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RESEARCH ARTICLE

Citizenship education to promote the participation of young people in climate adaptation: crossing curricular boundaries through community profiling

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Abstract
The article discusses climate community profiling in citizenship education to promote young people's civic and political participation in local climate adaptation issues, based on educational projects conducted in 8 schools in 8 regions in North Portugal. These community profiling school projects involved 24 teachers and 483 students (from grades 8 to 12) from January 2022 to June 2023. After describing the curricular context of citizenship education in Portugal and the recent reform emphasising curriculum flexibility, the paper examines the theoretical foundations and implementation of school-based climate community profiling. Previous research shows that this pedagogical strategy is valuable in promoting young people's civic and political participation and creating interdisciplinary curriculum spaces. Furthermore, community profiling fosters students' engagement in researching their community in collaboration with other community actors. This paper explores the potential of this strategy in citizenship education, both in terms of students' civic development and the potential to promote innovative and cross-curricular teaching practices based on teaching materials and semi-directed interviews with teachers. The findings show that the construction of climate community profiles can contribute to changes in teaching practices and the construction of a sustainable interdisciplinary curriculum concerned with education for citizenship.

Keywords Climate community profiling · Citizenship education · School · Civic and political participation

Introduction

Citizenship education has been featured high in European educational research and policy for decades, so it has also been gaining traction in schools worldwide, catalysing youth civic and political participation (e.g., Menezes & Ferreira, 2012; Stoer, 2008; Veugelers & de Groot, 2019). In Europe, citizenship education has been firmly established within the education policies of most EU Member States, greatly influenced by the 2015 Paris Declaration (Zygierewicz, 2021). Citizenship is a central concept within school curricula, encouraging learners to engage with the cultural, civic, and political dimensions of their lives. However, different ideological perspectives underpin citizenship education's goals and practices at both the school and classroom levels. Furthermore, its implementation in schools varies not only in terms of the number of hours allocated but also in its location in the curricula: (a) as a cross-curricular theme, (b) integrated into specific subjects, or (c) as a separate subject (Coster and Sigalas, 2018).

Citizenship education in most EU Member States primarily focuses on political participation and institutional democracy, with relatively less emphasis on elements such as deliberation and consensus-building processes and their contributions to the values of freedom of speech and equality (Veugelers & de Groot, 2019). Portugal is not an exception, although there is considerable diversity among schools. Generally, values of democracy and tolerance are integrated into the curricular subjects (Menezes, 2021), and a recent national strategy on citizenship education (DGE, 2017b) promoted the teaching of citizenship and participation explicitly at all schooling levels. However, some research suggests that teaching practices may need to be

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more connected to students' daily concerns and lives, with a significant reluctance to address controversial issues in class (Menezes, 2021; Piedade et al., 2021).

Biesta and Lawy (2006) argued for the importance of approaching the learning of democratic citizenship as a situated process. As such, citizenship education as a strategy locates individuals within their contexts, emphasising the learning that occurs through various life experiences and how individuals engage with pressing personal and societal issues. Youth citizenship today, in the face of climate change, needs to be framed in the context of the Anthropocene, which requires confronting its systemic power relationships and questioning the multiple injustice differentials so a 'posthuman civics' can emerge and a 'more-than-human-world' can be fostered (Abram, 1996; Hickey-Moody et al., 2021). Thus, agency in the Anthropocene emerges as a way of being and acting in a world where people position themselves as part of ecosystems, where there is recognition and respect for all species (OECD, 2023). Although schools cannot take on the role of educating citizens to combat climate change on their own, they can contribute to empowering young people by providing them with conditions for developing action skills and for discussing and constructing knowledge, laying the foundations for a reflective, aware, and responsible society capable of responding to future challenges (OECD, 2023).

Therefore, our assumption is that education for climate action must be a component of education for environmental citizenship (Hadjichambis & Reis, 2020), empowering students to debate and act about socio-environmental issues, thereby fostering youth activism (Reis, 2021). Its transformative nature is enhanced by involving young people in participatory processes within their communities, involving dialogues with political, social, and economic stakeholders, and creating the opportunity for young people to promote change with the support of teachers and stakeholders. This is in line with educational policy and research, as environmental citizenship has gained prominence in normative discourses (DGE, 2018) and appears as a central concept in several studies using participatory approaches to citizenship education (e.g., Reis, 2021). The idea is that young people can contribute to 'solving societal issues through active and reasoned social participation' (Reis & Tinoca, 2018, p. 426), thus contributing to a more responsive democracy. As such, including young people in democratic processes and decision-making concerning environmental issues within their communities could be the breakthrough that previous generations did not achieve.

