

**CLIMATE CHANGE EDUCATION AT
FIRST SUSTAINABLE PUBLIC SCHOOL:
A CASE STUDY**

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Abstract

This case study is focused on the first sustainable and self-sufficient public school in Latin America -and arguably the world-, School No.294 in Jaureguiberry, Uruguay. This research studied how the Climate Change Education (CCE) policies and practices carried out in the school have been interpreted by the school community. This qualitative study had two research questions:

- How have the educational team, parents and students interpreted and adopted the CCE policies and practices of the school and how have they reacted in their own practice?
- What personal and contextual circumstances can explain the different interpretations and reactions to the climate change education policy among the school community?

Data was collected through interviews and document analysis; 17 participants took part of this study and 6 documents were analysed. The semi-structured online interviews were conducted between November 2020 and March 2021.

Findings indicate that the community has had a mixed reception to the CCE policies and practices. For instance, at the start of the school project in 2016, only 15% of families had an organic vegetable garden at home whereas in 2019, 80% of families did. On the other hand, only a few members of the community actively participate and support school activities. Moreover, there have been tensions between and within actors. The active and sustainability-oriented pedagogical approach was defined as 'transformative education for sustainability', and enablers and barriers were identified. The findings of this study highlight how important the support of the community and authorities can be for climate change education projects.

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1. Introduction

1.1. Background

Climate Change is the defining issue of our time and we are at a defining moment (UNESCO, 2019). It is an issue that, as a global society, must be tackled from a wide range of angles, including education. Educating our youth to lead more sustainable lifestyles and in harmony with nature are pillars for the social and economic changes we must undergo in the next 30 years in order to not surpass the 1.5°C increase in global temperature, as recommended by the Intergovernmental Panel on Climate Change (IPCC, 2019). For this reason, it is paramount to align education policies and practices with sustainability objectives.

The 1977 Tbilisi UN conference was the first international conference focused on the interconnection of environmental issues and education (UNESCO, 1997). Since then, the 1992 UN Framework Convention, the 2015 Sustainable Development Goals and Paris Agreement have highlighted the crucial role education plays in environmental challenges (Hargis and McKenzie, 2020). There has been an increase of public awareness towards the climate crisis and the relation between sustainability and education. This link has become crucial not only for scholars and international organizations, but other key actors such as the general public, governments and civil society organisations.

Climate change is not a scientific problem, but rather a social, political and economic one. Teaching students about such a complex and politicised topic and how to be critical thinkers is not neutral in terms of content or context (Perkins et al., 2018). It is fundamental to redirect our teaching and learning methods to tackle our climate emergency. This has been widely accepted within the academic literature and by international organisations.

The relationship between human development, education and environmental impact is complex. People with high educational achievements are more likely to have a larger carbon footprint, which is harmful to local and global ecosystems. This is often due to an overall higher consumption of goods, food and water waste, as well as high CO₂ emissions as a result of regular use of cars and aeroplanes (Wals and Benavot, 2017). Conversely, access to environmental education and knowledge about climate change and ecology has promoted behavioural change towards recycling, reducing waste and energy use, and selecting less carbon-intensive methods of transport if possible. This implies that some types of education prove to be effective in increasing care for the environment at the local and global levels (Wals and Benavot, 2017). However, there seems to be little consensus about what climate change education should look like, how it should be provided and how to adapt pedagogical practices to ensure its effectiveness (Reid, 2019a). In this context, I have conducted a case study of School No.294 in Jaureguiberry, Uruguay, the first sustainable and self-sufficient public school.

1.2. The School

School No.294 in Jaureguiberry, Uruguay -also known as ‘Escuela Sustentable’ or ‘Sustainable School’- is internationally renowned for being the first sustainable and self-sufficient public school in Latin America (IADB, 2020; Una Escuela Sustentable, 2021). The school is in Jaureguiberry, a small coastal town 70 kilometres away from Montevideo, the capital city of Uruguay.



Figure 1. School No.294 in Jaureguiberry, Uruguay. Source: Una Escuela Sustentable, 2021.

This primary school was inaugurated in 2016 and hosts 80 students. The unique sustainable and self-sufficient building uses solar energy and harvests rainwater. The school project has a strong focus on climate change education and sustainability is a cross-curricular priority. For instance, children regularly participate in workshops such as growing and tending the school vegetable garden and integrate that practical knowledge with theory.

1.3. Research objectives and aims

The aim of this research is to investigate how actors of the school community have perceived and adopted the climate change education policies and practices carried out in School No.294. The research questions are:

RQ1: How have the educational team, students and parents interpreted the climate change education policies of the school and how have they reacted to these policies in their own practice?

RQ2: What personal and contextual circumstances can explain the different interpretations and reactions to the climate change education policy among the school community?

Data was collected through semi-structured in-depth interviews with 17 participants and document analysis. The participants were the educational team -Headteacher, teacher and educators-, parents, students and education experts. This qualitative study can be framed as an attempt to understand how the educational community perceives the climate change education policies and practices present in the school and how they have reacted to them after four years since the school project started.

1.4. Structure of dissertation

This dissertation is divided in the following sections: literature review, methodology, findings and conclusion.

In the literature review, the main theoretical concepts upon which this study is based on are discussed. Firstly, key debates in Climate Change Education (CCE) are briefly presented followed by international perspectives on Climate Change Education. That is followed by existing challenges to CCE, Ball's policy enactment framework and a brief description of the school. Finally, the research gap is identified.

In the methodology section, I first describe and justify the methods adopted in this study. Then, I outline how data was collected, the sample, data analysis, ethical considerations and risks when conducting fieldwork. Finally, my positionality as a researcher is discussed along with reflections regarding challenges and opportunities of conducting fieldwork online.

In the findings section, both research questions are answered. Then, an ideal theory of change based on interviews, document analysis and literature review is presented. Finally, using Ball's policy enactment framework and Laininen's concept of 'transformative education for sustainability', enablers and barriers are identified for School No.294.

In the conclusion section I briefly outline the research aims and findings. Then, the limitations and impact of this study are presented. Finally, I recommend further research regarding the school and climate change education.

2. Literature Review

2.1. Introduction

The aim of this literature review is to provide the conceptual framework for this research. This is not an extensive review but rather a brief account of the main theoretical concepts used in this research.

