few opportunities for students to develop critical geographical perspectives.

A Geography textbook analysis was also carried out by Bagoly-Simó (2014) who compared textbooks from Romania, Germany (Bavaria region) and Mexico in search of SD content and concluded that though SD figured in the Romanian declared general competencies in curricular documents, textbooks and the Geography syllabus, the focus was placed on teaching about environmental conservation rather than sustainability. The author concluded that the concept of SD was introduced as an add-on, as a result of the requirements imposed by the process of integrating into the European Union structures, and that school geography's 'contribution to environmental education is limited to cognitive aspects of comprehending the necessity of environmental protection' (Bagoly-Simó, 2014:135).

Undoubtedly, sustainability concepts in the Romanian upper secondary geographical curriculum are outdated and environment-orientated rather than focused on sustainability, having been introduced in 2004 at the last review of the school geography syllabus. Given that the SDGs were pencilled in 2015 together with Agenda 2030, given the fast-paced aspects of globalisation and rapid changes that characterise our contemporary lives, one can easily conclude that Romanian school geography does not keep up with what is relevant and current in the world nowadays and does little to educate the young about the current matters of our world.

Unquestionably, Romania has made important steps towards sustainability, however the progress towards ESD is more difficult to pin. In November 2018, the Department for Sustainable Development in Romania published the National Strategy of Sustainable Development in which it recorded the achievements made towards reading the SDGs, the outlook for 2020 and set further goals for 2030. Education was

addressed in broad statements in this document but there was no specific mention of introducing sustainability education in the school curricula.

The Romanian Ministry of Education website has a designated webpage for ESD in which it presents a brief history of the concept of sustainability and it mentions that 'education for sustainable development is addressed transversally in the formal curriculum of pre-university education in Romania, but also in extracurricular and extracurricular activities' (Ministerul Educației Naționale, 2018). The same Ministry of Education, however, released several optional courses in November 2022, amongst which 'Education for Sustainable Development', targeted for Year 8 students (aged 14-15). The content of this course makes reference to Agenda 2030, the SDGs, and different UNESCO documents. Given the novelty of this course, the extent to which it is chosen by schools and the impact it has on students remains a focus for later research, but restricting it to Year 8 students represents a disadvantage to all the other students who are much in need of sustainability education. The fact that it is neither compulsory nor integrated with other mandatory school disciplines also shows the optional character of sustainability education in the overall Romanian vision.

Confusion regarding ESD in Romania also comes from inconsistencies. For example, though the Ministry of Education, as stated above, keeps ESD in rather general terms and at an optional level, some reports are more explicit and categorical about the need to include ESD in the Romanian education system. The Presidential Administration project entitled 'Educated Romania' for example, mentions education as important for SD and that 'the introduction of legal, financial, health and sustainable development concepts in the national curriculum is a priority objective' (Educated Romania Report, 2021:41). This begs the question of how these reports, official documents, and rather uncoordinated actions will align into a coherent policy regarding ESD.

Other government initiatives complete the confusing picture of ESD in Romania by focusing only on specific SDGs, such as climate and environmental change. An example in this sense is the report entitled: Education regarding Climatic Changes and the Environment in Sustainable Schools which was launched for public debate in January 2022 by the Presidential Administration. As a result of this report, every school in Romania has to designate a week off the usual school timetable, entitled 'The Green Week' for practical environmental activities. The Ministry of Education is currently working on the methodology for this action, but the lack of teacher training and teacher education in this area has left many teachers wondering what they can do during that week besides planting trees and doing day trips in nature with students. At the time of writing this article, nothing official in terms of support for teachers has been published from the Ministry and The Green Week is only weeks away.

Teacher training opportunities and willingness of teachers to engage with the concepts of sustainability education are crucial for the success of this initiative. Blewitt

(2018: 334) warned that 'for ESD to become truly embedded within the formal education system of a nation or region, whether at primary, secondary or tertiary level, it is often the case that the educators must themselves first be educated'. There are some efforts made by the Romanian Geographical Society and by some school local education authorities in different counties to collect and suggest to teachers a variety of activities to maximise the impact of this opportunity and stretch the scope to other sustainable development goals, besides SDG 13 (Climate action) and SDG 15 (Life on Land), but there is no national coordinated effort towards ESD.

As no official training programmes towards ESD have been announced, we were keen to find out about the teachers' self-perceived knowledge about SD and their readiness and interest in participating in professional development courses regarding sustainability education. Teachers' interest in engaging with ESD is crucial for the success of such an initiative.