This paper discusses how the development of climate community profiling in schools under project [ClimActiC] can constitute an innovative pedagogical strategy, promoting young people's environmental citizenship and civic and political participation regarding climate adaptation. The project was implemented during two school years (2021-2023) with 24 teachers and 483 young people from grades 8 to 12 in 8 public schools from different regions of Northern Portugal. Drawing primarily on teachers' perspectives, we focus on the following research questions: (i) can climate community profiling developed in schools serve as an innovative curricular strategy, particularly in the context of citizenship education? (ii) to what extent does it contribute to enhancing young people's environmental citizenship? and (iii) does this strategy promote young people's involvement and motivation to act as citizens within the school context, thereby increasing their active citizenship?

Citizenship education in the curriculum reform in Portugal

Citizenship education in Portugal has been influenced by the country's recent democratic history—close to celebrating its 50th anniversary in 2024—and links with the European landscape, including several levels of influence (e.g., European Union, Council of Europe) that shaped the configuration of citizenship education in schools over the decades. The Education Act, specifically Law 46/86 (LBSE), stressed educational goals such as promoting the 'democratic and pluralistic spirit' and 'personal and social education'. Student participation in school life and governance is also regarded as a crucial component of citizenship education (Coster & Sigalas, 2018). However, an excessive emphasis on representative forms of student participation, coupled with a long-standing cultural tradition of neglecting student voices, has resulted in an experience of 'mitigated democracy' within most schools (Pereira et al., 2014). Progress in this regard has been slow but steady.

In general, educational policies have sought to strike a balance between a focus on the teaching of 'traditional' subjects and concerns related to citizenship education and the holistic development of children and young people (Menezes, 2021, p. 93). For instance, a public funding emergency stemming from the 2008 financial crisis was closely tied to educational policies emphasising academic success in traditional subjects like mathematics and Portuguese. However, with a left-centre government in place since 2015, educational policies have shifted towards a more comprehensive, competency-based, and flexible curriculum. The change started with the publication of students' profiles by the end of compulsory schooling in 2017 (DGE, 2017a), inscribing citizenship and participation as core values across the curricula. In the same year, a new National Strategy for Citizenship Education (ENEC) implemented an educational policy that mandated the incorporation of citizenship education from preschool to the end of compulsory education (grade 12 or at the age of 18). Again, this shift has been

significantly influenced by international agendas focusing on Education for Development and Global Citizenship (UNESCO, 2014) and for Sustainable Development (United Nations, 2015), leading to the creation of a dedicated curricular domain known as 'Citizenship and Development' (DGE, 2017b) to be integrated into schools through three complementary approaches:

(1) a transdisciplinary approach in lower primary education,
(2) an independent subject titled 'Citizenship and Development' to be introduced from upper primary education to lower secondary education (grades 6 to 9), and
(3) a curriculum component across all disciplines and training components during the upper secondary education years (grades 10 to 12).

How these approaches translate into school- and class-level practices are closely intertwined with the ongoing curriculum flexibility and autonomy reform (Decree-Law 55/2018). This reform places a strong emphasis on interdisciplinary teaching, the creation of projects that integrate cross-curricular competencies, and, consequently, the promotion of dialogue and collaborative work (OECD, 2018; Mouraz & Cosme, 2021). Within this reform, schools should develop innovative educational projects that address contemporary issues such as climate change and other socio-environmental concerns through cross-disciplinary approaches while ensuring alignment with the competencies outlined in the guidelines 'Students' Profile by the End of Compulsory Schooling' which constitutes the reference framework for basic and secondary education in Portugal.

Environmental education for sustainability constitutes a primary domain that must be addressed (among others such as gender equality or human rights) within citizenship education (DGE, 2018) since issues of ethics and citizenship are set alongside socioenvironmental issues as structuring topics to problematise the global environmental and climate crisis in the school context. As such, much of the effort concerning environmental and climate change issues occurs within the context of the citizenship education subject. However, according to the reference framework for environmental education for sustainability (DGE, 2018), the focus is still much more on understanding causes and impacts and acting on an individual level and less on collective sociopolitical action (Reis, 2020), which aligns with the reluctancy in addressing controversial issues in schools (Menezes, 2021). Several innovative projects that encouraged collaborative and participatory efforts among various educational stakeholders and positioned students as agents of change in their communities have yielded promising results (e.g., Marques et al., 2018; Pinheiro et al., 2023; Torres & Mouraz, 2022; Reis, 2021). However, significant work still needs to be done to extend these initiatives to more schools nationwide.