The first part of this literature review is a brief outline of ongoing debates in Climate Change Education (CCE) regarding its content, provision, appropriateness and effectiveness. The following section focuses on five international perspectives for climate change education: a focus on science, pedagogies centred on climate change data and debates, inviting students' critical enquiry, student-centred climate change curriculum and fostering students to research and mitigate climate change. In this study I have tried to identify which of these perspectives are present in the school project.

Then, the concepts of Climate Change Education (CCE) and Transformative Education for Sustainability are defined. The following section presents challenges for CCE based on psycho-cognitive theories. Then, I describe Ball's (2011) policy enactment theory in which context plays a central role and four contexts are presented: situated, professional, material and external. Finally, a brief contextualisation of School No.294 is briefly outlined and the research gap is identified.

2.2. Key debates in Climate Change Education

Since the UN Tbilisi Conference in 1977, education has been considered a crucial element in order to face environmental issues (UNESCO, 1997). Environmental education (EE) was, until then, the main movement within education to promote environmental respect and biodiversity conservation. Since then, the concepts of Education for Sustainable Development (ESD) and Climate Change Education (CCE) have emerged and taken a central role in

academic and public circles. Even though these concepts are tightly intertwined, there is ongoing debate about how to define them. The conceptualisation of Environmental Education (EE), Education for Sustainable Development (ESD) and Climate Change Education (CCE) is constantly being redefined depending on the context where they are being used (Blum et al., 2013).

Climate change education content has been reported in 95% of the 194 reporting countries in one or more of their country submissions to the UNFCCC Secretariat in 2018 (UNESCO, 2019). However, there is little scientific evidence of what the nature of that content is and the intended learning outcomes (Reid, 2019a). Moreover, there is no agreement about who should be responsible for providing it, how to make sure that climate change education is effective and how to assess it (Reid, 2019a).

Monroe et al. (2019) argue that CCE approaches that appear to be more effective have two main characteristics: they make information personalised and meaningful for learners, and they are designed to engage learners. However, evidence shows that there does not seem to be a multidisciplinary approach from different social and scientific perspectives when tackling climate change in schools (Monroe et al., 2019).

Other discussed topics in the literature are adapting curriculums to local conditions and needs (Chang and Pascua, 2017; Peñalba et al., 2012) as well as fostering subjective climate change education that enables actions (Biesta, 2013). Further, there is increasing public pressure on educators and on their role to contribute to the solutions of the climate crisis (Reid, 2019a). It is important to note that research has shown that more environmental knowledge on its own does not necessarily translate into attitudes or behaviour (Dijkstra and Goedhart, 2012; Wibeck, 2014). Also, if and how we measure environmental literacy is contested across the literature. Learning outcomes for climate change education are generally divided in 'cognitive, socio-emotional and behavioural' (UNESCO, 2017; Reid, 2019b).

2.3. International perspectives on Climate Change Education

Climate change is not a scientific problem, but rather a social and economic one. Teaching students about such a complex and politicised topic, how to be critical thinkers is not neutral nor it is context neutral (Perkins et al., 2018). It is therefore relevant to understand why certain actors embrace one perspective or another, the values or ideas that drive them, and the challenges and opportunities to translate these ideas into practice in different contexts.

International perspectives on climate change education pedagogy have been classified in five complementary visions (Perkins et al., 2018):

- teaching science in a way that acknowledges that scientific knowledge is complex and nuanced;
- pedagogies that focus on climate change data, myths and debates;
- taking an approach that welcomes critical inquiry and engaging with global perspectives;
- focusing on student-centred pedagogies which are transformative and lead to a climate change curriculum and;
- fostering student-centred participation in researching and mitigating climate change.

These visions have common features: promoting critical thinking, project-based learning, experimentation, cross-cultural knowledge and experiences, and tackling scepticism. These are characteristics that can be attributed to constructivism and inquiry-based learning since they encourage students to be active participants in constructing meaning and knowledge instead of recipients of information (Woollard and Pritchard, 2010). In this study, I try to identify trends or infer the notions of CCE that the school has adopted. This analysis can help elucidate how this specific CCE approach is enacted in the context of School No.294 by educators, parents and students.

2.4. Climate Change Education and Transformative Education for Sustainability

Transformative Education for Sustainability aims at educating citizens who are aware of environmental and social justice issues and provide them with tools to act (Laininen, 2019). This type of education tends to promote learning by doing, collaboration, participation and transformation in nature (Laininen, 2019). In some cases, it can involve questioning not only how we live but also production and consumption systems, local eco-social problems and how they relate to global issues, as well as carrying out action and awareness campaigns, all of which can be both instrumental and emancipatory.

‘Transformative Education for Sustainability’ can be defined as learning processes that change how we see the relationship between human beings and nature, wellbeing and how we understand the economy and politics in our daily lives (Laininen, 2019). One of its key objectives is to harmonise the natural environment with communities that lead sustainable lifestyles (Cook, 2019). Transformative learning could contribute towards a ‘cultural transformation into a sustainable society and world’ (Laininen, 2019, p.180). This type of education promotes active participation of all members school communities, empowering students as change agents, incorporating skills and sustainable practices in school routine and fostering the role of the school as a force of cultural transformation towards sustainability (Laininen, 2019). In this context, schools must act as they teach; school practices should showcase different aspects of sustainability and encourage students to lead sustainable lifestyles as part of their school routine (Laininen, 2019). Transformative education for sustainability requires student enquiry and participation in decision-making processes. Merely promoting sustainable lifestyles is not an ambitious enough target for this type of education (Cook, 2019). The role of individuals in creating change in their own lives, their families and in their communities must be fostered (Laininen, 2019).