Much in contradiction to the declared aims of the Educated Romania presidential report which names ESD a priority objective, there seem to be disjointed and uncoordinated efforts to reach this goal. Though a transdisciplinary approach to ESD, as mentioned on the Ministry of Education website is desirable and recommended in many research studies (Fernandes & Rauen, 2016; Klein, 2010; Casey, 2010; Lam, Walker & Hills, 2014), the lack of a legal framework, of clear methodology and ways of implementation throws ESD at the mercy of random school activities without continuity, long-term vision and sustained impact.

The Romanian Geographical Society, through a working group responded publicly to the 'Education regarding Climatic Changes and the Environment in Sustainable Schools' Report and drew attention to the fact that a change in both the school geography curricula as well as in the teaching and learning methods is needed in order to make significant changes towards ESD, but more needs to be done to hear the voice of geography teachers regarding ESD.

Our study, therefore, aims to fill this gap and to answer the following research questions:

RQ1 What are the sustainable development themes of immediate relevance to geography teachers and how do these compare to the students'?

RQ2 What are the teachers' views regarding the importance of teaching SD?

RQ3 What is the teachers' self-assessed awareness of SD and their readiness in learning more about ESD?

Method

Our participants were school geography teachers who taught Year 11 students (17 years old). We focused our research on them because the geography discipline they teach is the closest to sustainability concepts from the entire school geographical

education offer. It is entitled *Fundamental Problems of our Contemporary World* and it explicitly includes concepts of globalisation and sustainable development.

A semi-structured online questionnaire in Google Forms was disseminated to geography teachers in May 2021 in four counties of Romania (Iași, Neamț, Galați and Brăila). We estimate a return of around 10% of potential responses, out of which we had to discard 1 response which came from a Geography teacher who taught in a secondary school based on the French Geography curriculum.

The questionnaire was designed and distributed in Romanian and was translated into English by one of the authors, a dual national British-Romanian, for the purpose of this study. The questionnaire included Likert-scale, dichotomous (yes/no), open-ended and multiple-choice questions and was open for two weeks to receive teachers' responses. The engagement with the study was on a voluntary and anonymous basis. Given the voluntary nature of the responses, we were not in a position of looking for representativeness of our sample of responses neither as regards number of teachers per county, nor as regards the type of secondary school in which they taught.

At the end of the online data collection period, the quantitative results were downloaded and processed in Microsoft Excel into different graphs which served the purpose of illustrating visually our findings. The data was analysed qualitatively in descriptive interpretations.

Findings and Discussions

In total, a number of 38 Year 11 Geography teachers participated in the online survey (n=38). Of these, 14 were from Iași county, 4 from Galați, 16 from Neamț and 4 from Brăila, and most of them were from urban areas (n=34). The distribution regarding the type of school they taught in is similar for the theoretical and technological schools (18 and 17 respectively), but only 3 teachers from the vocational schools responded to our questionnaire.

As regards teachers' years of teaching experience, all except 1 were with over 11 years of experience in teaching geography. Most of them, (n=22) had been teaching geography for over 20 years and 15 had between 11 to 20 years experience. Given the above, it was less surprising to see that the vast majority of the respondent teachers (n=33) had Gradul I (the highest teaching qualification in Romania), 4 had Gradul II and 1 was at the beginning of their professional development having had just the compulsory entry examination.