Climate community profiling as a path to environmental citizenship

Community profiling is a social research method that seeks to promote a collective understanding of the needs and resources of a specific territory or community through its members' active participation in developing an action plan (Hawtin & Percy-Smith, 2007). Its uses in Europe have been diverse, namely in Italy, where community profiling has served diverse purposes, including exploring the political conditions for youth participation (Cicognani, 2014), fostering participatory policy-making processes (Mannarini, 2012), promoting the collective construction of more inclusive and sustainable futures (Francescato, 2000), and enhancing the ability of municipal officials to address the needs of community citizens (Prezza & Santinello, 2002). More recently, it has been used as a school-based participatory research method to promote children and young people's civic and political participation (e.g., Menezes & Ferreira, 2014).

In Portugal, the first experience of implementing community profiling with young people involved a project focusing on the transition to democracy (Menezes & Ferreira, 2014). More than 100 students in four schools, ranging from primary to secondary education, supported by their teachers and members of the research team, were involved in participatory research about the past, present, and future of democracy in their communities; students selected the topics that included gender equality, health rights, poverty, parent's engagement in schools, and rights of the Roma people, among others. Students gathered data in their communities through document analysis, photos, interviews, or questionnaires. They then analysed the collected data to identify changes in citizenship rights from dictatorship (the past) to democracy (the present), but also imagining and anticipating what could happen in the future. They translated their discoveries into scientific posters and songs they shared with each other and with educational researchers in a seminar held at the university. The findings not only show the potential of this method to promote students' civic and political engagement and participation but also on critical competencies such as communication, collaboration, and group work; teachers also underlined gains in opportunities to collaborate among themselves (Menezes & Ferreira, 2014; Pais et al., 2014).

More recently, our team again tried out community profiling as a participatory school-based method, focusing on environmental citizenship. The community problems were water management (Marques et al., 2018) caring for a

nearby forest (Rios et al., 2022). In both cases, community profiling was a relevant tool to engage students in a participatory research process within their communities. This resulted in increased conscientisation about environmental problems and an enhanced agency and sense of efficacy.

In the ClimActiC project, the *climate community profile* is oriented to young people's engagement with local climate adaptation, supported by their school teachers, and in articulation with community stakeholders. Taking the schools as the locus of learning and reflection, as well as dialogue and action with/within communities, the climate community profile promoted citizenship education processes, while acting as a catalyst for knowledge re-creation.

First, the construction of the climate community profile involved different teachers supporting their students in (i) exploring how climate change has been impacting their territories (e.g., local manifestations of the phenomenon and their historical, social, and environmental contextualization); (ii) identifying local climate problems deemed particularly meaningful for young people (due to e.g., their severity, personal, and familiar resonance); (iii) searching for and mapping the existing information on the problems identified through diverse sources (e.g., technical, scientific, social, and political knowledge); (iv) defining methods and strategies for collecting data in the community, approaching relevant actors and local institutions/organisations; (v) going to the field, by engaging with real, situated and everyday implications of the community climate problems (e.g., either by visiting, observing, and interacting with local contexts or by interviewing and surveying local people).

Second, the climate community profile served as the main engine of the subsequent phase of the project, in which 'collaborative climate labs' (CiCli-Labs) were organised, aiming at fostering spaces of plural dialogues towards the co-creation of climate solutions and ways of making them actionable. Scientists, activists, economic actors, and politicians were invited into schools, where the 'collaborative climate labs' took place, bringing together differently situated experiences and knowledge, representing key social and political spheres that shape communities and influence climate politics.

The development of climate community profiles and their discussion in the CiCli-Labs created a back-and-forth interaction between schools and the communities in knowledge transfer and recreation processes, committing key actors to discussing and searching for solutions on young people's own terms. Therefore, the climate community profile was the igniting element of broader dialogues and collective actions on climate adaptation in each region.

Consequently, constructing a climate community profile could enhance civic and political participation regarding climate adaptation among young people, thus promoting their environmental citizenship. To be sure, both the climate community profiling and the Cicli-Labs not only draw on the young people's own experiences and what they deem meaningful in their everyday community lives, but those processes also aim to value and foster the youth's citizenship practices. In other words, collecting and analysing information on climate problems in their community and being able to co-create new knowledge and solutions are processes that can come as important stepping-stones for young people to explore new possibilities of action and, thus, extend their active citizenship.

The ClimActiC project: from identifying local impacts of climate change plans to the co-creation of community resilience

The ClimActiC project (Building Bridges between Citizenship and Science for Climate Adaptation) aimed to promote education for citizenship and climate education, linking citizens, science, and public policies in managing climate change adaptation. It was conducted across four research centres at the University of Porto in Portugal, (Education Sciences, Psychology, Physics, and Engineering). Its main aim was to deepen knowledge about environmental challenges. To this end, it created spaces for communication and co-creation between scientists, young people, activists, economic agents, and political decision-makers, developing participatory research projects. These experiences with different stakeholders have enabled the co-construction of knowledge and the collaborative creation of actionable solutions to build more resilient regions. This project was implemented in eight schools across different regions of northern Portugal, from January 2022 to June 2023.