Climate change education (CCE) can be defined as a type of education that ‘helps develop an adequate response to climate change, increase public awareness and resilience, and empower people to change their attitudes and

behaviours in order to adopt a more sustainable lifestyle' (UNESCO, 2015; Goritz, Kolleck and Jörgens, 2019, p. 2). Climate Change Education (CCE) has mostly focused on scientific facts about climate change, which is based on the premise that higher climate change literacy translates into beliefs and sustainable-oriented actions (Hargis and McKenzie, 2020). However, studies have shown that the relationship between knowledge and actions is not straightforward when it comes to complex issues such as climate change (Lee et al., 2015; Hornsey et al., 2016). Evidence suggests that 'effective' CCE should focus on social and emotional aspects, rather than on cognitive ones (Brownlee, Powell and Hallo, 2013; Hargis and McKenzie, 2020; Rousell and Cutter-Mackenzie-Knowles, 2020). Recent research suggests CCE could emphasise the following four learning dimensions (Hargis and McKenzie, 2020):

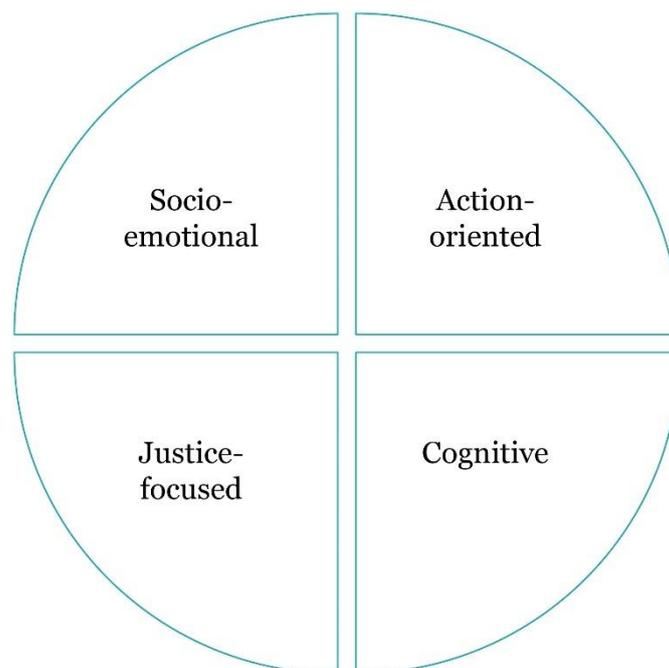


Figure 2. Four dimensions of CCE. Adapted from (Hargis and McKenzie, 2021).

The cognitive dimension focuses on scientific knowledge and developing critical thinking skills such as media literacy, questioning the status quo, discerning fake news, and so on. As students learn more about climate change, they are prone to suffer from eco-anxiety (Doherty and Clayton, 2011; Wynes and

Nicholas, 2019), a sense of hopelessness and guilt (Hargis and McKenzie, 2020). Comprehensive CCE should provide students with tools to tackle these socio-psychological challenges, offer tangible answers and reinforce the fact that meaningful climate action is occurring (Hargis and McKenzie, 2020). The justice-focused dimension is oriented towards racial and social inequities such as climate (in)justice regarding climate change and its effects. These are ethical and political issues that can be linked to globalisation, indigenous knowledge and rights, decolonisation and eco-feminism. As for the action-oriented dimension, it focuses on the importance of participatory and place-based pedagogy, and community action (Hargis and McKenzie, 2020).

Moreover, whole-school approaches in which climate change education is a lens for all areas of knowledge, activities, functioning and governance is encouraged (UNESCO, 2016; Hargis and McKenzie, 2020). This includes prioritising sustainability and climate change across the curriculum, incorporating sustainability into school policies and inviting local experts to participate in school activities (Hargis and McKenzie, 2020).

Schweizer, Davis and Thompson (2013) have emphasised the importance of place for climate change education and educators, whereas Howell and Allen (2019) highlight life experiences that can shape climate change educators and their values. Climate change education must be place-based and respond through affective connections to local beliefs and attitudes in specific contexts rather than on climate change knowledge (Rousell and Cutter-Mackenzie-Knowles, 2020). These types of emotionally-driven educational interactions can include storytelling, time-lapse local photography and interaction with local ecological systems (Rousell and Cutter-Mackenzie-Knowles, 2020).

2.5. Challenges for Climate Change Education

When it comes to climate change, knowledge does not equate to action. There are psychological and socio-ecological processes that take place and determine how learners -and other school actors- can interpret and react to climate change.

Effective teaching in social and scientific issues such as climate change requires educators to have a clear grasp of learners' previous beliefs and assumptions (Sadler, Chambers and Zeidler, 2004). Psychologists have claimed that what individuals think about environmental issues does not reflect their knowledge of the topic but rather their identity (Perkins et al., 2018).

Individuals have different strategies to protect their beliefs from new information that contradicts them. Motivated reasoning occurs when individuals build biased arguments in order to come to a personally favoured conclusion even if it defies logic and science (Perkins et al., 2018). This is a challenging phenomenon when dealing with climate change education. How can we provide a scientific-based climate change education perspective to a learner whose mind has already been made up and is not open to listening to scientific evidence that contradicts their beliefs? Furthermore, it is likely that those young learners' opinions are an interpretation of what they have learnt at home. Therefore, the child's mind could become a battleground for two –or more– opposing climate change perspectives.

Other significant psychological challenges are cognitive biases. These can impact how a person processes information (Perkins et al., 2018). Bias 'involves retrospective distortions and unconscious influences that are related to current knowledge and beliefs' (Schacter, 1999, p. 183). Bias refers to the distortion of our memories by our present knowledge, feelings or beliefs (Schacter, 1999).

In theory, there should be a constant flux and adjustment between our previous beliefs and new information. Our previous beliefs serve as an anchor to assess new information and if that new information contradicts our beliefs and is trustworthy and credible, we should be able to adjust our previous beliefs (Perkins et al., 2018). However, individuals tend to adjust the new piece of information to fit their previous beliefs, and not otherwise (Kunda, 1990; Sadler, Chambers and Zeidler, 2004). This phenomenon is referred to as confirmation bias (Wason, 1960). People are inclined to interpret and assess information in a way that validates their prior beliefs (Wason, 1960). This has been documented by Roth and Anderson (1988), who studied science classroom settings and concluded that learners dismissed texts that contradicted their prior beliefs.

Finally, research has shown that feelings are an important driver for our biases (Zajonc, 1980). Abelson (1963) coined the term 'hot cognition' which suggests that the thinking process is permeated by emotions and feelings that arise within milliseconds of the introduction of new information. These emotions can be blinding and restrict our ability to reason objectively (Perkins et al., 2018). In a classroom setting, this could translate into a learner making up their mind about climate change –or having done so previously- and be unlikely to change their minds due to the strong emotions connected to their initial evaluation (Perkins et al., 2018).

To sum up, learners' personal prior beliefs, assumptions and biases can pose major challenges to climate change education. Once learners have initially made up their minds about climate change, it is unlikely they will accept new information that contradicts their beliefs.