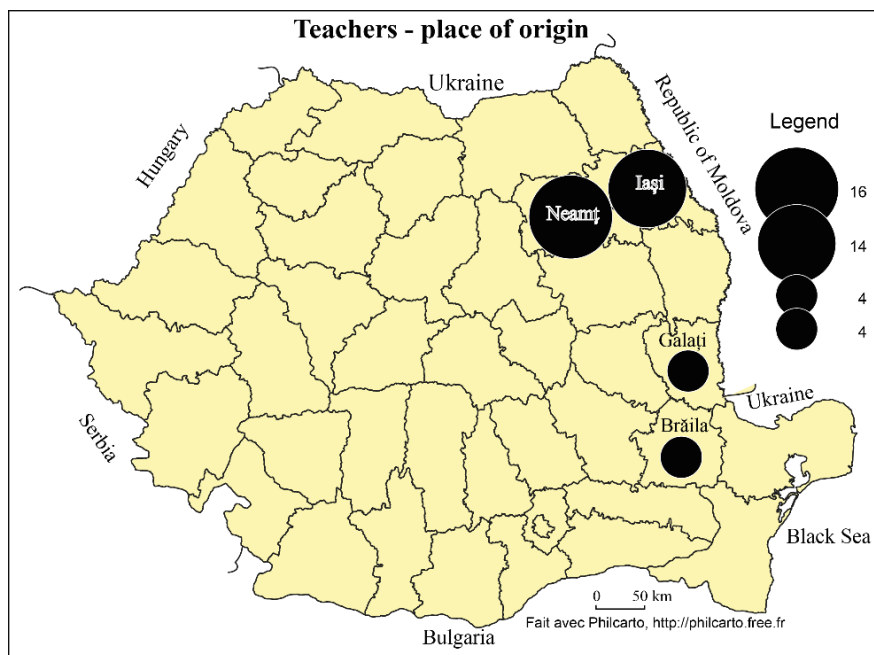


Figure 1. Respondent teachers – place of origin

Source: authors

RQ1 What are the sustainable development themes of immediate relevance to geography teachers and how do these compare to the students'?

The table below shows the overall response regarding the sustainable development themes of immediate relevance and importance as identified by the respondent Geography teachers.

Table 1. Sustainable Development themes as prioritised by teachers

Sustainable Development Themes	% of teachers
1. Alternative sources of energy	60.5%
2. Climate change and action for climate	57.9%
3. Access to education	57.9%
4. Wellbeing and access to health care	55.3%
5. Sustainable economic development and growth	47.4%
6. Ecosystems (land, water, air), biodiversity and ecology	44.7%
7. Access to water, food, energy	42.1%
8. Civic responsibility and democracy	36.8%
9. Sustainable rural and urban communities	31.6%
10. Eradicating poverty	23.7%
11. Social Justice (discrimination, equal opportunities and reducing inequalities)	21.1%
12. Innovation and technology for sustainable development	21.1%
13. Responsible global production and consumption	18.4%
14. Institutions and partnerships for SD	13.2%

Source: authors

When we look at teachers' responses through the lenses of their teaching experience, however, we observe some notable differences as seen in the graph from Figure 2.

We notice an overlap of interests for all teachers towards sustainability themes which deal with Alternative sources of energy, Access to education and Wellbeing and access to healthcare. Outside the top themes of interest represented in Figure 2, other interesting differences appear when looking at the themes of interest chosen by more and less experienced teachers. For example, though overall, the interest in the theme of Innovation and technology for SD remains at the periphery (see Table 1), a much higher % of teachers with less than 20 years of teaching experience (37.5%) show interest in it than the more experienced teachers (9.1%). Conversely, Access to water, food and energy, and Civic responsibility and democracy seem of more interest to teachers with over 20 years of teaching experience (50% and 40.9%) than to their less experienced colleagues (31.3% and 31.3%, respectively).

Geography teachers' themes of interest

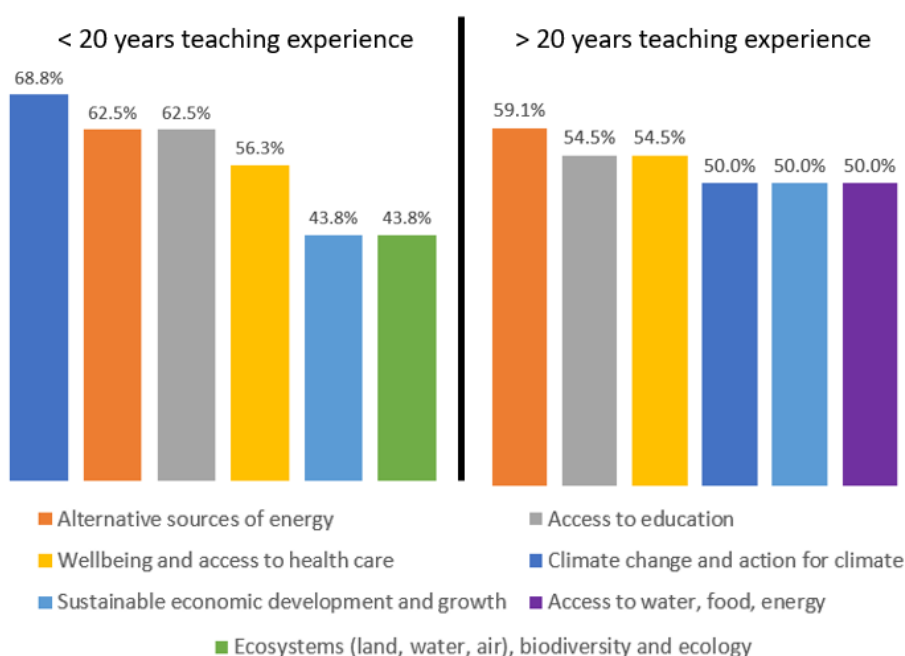


Figure 2. Top 5 most relevant SD themes as prioritised by teachers depending on their teaching experience (% of total teachers)