As a first step, the research team analysed existing climate adaptation plans for the regions of Northern Portugal to understand the climate problems identified at a regional level. The following map (Fig. 1) highlights the main climate problems mentioned in the adaptation plans. This information was shared with the teachers in each school, who then initiated a conversation with the students in relation to the local impacts of climate change. This involved the collection of local data and the involvement of the local communities, through the students, in conversations about climate change. This implied a diversity of methods with varying degrees of informality, from talks with parents and neighbours or field trips to community surveys or expert interviews. Table 1 shows the local climate problems identified by the young people and the methods they used to collect the information that supported each climate community profile. As shown, the process involved different schools, grades, and curricular subjects, revealing considerable flexibility as a practical tool.

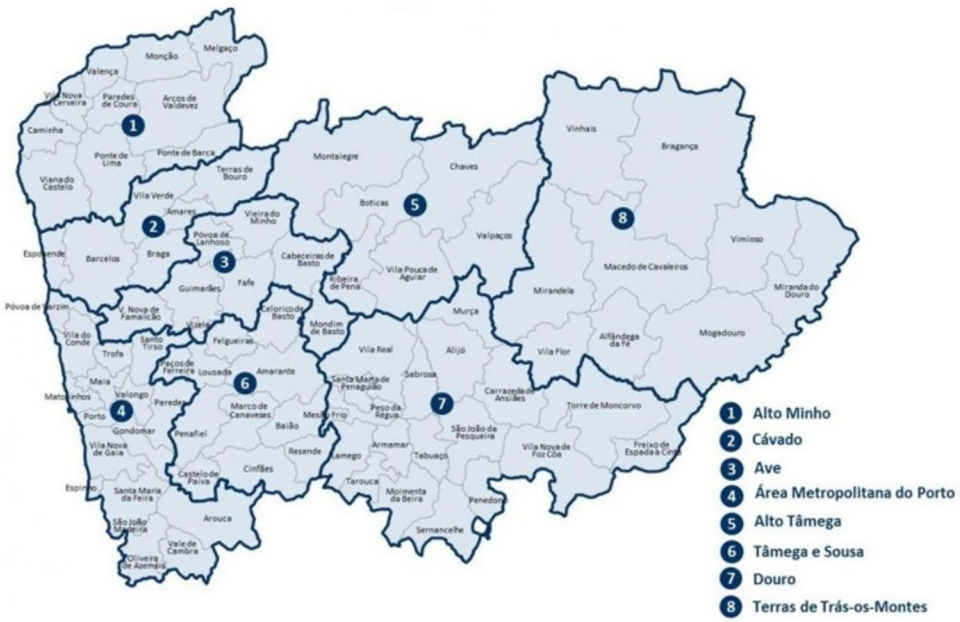

Fig. 1 Map of Northern Portugal, according to Nuts III (EU Regulation 868/2014 of the Commission of 8 August 2014), identifying local climate problems in climate change adaptation plans

1) Forest fires represent an increased risk for children and young people;
2) Extreme cold and heavy rainfall; More frequent and intense droughts;
3) Decrease in average annual rainfall; Increase in average annual temperature;
4) Rising sea levels, heavy rainfall, flooding and inundation;
5) Extreme phenomena such as snowfalls, droughts and floods;
6) Summer will be drier and longer; Decrease in water availability;
7) Risks to agriculture, biodiversity, and, consequently, to the economy, water resources, human health and tourism;
8) Drought and water scarcity as a phenomenon with an "extreme" degree of severity.

Methodology

This article rests on a qualitative longitudinal study involving semi-structured individual interviews with participating teachers ($n = 16$) at the initial phase of the project and group reports produced by participating teachers in each school ($n = 8$) at the end of the project.

Although we have collected data with young people (questionnaire surveys, field notes from CiCli-Labs, and focus groups in two case studies), in this article, we will focus on the teachers' perspectives based on interviews and training reports, as we intend to explore the potential of community profile as a pedagogical strategy and as an interdisciplinary curricular space for citizenship education.

Data collection and analysis

As mentioned above, teachers' perspectives and reported experiences were collected in two distinct moments. In October 2022, we performed semi-structured individual interviews with 16 out of a total of 25 teachers who took part in the project in the 2021/2022 school year. These interviews in the middle of the project covered topics such as the organisational and curriculum framing of the intervention within the schools' educational projects, details about how it was implemented by teachers with the students, and perceptions about successful aspects and features to improve while also helping the promoting team to improve the intervention process in the second school year. We were also interested in exploring the reported effects of participating in the project on students' civic and political participation and in teachers' professional development. After the project, in June 2023, we collected group written reports elaborated by the teachers who participated in the ClimActiC in a total of eight, one per school. In the reports, the teachers were asked to describe and comment on how they implemented the proposed methodologies with the students and which effects they identified on the students, the school, and their personal and professional development.