2.6. Policy enactment

Policy enactments are localized in nature. Ball et al. (2011) argue that policies are profoundly shaped and framed by school context. Policies do not dictate what to do but rather construct the circumstances that reduce or modify the available options, or set specific goals (Ball, 1994). The process of adopting policy in practice is complex and creative (Ball et al., 2011).

Schools have different capabilities for coping with policy and creating their own response to it. Schools have their own culture, ethos and contexts, which set their limits, and therefore create their own version of a policy (Ball et al., 2011). Policy enactment necessarily encompasses a creative process of recontextualising a written, sometimes abstract, policy into practices that can be carried out in the school (Ball et al., 2011).

The educational team are recognised as key actors in policy enactment as both agents and subjects (Ball et al., 2011). They are agents in the sense that educators are the ones who not only set policies but are also responsible for enabling them. However, they are subjects because, simultaneously, any school policy will undoubtedly affect their work. There are institutional factors that

shape how policies are both interpreted and enacted (Ball et al., 2011). Context is key in policy enactment; context can promote or block policy processes and is constantly constructed from within and out (Ball et al., 2011). Ball et al. (2011) recognise four contextual dimensions: situated, professional, material and external.

Situated contexts are the location, the school history and student intake, all of which are intertwined. Professional contexts refer to teachers' development, expectations, commitments and values (Ball et al., 2011). Material contexts are the infrastructure, the budget, building, available technology and the level of staffing (Ball et al., 2011). Even though this context will not be the focus of this study, it is worth noting that it is a fundamental context to be taken into account in this particular case. The school was built following biotecture methods and therefore has a 'non-traditional look' and functionality (See Appendix I). It is self-sustained in terms of energy, water and heating and therefore its functionality differs from other buildings or schools. Finally, external contexts entail support by the authorities, and expectations or pressure from other institutions or entities (Ball et al., 2011). These four contexts are interconnected, and each plays a fundamental role for policy enactments in the school (Ball et al., 2011).

The first research question of this study is: How have the educational team, students and parents interpreted the climate change education policies of the school and how have they reacted to these policies in their own practice? This question is underpinning and tries to investigate how policy interpretation. Conversely, the second research question is: What personal and contextual circumstances can explain the different interpretations and reactions to the climate change education policy among the school community? In this case this question focuses on two policy enactment instances, contextualization and re-action.

2.7. The School

School No.294 is also known as ‘Escuela Sustentable’ or ‘Sustainable School’. It was inaugurated in 2016 and has a pedagogical focus on climate change education and sustainability (Una Escuela Sustentable, 2021). It is a rural school that hosts approximately 80 students from a lower-middle socioeconomic background. As most rural schools in Uruguay, it is structured in a multi-grade system in which educators teach two or more grades simultaneously (ANEP-CEIP, 2013). The school was built by NGO Tagma and its location was determined by national education authorities. School No.294 has been internationally renowned for being the first sustainable and self-sufficient public school in Latin America (IADB, 2020; Una Escuela Sustentable, 2021).

In this unique biotecture building, the energy grid relies on solar energy, water is harvested for use and irrigation, and children regularly participate in workshops such as growing and tending vegetable gardens. The school is located in Jaureguiberry, a small coastal town 70 km away from Montevideo.

The educational team consists of the Headteacher, two primary school teachers, one pre-school teacher and the school inspector. Moreover, they are supported by a Vegetable Garden Expert and volunteers from Tagma, the NGO that built the school. The school has received significant media and public attention over the past years and is the first of a growing network of schools of similar characteristics built by NGO Tagma in Latin America -one in Argentina and another one in Chile (Una Escuela Sustentable, 2021).

The school was designed applying the following six biotecture principles (Earthship Biotecture, 2021; Una Escuela Sustentable, 2021):

- building with natural and recycled materials
- passive thermal/solar heating and cooling
- food production
- solar electricity

- water harvesting
- contained sewage treatment

Despite its relative fame, there has only been one study carried out in 2016 shortly after the school opened, which focused on school practices. That qualitative study presented two main findings: the community had struggled to have a school built in their locality and how the uniqueness of the building had influenced how knowledge is conceptualised, drawn attention from the media and the general public, and how the community inhabits this peculiar building (Milstein et al., 2016).

The school has no published available documents. I was granted access to 6 unpublished documents by the Headteacher and the Director of NGO Tagma which include communications, reports and projects by Tagma and the school. This document analysis was carried out to contextualise literature review and findings. The following table summarises the school documents reviewed:

No.	Title	Source	Description
1	Educational Project - School No.294	Tagma	Tagma presents educational project to national authorities in 2014.
2	Request to ANEP	Tagma	In 2014, Tagma requested national authorities to accelerate proceedings and advance the development of the project.
3	Sustainable Education Activities	Tagma	Calendar of CCE activities planned by Tagma to train the school educational team from May to December 2016.
4	Training Programme May and June 2016	Tagma	Tagma carried out a two-month training programme for the educational team specifically aimed at making proper use of the building and its maintenance.

5	Institutional Project “Una Escuela Sustentable”	School No.294	Institutional project of School No.294 “Escuela Sustentable” in 2019. It includes mission, vision, objectives, activities, etc.
6	Escuela Sustentable – Formal communication with CEIP	Tagma, School No.294 and school parents	Letter sent in September 2020 requesting national authorities with assistance regarding maintenance issues: water tanks replacement and inverter for energy grid. Tagma claims authorities have been slow to respond to their previous requests and some maintenance issues have remained unsolved since December 2017.

Table 1. Analysed school documents provided by the Headteacher and Tagma.

From these documents, it is worth highlighting document 5 - Institutional Project “Una Escuela Sustentable”, in which the vision, objectives, and pedagogical activities are presented. The document first describes the objectives of the project, which include:

- becoming aware of the surrounding natural environment, its importance, beauty and conservation.
- getting to know, studying, enjoying and protecting the surrounding natural environment.
- learning about the importance of the soil, how to look after it and its role in sustainable food production.
- analysing and studying manifestations of human intervention in their surroundings.
- adopting an everyday behaviour that aims at defending and recovering the ecological balance.

- learning about climate change, its consequences and possible actions to undertake.