Source: authors

A far more significant difference of opinion is seen when considering the types of schools where our respondent teachers work. For example, teachers in technological and vocational schools place far greater emphasis on the importance of Access to education (65%), Sustainable economic development and growth (65%) and

Sustainable rural and urban communities (40%) than teachers in theoretical schools (50%, 27,8% and 22.2% respectively). On the other hand, themes related to Ecosystems and to Access to water, food and energy were identified more frequently as being of relevance to teachers in theoretical schools than those in technological and vocational schools.

Of greater interest still are the similarities and differences between the sustainability themes relevant to teachers and those of relevance to students. An in-depth analysis of nearly 500 students' perceptions on ESD makes the subject of a different study which is in the process of being published, but when comparing data, some interesting observations can be drawn. Figure 3 shows the comparison between students' and teachers' responses regarding their views on the importance of different sustainability themes. With red, we highlighted the themes which are of far greater importance to students than to teachers, with blue we highlighted the themes of far greater importance to teachers than to students, whereas with yellow we highlighted the themes which occupy the same ranking in teachers' and students' perceptions.

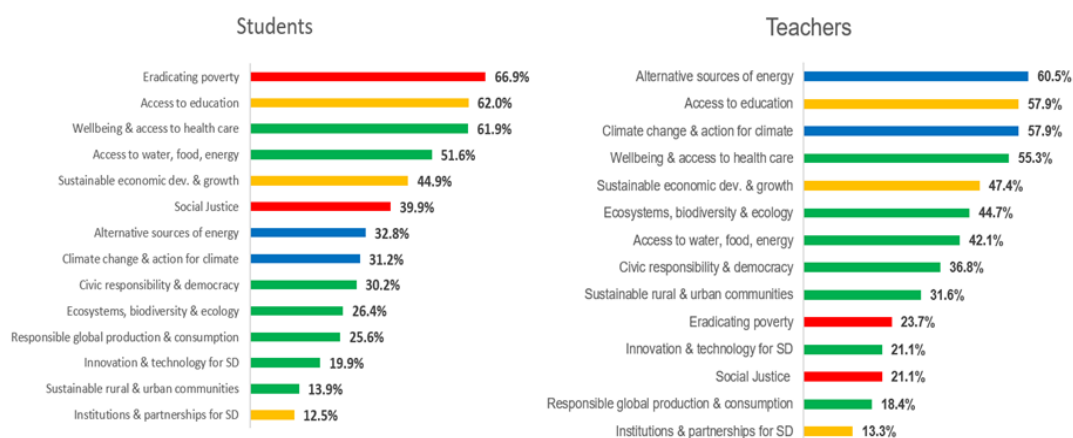


Figure 3. Comparison between sustainability themes chosen as relevant to students and to teachers

Source: authors

Access to education figures high in the ranking for both teachers and students and we wonder whether the fact that we applied these tools in a school setting played a deciding role in these results. Follow-up interviews with focus groups will clarify this aspect of our study. We also notice a similar high interest as regards Wellbeing and access to health care, but from here on, it seems that interests diverge. Teachers seem to consider themes associated with a more traditional teaching approach as important. For example, Alternative sources of energy and Climate change. It may be that they have already got good pre-existing knowledge and are more familiar with these themes. Students, however, seemed to have reached a saturation point with these themes as they showed an average level of interest in Climate change and Alternative

sources of energy (seen in the graph above). Follow-up interviews with focus groups will confirm or not this hypothesis, but we believe that students are bombarded with excessive discussions and information on these topics via media and other channels and this makes them switch off from these topics. Romania is a country that continues to rely on energy from fossil fuels (41.7%), thus the theme has the potential to be of interest. It seems that it is for teachers, but not that much for learners.