All reports prepared by the teachers underwent anonymisation by the schools to ensure confidentiality and anonymity. The same procedure was applied to the interviews collected for the project, and the teachers willingly signed informed consent forms. It is important to note that since the data was analysed on a school-by-school basis, anonymisation was a prerequisite for all participating schools.

Table 1 Building climate community profiles

Schools	Climate community profiles					
	School years	Curricular subjects involved	No. of teachers involved	Forms of community involvement	Climate local issues	Region
A	9th and 11th grades	Geography; citizenship and development; DAC: environmental disasters (natural sciences, physical chemistry, maths)	3	Surveys and interviews	Forest fires and deforestation	Alto Minho
B	9th grade	Geography	3	Local photographs; interview with the town mayor	Pollution in the river	Alto Tâmega
C	11th and 12th grades	Geography and history	2	Link with the local biological park (study visit)	Loss of biodiversity in the Febros river basin	Área Metropolitana do Porto (AMP)
D	10th and 11th grades	Biology and geology; physics; geography; citizenship and development	4	Family surveys and interviews	Reduction in the quantity and quality of water resources and anticipation of ripening and harvest time	Douro
E	8th grade	Natural sciences; geography; Portuguese language and foreign languages: French/English	3	Community survey on waste management; interviews with council chairmen	Waste management and treatment	Tâmega and Sousa
F	8th grade	Natural sciences; and school-specific subject offer: 'our land'	4	Community surveys; creation of flyers; board and online game	Water losses and management to combat drought	Terras de Trás-os- Montes
G	11th and 12th grades	Geography and geography in tourism	3	Interviews; young people who took part in the 1st year presented the project to new students: presentation of the theme; sensitisation to be aware of problems around them, and to be able to bring them into the discussion	Heat islands	Cávado
H	12th grade	Biology and geology; citizenship and development	2	Community survey to understand the most significant problem in the region	Prolonged droughts (and a reduction in agricultural productivity and biodiversity and an increase in fires)	Ave

Table 2 Description of the participants

School	Number of participating teachers		Number of young people	
	2021/2022	2022/2023	2021/2022	2022/2023
A	3		125	
B	2	1	21	
C	2		39	
D	4		43	
E	3		40	
F	4	2	80	60
G	2	2	40	
H	-	2	-	35
Total	24		483	

The reports prepared by the teachers and the conducted interviews underwent content analysis (Bardin, 2011) using the NVivo® program. We initiated the process with an overview, followed by categorising the material using deductive and inductive categories. The analysis process was based on the theoretical framework that supported reflection and decision-making regarding classifying the categories and subcategories that emerged from the content analysis (Martins et al., 2022). For this article, we complemented the content analysis of the reports with a distinct category derived from the analysis of teacher interviews—'perceived changes in young people'. The selected quotes in the findings and discussion were considered representative of the diversity of the teachers' perspectives and the more prevalent categories. Therefore, they are used as illustrations that mirror the categories and subcategories presented and debated in this article.

To increase the rigour of the study, the analysis was discussed beforehand between the researchers ('observer triangulation'), who made joint decisions about the investigation ('peer debriefing') and reflected on whether their perspectives interfered with the research ('reflexivity') (Lietz and Zayas, 2010).

Participants

The ClimActiC project involved eight schools in eight regions in Northern Portugal. In total, 24 teachers and 483 students participated (Table 2). The participating students were between the 8th and 12th grades, with ages between 12 and 18 years old.

Out of the 16 teachers interviewed, 12 fall within the age range of 38 to 49, while four are over 50 years old. In terms of teaching experience, 11 have between 12 and 25 years of service, while 5 have more than 25 years of experience. Furthermore, 11 out of the 16 teachers have been at their current school for less than 10 years.

Findings and discussion

Our analysis will consider three main categories that emerged from the content analysis of the interviews and group reports: (i) fostering citizenship across different curriculum areas; (ii) building a climate community profile; and (iii) perceived changes in young people. The following subcategories appear in building a climate community profile: 'skills developed by young people' and 'the impact of the project development in the community'. The subcategory 'motivation for young people to participate' emerged in the category of perceived changes in young people. Teachers' perceptions of the development of the collaborative climate labs' (CiCli-Labs) were also mobilised.