Moreover, strategies and activities that prioritise climate change and the environment as cross-curricular priorities are enlisted and examples of integration of these in subjects such as Mathematics, Biology, Chemistry, Physics, Geography, etc., are provided. Having school objectives and a whole institution approach in which climate change and sustainability are priorities have been identified as fundamental for Climate Change Education projects (Hargis and McKenzie, 2020).

2.8. Summary of Literature Review and Research Gap

In short, this study could be framed as an attempt to try to understand how educational communities might perceive and react to CCE projects and what contextual circumstances might explain these reactions. This literature review illustrates some of the complexities of studying climate change education.

Firstly, there is still academic debate over basic terminology: environmental education, education for sustainable development and climate change education. These concepts are all slightly different and respond to specific socio-historical moments. Secondly, climate change education is not easy to define and encompasses a wide range of school elements: governance, functioning, pedagogy, community, etc. Thus, climate change education is difficult to evaluate, assess and monitor. Thirdly, knowledge does not equate to action when it comes to climate change. Finally, projects and educators embarking in this type of education face significant sociological and psychological challenges in terms of identity, bias and epistemology.

Based on the above literature review, this study addresses a research gap regarding how actors in school communities might perceive CCE projects and how such perceptions can be explained. Further, in this study I have identified enablers and barriers to Climate Change Education at School No.294 using Ball's enactment framework as a lens. This is one of the main contributions of this study to existing academic literature.

3. Methodology

This chapter presents the methodological approach taken in this research. It includes the following sections: description and justification of methods, data collection, sample, data analysis, report format, ethical considerations and risk assessment, positionality, and reflections.

3.1. Description and Justification of Methods

The aim of this study is to investigate how different actors of the school community have responded to climate change education policies and practices in School No.294. This was done by conducting in-depth interviews, document analysis and literature review. The research questions are:

RQ1: How have the educational team, students and parents interpreted the climate change education policies and practices of the school and how have they reacted to these in their own practice?

RQ2: What personal and contextual circumstances can explain the different interpretations and reactions to the climate change education policies and practices among the school community?

This study can be framed as an attempt to understand the perspective among actors of the educational community regarding the climate change education policies and practices carried out in the school and how they have reacted to them after four years since the school project started.

This is a qualitative research based on a case study as its methodological approach. The research questions aim at investigating subjective interpretations and reactions; thus, a qualitative approach and a postmodernist - constructivist paradigm were deemed suitable. I have conducted research considering that human behaviour is based on relative experiences, perception and is under constant negotiation. The approach taken implies that people construct their own realities and act accordingly. This methodological stance emphasizes 'exploring and understanding the meaning individuals or groups ascribe to a

social or human problem' (Creswell and Cresswell, 2017, p.4). This case study emphasises the role of subjectivity and relies on verbal data and interpretation (Hammersley, 2013). The research questions are broad and open-ended, and data offers a rich and complex description of a real life social phenomenon (Perkins et al., 2018). Qualitative research approaches have been deemed well-suited to investigate sustainability and climate change education due to its rich and complex nature and data (Perkins et al., 2018).

3.2. Data Collection

Data was collected through semi-structured online interviews and document analysis. The fact that interviews were online was made as a safety measure considering the ongoing Covid-19 pandemic.

In total, 14 interviews were conducted, 12 of them were individual and 2 of them were group interviews. The 2 group interviews were conducted with children who attended the school and their parents, upon their request. Interviews with adults lasted between 30-40 minutes and group interviews 50-60 minutes.

The thematic blocks of the interviews were: the school, climate change education practices at the school, and sustainability and climate change. These topics were selected because they respond to key aspects of the research questions. The thematic blocs 'School' and 'Climate change education practices at the school' enquired about school-related activities and participants' perceptions and reactions. For instance, participants were asked: 'What activities do students do at School No.294?'; 'How is climate change/sustainability discussed at school?'; 'What are the strengths and weaknesses of the school?' By asking broad and open-ended questions about their perception of the school and school-activities the goal was to obtain data that could be useful to answer the first research question.

The thematic bloc 'Sustainability and climate change' was centered on participants' perceptions about climate change and sustainable practices and therefore aimed at addressing the second research question, trying to identify contextual circumstances that would explain the different interpretations of

CCE policies of the school. Questions like the following were asked: ‘What is climate change/ sustainability?’ and ‘What are sustainable practices for you?’, ‘Would you say you carry out sustainable practices at home? Why (not)?’ (see Appendix IV – Interview Guidelines).

Interviews were casual talks and flexible. After initial introductions, broad questions like ‘What do you think about the school?’ were asked and then interviewees were allowed to take the lead. I only interrupted or changed course of interviews if the topic was irrelevant for this study. As a researcher, one of my aims was to prompt a casual conversation in which participants felt at ease to share their thoughts. I tried to follow the interviewees’ train of thought and ask accordingly. Therefore, interviews were diverse and unique. By taking this approach, the aim was to obtain rich and varied data.

Interviews were initially planned to be conducted through Microsoft Teams, as per Ethical approval. However, it proved not to be the most apt software for this research. The software was new and complex for parents. Moreover, it seems that Microsoft Teams works best in laptops, which most parents did not own.

After noting this difficulty -and discussing it with the Headteacher and my thesis supervisor- I decided that Zoom would also be offered as an option. The objective was to reduce parents’ anxiety levels before and during the interview. However, Zoom seemed to offer lower privacy protection than Teams. Hence, as a risk mitigation strategy I used unique passwords for each interview.

Document analysis was a minor part of data collection. This is partly because the school has no published available documents. I was only able to access 6 unpublished documents that include projects, reports and communications by the school and NGO Tagma. This document analysis was useful to contextualise findings. These unpublished documents were made available by the Headteacher and Tagma, and therefore they could be biased, especially in their communications with national education authorities. There has been tension between the school authorities and Tagma with national education authorities due to requests regarding maintenance (see Section 4.2 - Discussion).

3.3. Sample

The school is a public primary school that hosts approximately 80 students aged 4 to 13. Since the research was conducted entirely online, only children aged 10 and above, parents, members of the educational team and educational experts were invited to participate.

In this study I interviewed six parents, five members of the educational team and two students. Moreover, one national educational expert and three international climate change education experts were interviewed in order to contextualise the school within the education system and key academic concepts of climate change education. Therefore, the total number of participants was N=17.