Students, on the other hand, identified themes with direct and immediate impact on a personal and a community level: Eradicating poverty and Social justice. These themes do not belong to the Romanian traditional school geographical teachings, but there are other international geography curricula (eg. the International Cambridge Geography curricula) that include these themes in their content.

Undoubtedly, some sustainability themes are more under the umbrella of geographical education than others, but the results show important findings which can help inform future curriculum content and resources to be more synchronised with students' interests. They also show that teachers' and students' interests in sustainability themes are only partly aligned. Literature suggests that personal interest in the concepts taught facilitates cognition, supports motivation, and contributes to enjoyment in learning (Rathunde & Csikszentmihalyi, 1993; Pintrich, Ryan & Patrick, 1998, Mackey, 2012). Our study is relevant from this perspective as it provides a starting point for understanding these different interests students and teachers hold. Coordinating teachers' and students' interests in sustainability topics, considering ways in which they are addressed in the teaching and learning process, and including them in future updates of the curriculum content or in proposed activities for students are ways in which our study could contribute to a more relevant and a positive emotional and learning experience for students and teachers.

RQ2 What are the teachers' views regarding the importance of teaching SD?

Teachers are key to promoting ESD. Through their lessons, their interaction with students and with the geographical content they teach, they help create knowledge, model attitudes and behaviours, and create opportunities for critical analysis of different viewpoints. Understanding their perspective is crucial (Phuong Nguyen, 2017), yet teachers' views regarding SD have hardly been sought in Romanian research on ESD.

We assessed teachers' views regarding the importance of teaching SD using 5-scale Likert statements ranging from 1= strongly disagree to 5 = strongly agree. In line with similar studies (Haubrich, 2007; Firth & Winter, 2007; Werlen, 2015), our respondent teachers overwhelmingly consider that it is the task of geography, as a school subject to take on the mission of teaching about SD. As Table 2 below shows, this response holds the highest MS=4.27 and the lowest SD = 0.93 in teachers' responses. Our respondents consider important that sustainability is taught

throughout formal education and that it is an important concept to be included in school education. More specifically, 92.1% (n=35) of teachers consider that the institution of school should be responsible for ESD, followed by local authorities (89.5%) and environmental organisations (81.6%). The NGOs fell last in teachers' overall views about organisations that should hold responsibility for ESD, though with polarised views. Teachers from Vocational schools were all in agreement that NGOs hold high responsibility for ESD together with the school and local authorities. Teachers from technological schools, on the other hand, placed the responsibility for ESD to NGOs last, after media and other local or regional organisations. Unfortunately, there were only 3 respondents from these schools and, therefore we are cautious about drawing conclusions regarding the views of teachers from Vocational schools. Their views, however, are worth knowing.

Table 2. Teachers' perceptions regarding ESD in formal education (n=38)

Statement	Mean score	Frequency (%)			Standard deviation
		Agreement (5 – 4)	Neutral (3)	Disagreement (2 - 1)	
Sustainable education is an important concept in school education	4.11	68.5	26.2	5.3	0.98
Teaching sustainability concepts should be done throughout formal education	4.13	73.7	13.2	13.1	1.09
The school subject of Geography is key for sustainability education	4.27	71.7	23.7	2.6	0.93

Source: authors

Our study shows that regardless of their teaching experience or of their qualification status, geography teachers believe in the importance of ESD. It is encouraging to see that most respondents (71.7%, n=27) agree or strongly agree that school Geography is key for sustainability education. Aside from Geography, our teachers also identified Economics (39.5%), Civics Education (34.2%) and Personal Development (10.5%) as potential school subjects which are suitable for teaching sustainability concepts.

This shows a potential fertile ground which could be maximised by authorities in curricular reviews, content updates and methodologies.

RQ3 What is the teachers' self-assessed awareness of sustainable development and their readiness in learning more about ESD?

Unreservedly, teachers' level of preparedness and expertise in a certain topic influences their confidence when teaching. 78.9% of our respondent teachers (n=30) declared they agreed or strongly agreed with the statement: I am aware of the concept of SD. When unpacking the concept of sustainability, however, and when asked

specifically about their perceived knowledge regarding the SDGs, only 47.4% ($n = 18$) of the teachers agreed or strongly agreed with the statement: I am aware of the Sustainable Development Goals set in Agenda 2030. A higher level of self-declared knowledge about sustainability in general (81.9%) and about SDGs in particular (54.5%) was observed in teachers with over 20 years' experience of teaching geography compared to the self-declared knowledge of teachers with less than 20 years teaching experience (75% and 37,5% respectively).