The interviews and the group reports reflect the teachers' perceptions about the project and young people's involvement in the project. Thus, throughout the presentation and discussion of the findings, we will try to highlight how the climate community profile within each participating school facilitated cross-curricular engagement and connections with the community and also empowered young people towards civic and political participation grounded in environmental citizenship.

How can citizenship education be promoted through the community profile with transversal curricular approaches?

On this topic, we chose to explore the data from the interviews and group reports, which we collected from the teachers, giving rise to the following categories: (i) fostering citizenship across different curricular areas and (ii) building a climate community profile. Concerning the latter category, we also highlight the subcategories: 'skills developed by young people' and 'impact of the project development in the community'.

The construction of climate community profiles involved different subjects and different levels of curriculum integration at schools. For instance, at School A,[1] which engaged subjects such as geography, citizenship, and development, they also assert the involvement of 'mathematics, where they analysed questionnaire results and compiled statistics', as reported by a teacher. In fact, in this school, various subjects were directly and indirectly involved in the creation of the community profile, as outlined below:

> 'The teachers participating in the ClimActiC Project, along with other teachers involved through curricular coordination, promoted research, reflection, and classroom discussions on environmental, natural, and mixed

[1] The correspondence with the schools is shown in Table 1.

risks and disasters. They also created murals featuring news stories and illustrative models' (Teacher from School A).

At School G, where the climate community profile was explicitly developed in the subject of geography, the teachers summoned important competencies for citizenship, while recognising that the involvement of other curricular areas to 'raise awareness among young people about the impact of climate change and helping them understand the global scope of these issues' (Teachers from School G). Conversely, at School B, only one specific subject was involved in the project. However, the teacher who coordinated the project at the school recognised the importance of

> 'awareness of new educational approaches because participating teachers, through this project's activities, came into close contact with new approaches, methodologies, or educational theories that they were not traditionally familiar with. These new perspectives can lead them to reflect on their practices and consider changes in pedagogical approaches'.

The CiCli-Labs were also recognised as a fundamental means of making the curriculum more transversal as demonstrated by the teacher from School B who states that:

> 'any topic we can think of, we can apply this idea of the labs [Cicli-Labs], I think it's excellent, even [...] in a matter of interdisciplinarity, we can take the problem and [dynamise the] labs withthe science colleague, English... and sit the students down and work there in articulation with the class council colleagues, etc. […] Because more and more we need coordination and also for them to realise that knowledge isn't in drawers, is it? I learned Portuguese and put it in a drawer. I learn science and put it in a drawer, no! They have to be connected: history and geography. It would also be fascinating to take a problem, and with the various disciplines, let's now see what we can work on, ask our teachers, and get answers to this problem in multiple areas. That's fantastic'.

The involvement of young people in debates with local stakeholders based on the Climate Community Profile reveals the innovative potential for curricular articulation but also for knowledge co-creation. A similar view is expressed by a teacher from School D who saw the CiCli-Labs as an opportunity for knowledge transfer in and out of school:

> 'I liked the active way in which [the young people] identified the problems, looked for solutions, and tried to get clarification from the various organisations, not just the researchers, but also the local authorities, to try to understand what they were doing. Many of them were unaware of programmes aimed at curbing climate change on the part of municipalities, and this was good in that they began to pass on these ideas in the classroom to other classmates and even at home'. (Teacher from School D).

In addition to the involvement of various curriculum subjects, the project's initiatives were integrated into existing school-based extracurricular programmes such as the 'Eco-Schools Programme', the 'Nature Club', and 'LabSteam Club', 'reinforcing learning and skills' (Teacher from School A). At School C, there were strong connections with projects such as 'Eco-Schools', 'Ambi Arte', and the 'Ubuntu Leaders Academy' (Teachers from School C). In School G, teachers are also involved in the 'meteorology club, the living science project, and the school library to provide different experiences', extending this experience to the Erasmus Programme (Teachers from School G).

The significance of interdisciplinary approaches across different schools is notable, particularly in a country where disciplinary traditions are dominant (Pereira et al., 2014). The development of climate community profiles encompassed various curricular areas and engaged distinct extracurricular and cocurricular projects, aligning with the official guidelines for citizenship education (DGE, 2017b) that recommend the contribution of the whole curricula to the formative aspects of citizenship education.

At School D, in addition to the subjects involved (Table 1), teachers saw the project as a way to address the challenges of curricular flexibility[2] and the competencies of the profile of students leaving compulsory education (PASEO). They believed it contributed to 'a solid humanistic education and the practice of active and responsible citizenship. The citizenship and development subject should continue to promote areas of Environmental Education and Sustainable Development.