Quota selection (Miles and Huberman, 1994) was taken as a first sampling strategy due to the framework, research questions and the characteristics of the school community. The aim of quota sampling is to guarantee including individuals who could otherwise might be underrepresented by purposeful sampling strategies (Luborsky and Rubinstein, 1995). This entailed identifying the main groups and taking an arbitrary number from each one. In this case, the main actors are students, parents, and members of the educational team. Before fieldwork, the aim was to interview three participants from each of these groups to ensure a minimum degree of heterogeneity between and within participant profiles. Moreover, diversity in terms of age and gender was sought.

Nonetheless, the number of participants is not the most relevant aspect of this research and type of methodology since each voice is considered unique. The goal of this broad sample was to try to understand their views regarding practices and policies, as well as perceptions and possible tensions regarding curriculum, extra activities, workload, and school ethos from the perspective of different actors in the school community.

As soon as I started fieldwork, I realised that not many parents, and hence students -because all communication was done with adults only-, were eager to participate. The initial email sent from the Headteacher on my behalf describing the study and inviting participants to contact me only had three responses. After

consulting with the Headteacher, she provided me with direct contact to potential participants.

In the meantime, I decided to add snowball sampling as a strategy by asking each new participant for new potential ones. This proved to be a successful strategy and new participants joined the study. However, one of the limitations of this strategy could be obtaining a skewed sample. Parents suggested other parents with whom they have a good relationship or similar commitment towards the school project, instead of those with whom they disagree or dislike. This has led to 6 interviews with parents who are committed with the project even though it became clear in all interviews that lack of community engagement and participation is one of the main limitations of the school project.

Finally, I contacted one national education expert to consult on their views about the school and its role within the national education context. Further, I interviewed three international experts on climate change education. The aim of these interviews was to contextualise my assumptions, expectations and literature review regarding CCE and the school. These interviews provided insights regarding national education context, the global climate change education context, discourse, content and challenges.

3.4. Data Analysis

In case studies, data analysis 'consists of examining, categorising, tabulating, testing, or otherwise recombining evidence to draw empirically based conclusions' (Yin, 2009, p.126). Cohen, Manion and Morrison (2017) mention two types of data collection in case studies: the data gathered by interviews or other methods and the researcher's ongoing analysis and comments on that data. This fluid process of data analysis provides the researcher the evidence to draw conclusions and add credibility, reliability and validity (Yin, 2009) to the study.

The data collected through in-depth interviews was analysed through content analysis (Miles and Huberman, 1994), by seeking patterns and looking for

pathways and connections (Miles and Huberman, 1994). The aim was to create a framework that helped answer the research questions.

The data analysis plan was based on the work by Miles, Huberman and Saldaña, (2013) and consisted of:

- Taking notes during and immediately after interviews
- Transcripts
- First Cycle Coding
- Pattern codes
- Creating networks among codes, patterns and concepts
- Linking networks to existing or emergent theories
- Making propositions to answer RQs and findings

These steps were fluid and dynamic, they modified one another. For instance, as soon as an interview finished, I reflected upon what was discussed and tried to connect this to what had been said in previous interviews. Through these notes and reflections, I modified or prioritised questions for the subsequent interview. The following figure illustrates this data analysis process:

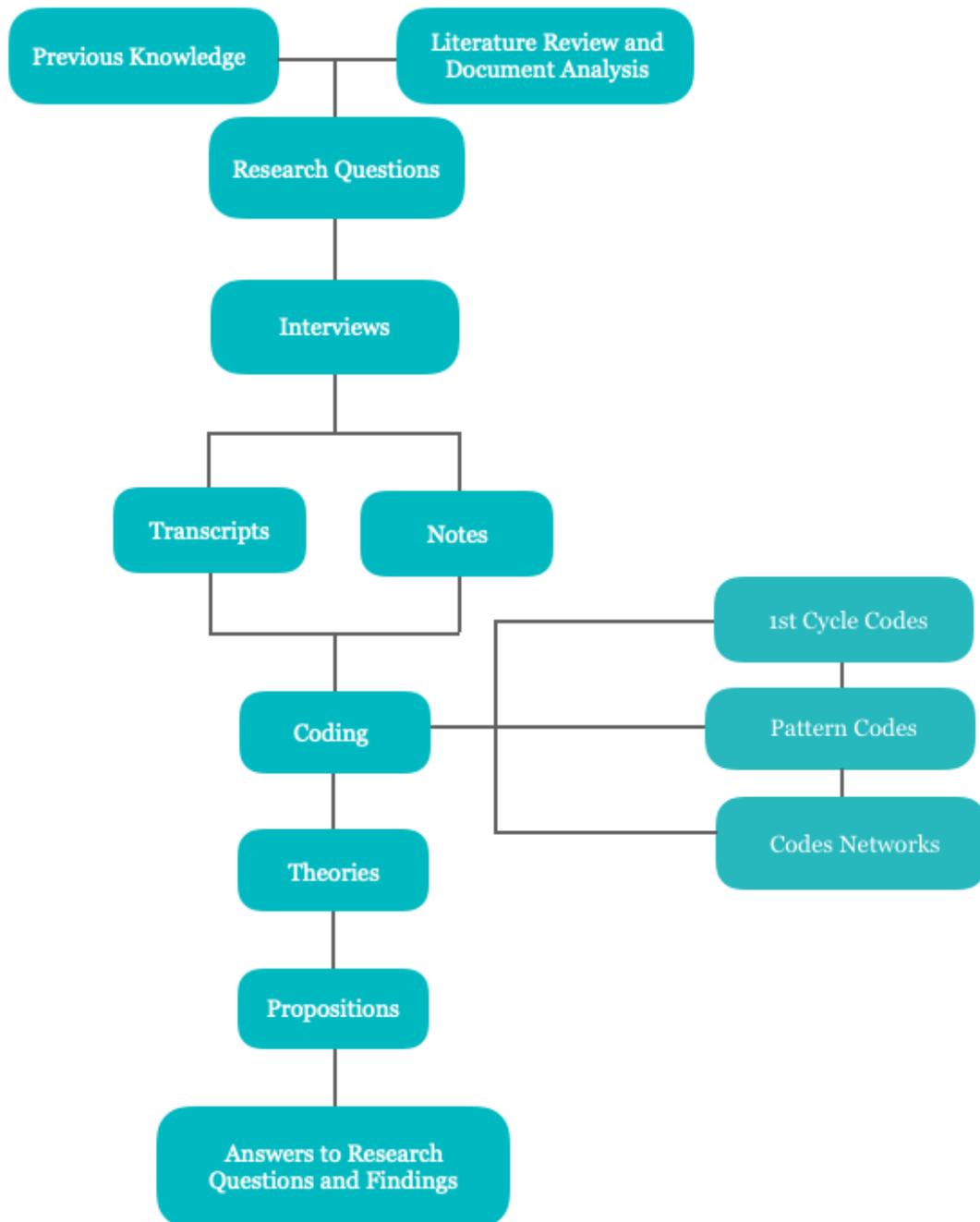


Figure 3. Data Analysis plan. Source: Author's elaboration.