It is worth mentioning that teachers' self-declared knowledge and the actual knowledge of sustainability was not investigated in this study and some research (Effeney & Davis, 2013) shows that there may not necessarily be a relationship between these components. To add, teachers' self-declared knowledge of sustainability may include misconceptions (Adawiah & Esa, 2012). Further studies in this area could shed light on whether teachers' self-declared knowledge is actually accurate and could explore further potential misunderstandings related to the concept of sustainability, particularly since opportunities for teacher training in sustainability concepts are limited in teacher training in Romania.

Studies carried out in Romania related to sustainability highlight these concerns and show little understanding of sustainability concepts. For example, a study by Suduc, Bîzoi & Gorghiu (2013) includes a confusing mix of topics such as road safety and religious education when declaring they research sustainability and another one by Ilovan (2019) does not make a clear distinction between environmental education and sustainability education, making it difficult to draw general conclusions about ESD alone.

Most teachers (57.9%) were either neutral or disagreed that their textbooks were helpful in supporting the teaching of sustainability concepts and all of them considered that it would be useful to have information regarding real case studies where they could see examples of sustainable projects. The majority of teachers (89.5%, $n=34$) wanted more textbook activities related to sustainability, and 76.3% ($n=29$) considered it useful to have the SDGs explicitly mentioned in their textbooks. Few teachers, 31.6% ($n=12$) considered it useful to have more theoretical and historical information about the concepts of sustainability in the textbooks. From this perspective, our study offers valuable information regarding teachers' views of what they consider important as teaching resources and their perceived usefulness of the current geography textbooks when it comes to supporting ESD.

As regards teachers' willingness to participate in continuous professional development courses related to SD, it was encouraging to see that most of them (71.1%, $n=27$) showed an interest in such opportunities and that the rate of negative answers was a relatively reduced one (10.5%, $n=4$). This shows interest in the theme of sustainability and teachers' commitment to learning about SD. When looking closer at the data, one can notice a higher interest in training courses in less experienced teachers

(75% of the teachers agreed or strongly agreed and 25% were neutral with the statement: I would be willing to participate in professional development course related to SD so I improve my teaching) compared to the responses offered by more experienced teachers (63.6% agreed or strongly agreed with the above-mentioned statement and 31.8% were neutral).

Limitations

This is an initial study into the views of a group of upper secondary geography teachers in a few counties in Romania. We do not claim the representativeness of their views and for such a small sample of responses other methods, such as follow-up interviews, textbook analysis, etc are needed to provide a deeper understanding and a more nuanced interpretation of our findings. Responses cannot be generalised, but the advantages of starting a discussion on sustainability education with upper secondary geography teachers are worth considering.

Conclusions

Our study is a starting point in a timely discussion about the future of school geography education and the role geography plays in educating the Romanian youth. Geography teachers who engaged with our study show interest in teaching sustainability concepts view their subject as crucial for promoting sustainability and expressed commitment to learning and improving their teaching practice towards a more relevant and current type of school geography.

The difference in importance awarded by teachers and students to various sustainability topics is a valuable finding of this study; one which contributes to a better understanding of these different starting points in teaching and learning. Taking these into consideration and including them in future planning of curricular content or in training programmes can help make both the geography curricula and future teacher training courses more relevant and of greater impact.

Another important aspect that we identified in our study, but which requires further investigation is the potential match or mismatch between teachers' self-declared knowledge and the actual knowledge and accurate understanding of sustainability concepts. This is important as developing sound sustainable lifestyles and sustainable action competence for both students and teachers rests on a solid understanding of sustainability concepts and ESD.

As the literature review shows, the official authorities do not seem to have a clear image of how to integrate ESD into Romanian education. In the absence of such a vision, our small-scale study shows that geography teachers unreservedly believe that school geography is the subject with the mandate to teach sustainability. We

believe more geography teachers should be asked to join the discussion table when it comes to discussing the future of ESD in Romania.