Teachers from School H also emphasised the competencies outlined in the profile of students leaving compulsory educations, stressing the importance of similar projects 'in the hope that, in the future, students will become active, critical, supportive, and autonomous citizens in society.' Participating teachers stated that 'the ClimActiC project was an excellent example of good citizenship practice and made an exemplary contribution to the development of politically active and participatory citizens in the democratic life of their municipality and country'.

[2] Curricular autonomy and flexibility appeared in the Portuguese curriculum with Decree-Law no. 55/2018 of 6 July. The goal was to ensure that all students acquire the knowledge and develop the skills and attitudes set out in the Profile of Students Leaving Compulsory Educations (Decree-Law no. 55/2018 of 6 July was rectified by no. 29-A/2018 of 4 September). To achieve this, schools are granted considerable autonomy—in a country where the tradition is a highly centralised school system—in redesigning and managing the curricula.

On the whole, teachers from various schools argue that involving young people—also teachers and members of the community, we might add—in collaborative and dialogical decision-making processes regarding environmental issues in their communities could represent the breakthrough that previous generations failed to achieve. This perspective aligns with Reis (2021) who emphasised the importance of young people assuming the role of critical citizens, actively engaged in society to address environmental issues and empower themselves to 'construct a fairer and more sustainable world' (Reis, 2021, p. 6). This applies both to a more participatory citizenship education and to a society that takes greater responsibility for the global environmental challenges.

How has climate community profiling promoted student participation and its relation with active environmental citizenship?

In this second theme for discussing the results, we essentially explore the category 'perceived changes in young people', highlighting the subcategory 'motivation for young people to participate'. It is essential to clarify that these perceptions are obtained from data collection with teachers. In some situations, we have established a relationship with the 'building a climate community profile' category.

Veugleres (2019) presents a model featuring curricular recommendations for citizenship education, which encompasses what he defines as the 'three components of democracy: knowledge, skills, and a democratic attitude' (Veugelers and Groot, 2019, p. 25). This emphasis on the empowerment of young people's participation, with a focus on highlighting and strengthening their knowledge and democratic perspectives while also nurturing their ability to engage in constructive argumentation and connect with their communities, is exemplified in several schools. For instance, School E emphasised that the 'more open and participatory approach to content' was advantageous and revealed potential in students that might not have otherwise surfaced. Decision-making and commitment also highlighted previously hidden capacities'.

In developing the climate community profile, synergies in forms of community involvement among the schools participating in the project emerged. Methods for collecting and processing data gathered by young people from their communities coincided in some schools. The teachers' perspective on how young people were motivated and involved in building the climate community profile also revealed common themes, emphasising aspects such as: 'analysing a problem that affects their local area allowed them to deepen their understanding of the local reality and motivated students to reflect on it, thinking of actionable solutions for mitigation or resolution' (Teachers from School D).

> 'From problem selection to the entire process, including field trips, the final stage surprised me the most because of the dedication and realisation students showed from their own experiences. They understood that climate change is affecting us locally, and as individuals and residents, they have a decisive role in shaping the future of their community and, consequently, the global scale' (Teachers from School G).
>
> 'They [the young people] were encouraged to reflect on the impact of their actions on the environment and to take concrete steps to contribute to solutions. These activities also helped develop leadership skills, teamwork, and civic awareness among the students' (Teacher at School B).

Teachers at School E also highlighted how young participants collected, analysed, and organised data to 'debate and substantiate ideas' and make informed decisions in their quest for solutions. When discussing data related to the involvement of young people, especially regarding their motivations for participating in the project, teachers highlighted the importance of this space for involvement as a platform for citizen participation. It fosters conditions for young people to feel confident in their argumentative abilities and increases their civic and political engagement in environmental citizenship, as highlighted by teachers from School A:

> 'Today, it is evident in these students that they are more concerned about the impacts of fires and deforestation. There is greater involvement and willingness to actively participate in finding solutions. Participation in the Youth Parliament Project, like participation in the ClimActiC Project, has developed their argumentation and decision-making skills' (Teacher at School A).

This concerted and dialogued action to involve young people in the construction of the climate community profile resonates with what Veugelers (2019) proposes to create a democratic school culture. In this culture, young people actively participate in school life through more dialogical teaching methods and by participating in cross-curricular activities that establish relationships with the community. This also implies bringing controversies—in this case, related to climate change and its local implications—to the centre of pedagogical processes. Consequently, the climate community profile not only involves young individuals in identifying local climate change issues but also enhances their civic and political engagement (Menezes et al., 2019). Thus, it becomes a valuable strategy for schools in promoting young people's active environmental citizenship. As stated by teachers from School H: 'Environmental citizenship practices prepare young people for the future, equipping

them with the necessary skills to become agents of change.' This potential was reinforced by the discussion of the Climate Community Profile in the CiCli-Labs:

> The laboratories were vital because they allowed the students to be side by side with experts and decision-makers, a situation that happened to them for the first time in their lives. They could see and be seen, they could talk, and they could listen. This was key: the students were at the centre of the discussion, and their ideas were heard and recorded (Teachers from School F).