Throughout the fieldwork and data analysis process I kept track of analytic memos. These are not data summaries but rather efforts to synthesize them (Miles, Huberman and Saldaña, 2013). Coding was carried through a variety of methods: descriptive coding, attribute coding and in vivo coding (Miles, Huberman and Saldaña, 2013). These codes were created inductively i.e. upon

empirical experience (Miles, Huberman and Saldaña, 2013). This is a summary of codes used for transcript analysis¹:

Code	Description
Benefits of school on community	References to how the school, its activities and practices have benefited the community.
Climate Change and Sustainability	References to climate change and sustainability, in or out of school context.
Commitment	Commitment towards the school project and activities
Educational Team	References to the Head teacher, teachers, or external educators (Tagma and Vegetable Garden Expert) and their personal or professional experience.
Infrastructure	References to the building or other school infrastructure
National Education Policies	References to national education policies and practices such as laws, statutes, etc.
National Education Authorities	References to national education authorities such as ANEP and CEIP and their interaction with the school.
Pedagogy	References to pedagogical practices such as ethos, curriculum and activities.
Problems	References to difficulties and challenges the school has faced
Reflections	General reflections about the school project.
School Community	References to the school community as a whole or groups of actors such as parents, students or educators.
Tensions	Existing or previous tensions within or between actors in the school community or in reference to authorities.

Table 2. Summary of codes used for data analysis. Source: Author's elaboration.

3.5. Ethical Considerations and Risk Assessment

This research followed three ethical principles: no harm, voluntary consent and scientific integrity (Denscombe, 2012). Honesty and openness were paramount

¹ See Appendix VI for full list of codes.

and were key in my communications with the Headteacher in order to set realistic expectations and deadlines for all parties.

In the initial email sent to all potential participants, a Plain Language Statement for adults and children describing the research scope, objectives and criteria for participation was attached and questions regarding the study were welcomed (see Appendix II – Plain Language Statements). Participants were made aware that they could withdraw from the research at any time and that their data is confidential. All interviews were deidentified, anonymity and confidentiality were maintained during data analysis and dissertation drafting. In the case of direct quotes, deidentified interviewee number and profile were cited e.g. (Interviewee 07 – Parent). All participants had to sign and send a consent form via email (see Appendix III – Consent Forms). In the case of minors, parents or legal tutors were asked to co-sign.

In terms of deidentification, there are two important actors that are worth mentioning. First, there is a teacher who has been part of the school project since its inception in 2016 and has been regarded as a pillar in the educational team by other interviewees. She has actively supported and promoted the school project. She is referred to as the ‘Motivated Teacher’ in the findings of this study. Secondly, there is volunteer who has worked at the school for the past 5 years. She is a national expert in organic vegetable gardens, native fruits and vegetables, and agroecology, and has been the point-person for activities related to the vegetable garden. She is referred to as ‘Vegetable Garden Expert’ in this study.

It is good practice to conduct a risk assessment of research to be undertaken to try to anticipate potential challenges and to design solutions to tackle them (Denscombe, 2012). Apart from ‘regular’ fieldwork challenges i.e. difficulty to engage participants, reluctance to interviews, challenges in scheduling interviews, etc., there were other potential issues due to the pandemic which could be categorized in: health, restrictions and emotional distress.

Firstly, if any of the participants were not in good health, their interview would be postponed until they were fully recovered. Moreover, I would reconfirm their

willingness to participate once they felt better. If, on the other hand, I were to fall ill, all interviews would be postponed until I regained my health.

Secondly, due to restrictions and school closures, it was likely students would conduct interviews at home. This happened in the case of the two interviewed students, upon request by parents. Apart from potential connection issues, another problem could be students' unwillingness to speak candidly about the school or their teacher in front of their parents. In order to mitigate this risk, I adjusted interview guidelines for group interviews (see Appendix IV – Interview Guidelines) and avoided questions that students might feel intimidated to answer in front of their parents such as: 'Do your parents participate in school activities?', 'What activities do you do at school? And at home?' and rather focused on students' actions, perceptions and thoughts about the school, climate change and sustainable practices.

Finally, the psychological toll of the pandemic, restrictions and financial hardships that may have affected all participants were taken into consideration. If I noted any student was going under acute distress, I would automatically communicate it to their parents and the Headteacher.

Carrying out a qualitative case study during a pandemic encompasses a new set of challenges that I had to tackle. This research could not in any way shape or form add risk or distress to participants. I always tried to keep in mind that participants' physical and mental health was the absolute priority.

3.6. Positionality

In terms of my positionality as a researcher, I shall undertake a brief epistemological reflection. Bourdieu and Wacquant (1992) referred to this practice as 'reflexive sociology'.

From a personal perspective, I am from the capital city of Uruguay, Montevideo, and could be identified as middle-class whereas the school community is set in a semi-rural context in a lower-middle socio-economic background. In Uruguay, those who study abroad, especially in Europe or the US, tend to be perceived

as more highly educated or qualified. This may have been perceived as power asymmetry by students, their parents or members of the educational team. Moreover, I am an experienced teacher, and therefore my expectations about what schools -or teachers- should or should not do, may have influenced my expectations, methodology and how I interpret data.

This research is framed within a European Master's Programme. Being part of the GLOBED programme may have accelerated or even favourable influenced my access to conduct fieldwork in a public school by national education authorities. In my initial communications with the national authorities, I was informed that access to public schools is difficult to obtain and that it can take several months. In my case, it was a straightforward process that took only three months.

3.7. Reflections

This empirical research has been carried out online due to the pandemic. Based on this experience, both challenges and opportunities for conducting international and comparative research in education policy were identified.

Conducting online fieldwork in this case study presented challenges that can be divided in participation, technological and Covid-19 challenges.