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References

- Adawiah, R. & Esa, N. (2012). Teachers' knowledge of education for sustainable development. *11th International Annual Symposium on Sustainability Science and Management*. Terengganu, Malaysia
- Angeles Ull, M., Pilar Martinez-Agut, M., Pinero, A., & Aznar-Minguet, P. (2014). Perceptions and attitudes of students of teacher-training towards environment and sustainability. *Procedia – Social and Behaviour Sciences*, 131, 453–457. DOI: 10.1016/j.sbspro.2014.04.147
- Bagoly-Simó, P. (2014). Tracing sustainability: Education for Sustainable Development in the lower secondary geography curricula of Germany, Romania, and Mexico. *International Research in Geographical and Environmental Education*, 23(2), 126-141
- Bagoly-Simó, P. (2022). Geography's unkept promises of education for sustainable development (ESD) on geography's wasted potential to education for a more sustainable future. *International Research in Geographical and Environmental Education*. DOI: 10.1080/10382046.2023.2158631
- Blewitt, J. (2018). *Understanding Sustainable Development*, 3rd Ed., London: Routledge
- Boeve-de Pauw, J., Gericke, N., Olsson, D., & Berglund, T. (2015). The effectiveness of education for sustainable development. *Sustainability*, 7(11), 15693-15717
- Casey, B. A. (2010). Administering interdisciplinary programs. *The Oxford Handbook of Interdisciplinarity*. Oxford University Press: Oxford, UK
- Chen, S. Y., & Liu S.Y. (2020). Developing students' action competence for a sustainable future. A review of Educational Research. *Sustainability*, 12 (4), 1374. DOI: <https://doi.org/10.3390/su12041374>
- Day, T. (2017). The contribution of physical geographers to sustainability research. *Sustainability*. Basel 9 (10)
- Dulamă, E. M., & Ilovan, O. R. (2017). The development of geographical education in Romania, under the influence of the Soviet education model (1948-1962). *Transilvanian Review*. Vol. XXVI, no.1
- Effeney, G., & Davis, J. (2013). Education for sustainability: A case-study of pre-service primary teachers' knowledge and efficacy. *Australian Journal of Teacher Education*, 38(5), 32-46.
- Evans, L., Maio, G., Corner, A., Hodgetts, C.J., Ahmed, S., & Hahn U. (2013). Self-interest and pro-environmental behaviour. *Nature Climate Change*, 3, 122–125. DOI: <https://doi.org/10.1038/nclimate1662>
- Fernandes, V., & Rauen, W. B. (2016). Sustainability: an interdisciplinary field. *Fronteiras Journal of Social Technological and Environmental Science*, 5 (3)

- Firth, R., & Winter, C. (2007). Constructing education for sustainable development: the secondary school geography curriculum and initial teacher training. *Environmental Education Research*, 13(5).
- Fu, B. (2020). Promoting geography for sustainability. *Geography and Sustainability*, 1, 1-7. DOI: <https://doi.org/10.1016/j.geosus.2020.02.003>
- Gajparia, J. Strachan, G., & Leverton, K. (2022). Transformation through learning: education about, for and as sustainability. *Frontiers in Sustainability*, 3:982718 <https://doi.org/10.3389/frsus.2022.982718>
- Haubrich, H. (2007). Geography Education for Sustainable Development. *Geographical Views on Education for Sustainable Development, Proceedings of the Lucerne – Symposium, Lucerne, Switzerland*, 29-31 July 2007
- Ilovan, O. R., (2019). Environmental Education and Education for Sustainable Development in Romania. Teachers' perceptions and recommendations. *Romanian Review of Geographical Education*. vol. VIII, nr. 2
- Jucu, I. S. (2012). Rethinking Geography in Romanian Schools: Curricular Changes in Geography Learning in Post – Socialist Romania. *Procedia-Social and Behavioural Sciences*, 46, 5440 – 5448
- Klein, J.T. (2010). A taxonomy of interdisciplinarity. *The Oxford Handbook of Interdisciplinarity*, Oxford University Press: Oxford, UK
- Lam, J.C.K., Walker, R., & Hills, P. (2014). Interdisciplinarity in sustainability studies: A review. *Sustainable Development*, 22, 158-176
- Mackey, G. (2012). To know, to decide, to act: the young child's right to participate in action for the environment, *Environmental Education Research*, 18(4), 474-484, DOI: 10.1080/13504622.2011.634494
- Maude, A. (2017). Applying the concept of powerful knowledge to school Geography. In: Brooks, C. Butt, G., Fargher, M. (Eds.) *The power of geographical thinking*. Springer, Cham, pp. 27-40
- Maude, A. (2018). Geography and powerful knowledge: a contribution to the debate. *International Research in Geographical and Environmental Education*, 27(2), 179-190
- Meadows, E. M. (2020). Geography education for sustainable development. *Geography and Sustainability*, 1, 88-92
- Miao, S., Meadows, M. E., Duan, Y., & Guo, F. (2022). How does the geography curriculum contribute to education for sustainable development? Lessons from China and the USA. *Sustainability*. 14, 10637 <https://www.mdpi.com/2071-1050/14/17/10637>
- Ministerul Educației Naționale (2018). *Educație pentru Dezvoltare Durabilă*. Ministerul Educației Naționale. Viewed on 6th January 2023, <https://www.edu.ro/educa%C8%9Bie-pentru-dezvoltare-durabil%C4%83>.
- OECD (2019). Trends shaping education. Paris: OECD Publishing
- Phuong Nguyen, T. (2017). Education for sustainable development in Vietnam: exploring the geography teachers' perspectives. *International Research in Geographical and Environmental Education*
- Pintrich, P. Ryan, A. M., & Patrick, H. (1998). The differential impact of task value and mastery orientation on males' and females' self-regulated learning. In L. Hoffmann, A Krapp, K. A. Renninger & J. Baumert (Eds.) *Interest and Learning: Proceedings of the Seon Conference in interest and gender*. Kiel, Germany
- Rathunde, K., & Csikszentmihalyi, M. (1993). Undivided interest and the growth of talent: a longitudinal study of adolescents. *Journal of youth and adolescence*, 22(4), 385-405