The whole process appears to have contributed to 'bringing the school closer to the community, involving various social actors' (teachers from School H) and this kept students 'pedagogically engaged'. As this engagement reinforced students' 'ability to communicate, engage, or the sense of belonging' (teachers from School D), as one teacher from School D also states: 'I think they felt important and realised that, indeed, they have the potential to be active and critical citizens'. This vision is echoed by a teacher at School E stating that:

> 'They have gained an awareness that they are also citizens, have the right to an opinion, and that their opinion can be heard. We believe these young people are now more attentive and socially active' (Teacher at School E).

Additionally, the experience can reinforce positive identities and a sense of community, as mentioned by teachers from School G:

> 'This experience enabled the students to realise that if local authorities are willing and available, it is possible to collaborate for the common good. The students actively engaged in and experienced every phase of their work, and they sensed the existence of a 'national community' of young people who are dedicated to 'preserving' our planet' (Teachers from School G).

However, gains in students' citizenship do not benefit solely the individual students. Other interviewees also highlighted the benefits for the community and local authorities:

> 'Everyone benefits because when a young person becomes involved, possesses the ability to analyse problems, can express their opinions, and collaborates effectively to find solutions, we are discussing an active individual who unquestionably brings added value, not only to political authorities but also at the economic and social levels.' (Teacher from School E).

From the teachers' perceptions, the findings suggest that school-based projects that foster young people's active citizenship can have significant implications for the development of the quality of democratic life, now and in the future. In this case, climate community profiling created to opportunity for students to gain awareness and expertise of the local consequences of climate change. The participatory and dialogic components of the process—involving diverse data collection procedures that fostered engaging in conversations with a variety of community actors, in articulation with the school curriculum—were reinforced by the opportunities to engage in productive debates with significant community stakeholders and experts in the CiCli-Labs. This maximised learning of environmental citizenship as a situated process (Biesta & Lawy, 2006), grounded on acting as an active environmental citizen. This aligns with Brennan's (2022, p. 85) assertion that the curriculum should be viewed as 'knowledge-in-action', and that projects like ClimActiC can foster this perspective in schools among students and teachers, injecting dynamism, and an active process of knowledge acquisition into the school curriculum.

Conclusions

With this article, we aim to reflect on the potential of the climate community profile as a transformative tool in citizenship education and, consequently, its impact on incorporating citizenship and environmental citizenship within the curriculum.

What do the different climate community profiles in the various schools have in common? It appears that the possibility to engage in climate community profiling of the local community generated a predisposition on the part of schools, teachers, and young people to create 'a truly democratic environment' where young people can 'interact constructively with others [stakeholders]'. Democratic environments are the result of a collective effort, i.e., they reflect a joint action between the school as a whole and the relationship with the community (Menezes et al., 2019, p. 14; Bäckman & Trafford, 2007). Based on the teachers' perceptions, the profiles allowed students to research, in multiple ways, their communities, engaging in conversations about what climate change means in local and practical terms. From the beginning, this implied a recognition of the day-to-day knowledge of the community, and the way in which family members, friends, and neighbours could have a say in the co-creation of relevant knowledge—in conjunction, not in opposition, with the more formal and disciplinary school knowledge. But the CiCli-Labs reinforced the collaborative and dialogical nature of the project, by encouraging young people to argue and debate, boosting their civic and active participation with community stakeholders, experts, activists, political leaders, and economic agents, who also bring other types of knowledge into the discussion. This generated a review of the original climate community profile in the

sense of generating new collaborative and creative thinking on potential local solutions for climate problems. The potential of this approach resonates with current discussions in curriculum studies that advocate for a 'reimagining of the curriculum as part of the project to democratise schools'. This reimagining is based on 'participatory knowledge' from young people and the communities they lead (Riddle et al., 2022, p. 242), and the climate community profile is an example of how links with the community can be fostered.

On the whole, young people have the potential to cultivate their citizenship by connecting with their communities and engaging with the common cause of dealing with climate change. Our findings suggest that school-based climate community profiling can be a powerful tool, while at the same time reinforcing cross-curricular approaches and links with the community. Initially, the gains are located within the school premises, as the process fosters students' confidence and argumentative skills, as several teachers involved in the project have pointed out. Subsequently, it opens doors beyond the school, enabling young people to engage in decision-making and dialogue within their communities and the global society.

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Declarations

Conflict of interest The authors declare no conflict of interest.

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