- Qiu, J. (2016) The role of geography in sustainable development. *National Science Review*, 4(1), 140-143
- Sandell, K., Öhman, J., & Östman, L. (2005). Education for Sustainable Development, Lund: Studentlitteratur
- Sass, W., Boeve-de Pauw, J., Olsson, D., Gericke, N. De Maeyer, S., & Van Petegem, P. (2020). Redefining action competence: the case of sustainable development. *The Journal of Environmental Education*, 51(4), 292-305
- Sinakou, E., Donche, V., & Van Petegem, P. (2022). Action-orientation in education for sustainable development: Teachers' interests and instructional practices. *Journal of Cleaner Production*, 370
- Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., Biggs, R., Carpenter, S. R., Vries, W. de, Wit, C. A. de, Folke, C., Gerten, D., Heinke, J., Mace, G. M., Persson, L. M., Ramanathan, V., Reyers, B., & Sörlin, S. (2015). Planetary boundaries: guiding human development on a changing planet. *Sustainability*, 347(6223), 1259855. DOI: <https://doi.org/10.1126/science.1259855>
- Suduc, A. M., Bîzoi, M., & Gorghiu, G. (2013). Sustainable Development in Romania in Pre-School and Primary Education. *Social and Behavioural Sciences*, 116.
- Van der Schee, J. (2016). Sustainability and Geography Education. *Journal of Research and Didactics in Geography*, 2(5), 11 – 18
- Varela-Losada, M., Vega-Marcote, P., Pérez-Rodríguez, U., & Álvarez-Lires, M. (2016). Going to Action? A Literature Review on Educational Proposals. *Formal Environmental Education. Environmental Education Research*, 22 (3), 390–421
- UNESCO (2005a). UN Decade of Education for Sustainable Development, 2005-2014: the DESD at a glance. UNESCO. Available online at: <https://unesdoc.unesco.org/ark:/48223/pf0000141629>
- UNESCO (2005b). United Nations Decade of Education for Sustainable Development (2005-2014): international implementation scheme. Available online at: <https://unesdoc.unesco.org/ark:/48223/pf0000148654>
- UNESCO (2009). Bonn Declaration of the World Conference on Education for Sustainable Development. Paris: UNESCO
- UNESCO (2017). Education for Sustainable Development Goals – Learning Objectives. Paris: UNESCO
- Wals, A. E. J. (2009). Review of contexts and structures for education for sustainable development. Paris: UNESCO. Available online at: <https://unesdoc.unesco.org/ark:/48223/pf0000184944>
- Wals, A. E. J. (2012). Shaping the education tomorrow: 2012 full length report on the UN Decade of Education for Sustainable Development. Paris: UNESCO. Available online at: <https://unesdoc.unesco.org/ark:/48223/pf0000216472>
- Werlen, B. (2015). International Year of Global Understandings. An interview with Benno Werlen. *Journal of Research and Didactics in Geography*, 2, 105 – 113