Fieldwork was challenging from the start since there was a lack of interest by potential participants. Moreover, I could not visit the school during school-hours and talk to parents and students in person and was therefore limited to mostly communicate via WhatsApp. Seeing these challenges, I decided to extend fieldwork until March 1st in order to have more time to engage participants after the January summer break in Uruguay. This proved to be a successful strategy, seven additional interviews were conducted after December 15th, the original date fieldwork would finish.

As for the technological aspect, even though most parents have smartphones, many do not have email accounts and are not used to having virtual interactions apart from WhatsApp messaging. Therefore, I had to communicate with most

parents via WhatsApp in order to schedule interviews. Furthermore, as already mentioned, Microsoft Teams was not the most apt software for this study. By offering Zoom as an alternative, a platform they were familiar with since the school had used it for online learning, the aim was to reduce parents' anxiety levels before the interview.

Covid-19 and subsequent policies were the determining factor during 2020. School No.294 was closed from March until July. Since then onwards it functioned almost at reduced capacity and had specific days of online teaching which required constant communication with families. School parents have suffered unprecedented 'technological fatigue' during 2020. They have been engaged through Whatsapp groups, videocalls and required to assist their children with lessons and homework. Participating in this research may have been perceived by an already exhausted parent community as another request from school authorities towards the end of the school year. This may have had a negative impact in the number of participants.

Conducting fieldwork online in the field of international and comparative education policy is the norm nowadays. I believe this provides interesting opportunities for two reasons:

- 1) Thanks to the 'normalisation' of online platforms such as Zoom and Microsoft Teams as the default means of communications in professional, academic and personal spheres I was able to plan and conduct interviews not only with members of the community, but also with international experts spread across the globe, which would have been impossible -or expensive and time-consuming- to do in person. Even if the technology existed before 2020, the pandemic has accelerated this digital communication process. Having online access to experts and academics coupled with the normalisation of the use of online platforms can prove useful for future studies in this field.

- 2) The rapid transition to online learning provides a unique opportunity for researchers to study a wide range of educational settings and contexts through online observations. Researchers can now simultaneously observe online lessons spread across the world, thus reducing costs, time and environmental impacts of travelling. Moreover, online lessons offers a significantly higher

degree of invisibility to researchers that in-person or video-recorded lessons, both by means of live online observations or recorded online lessons. This could mitigate classroom situations in which the presence of observers modifies the reality they wish to observe.

4. Findings

4.1. Introduction

In this chapter, the findings of this study are presented. These are based on semi-structured interviews, document analysis and literature review.

The purpose of this study is to understand how the different actors of the educational community interpret the education policies and practices towards sustainability carried out in School No. 294 and how they have reacted to them. Moreover, the context that may explain those interpretations and reactions is explored. The research questions are:

RQ 1: How have the educational team, students and parents interpreted the climate change education policies of the school and how have they reacted to these policies in their own practice?

RQ 2: What personal and contextual circumstances can explain the different interpretations and reactions to the climate change education policy among the school community?

This chapter is divided in three sections: discussion, theory of change, and enablers and barriers to transformative education. Firstly, the two research questions are addressed. Then, an 'ideal' theory of change is presented and briefly contrasted with findings. Finally, enablers and barriers to transformative education are analysed through Ball et al. (2011) policy enactment lens.

4.2. Discussion

In this section, the findings are interpreted with regards to the research questions and objectives. Before answering the research questions, it is important to mention that I do not believe that a full and comprehensive answer can be provided based on the available data. This is because I was able to interview 6 parents and 2 students who are committed to and support the project. During the interview process, it became clear that they are not a representative sample of the school community. On the other hand, since I

could interview most members of the educational team, a more comprehensive answer can be provided in their case.

All interviewees showed a great sense of affection towards the school and the project. The overall opinion was that the sustainability-oriented school project has been beneficial both for students and for the community at large. However, there was an overarching agreement that the school was not being used at its 'fullest potential' due to existing tensions and issues.

4.2.1. Educational team

Members of the educational team have interpreted and reacted to the climate change education policies and practices of the school with different degrees of alignment and commitment. Some of them, the Headteacher, the Motivated teacher, the Vegetable Garden Expert and volunteers from Tagma, have embraced and fostered the climate change education policies and practices whereas other educators who have joined the school for a year or two have struggled to do so. This can be attributed to their previous experience, beliefs and motivation towards climate change, environmental issues, nature and the role of education in educating students towards sustainable lifestyles. The fact that members of the educational team have had uneven degrees of alignment and commitment towards the school project -and its policies- has been a barrier to the educational project and a source of tension.

(Ball et al., 2011) recognise that the educational team are key actors as both agents and subjects in policy enactment. This is particularly true in the case of School No. 294, in which a small team of four professionals interact with students on a daily basis -apart from The Vegetable Garden Expert, the school inspector and volunteers from Tagma. Having one or two professionals who do not embrace the school project and ethos can significantly undermine the school project. In practice, those teachers who do not actively engage with the project, conduct 'regular' lessons, do not place sustainability as a cross-curricular priority and do not make use of the building as a pedagogical tool. On the other hand, professionals who are committed to sustainability and the school project, use innovative theoretical and practical pedagogical practices such as integrating activities in the vegetable garden with biology, chemistry and

geography, and try to make use of the building as a pedagogical tool. Moreover, they feel that their work is hindered by teachers who do not support the project, since they view educational processes as continuums in which consistency is fundamental to achieve desired outcomes (see Section 4.3 - Theory of Change).

In terms of how these different interpretations can be explained, I should first clarify that I was not able to interview members of the educational team that are not enthusiastic about the project, which is a limitation of this study. Those that do embrace the project, expressed their passion for sustainable practices, the school project and the role of education towards sustainability and nature. They show deep concern for climate change and see sustainability as a possible solution. Further, they believe in the school's potential in creating more sustainable citizens and are not afraid to delve into new realms of knowledge and pedagogical practices. They were recognised by all participants as key actors in promoting sustainability in their educational practices:

'The Headteacher and the Motivated teacher adopted the principles of sustainability and all the building has to offer and have maximized them. For example, they carry out educational projects beyond the school year, they have five-year projects with native plants, classified native plants with QR codes, native fauna and they keep adding.'

Interviewee 05 – Educator

Both the Headteacher and the Motivated teacher have over 20 years of experience in the public education system. They are experienced professionals who trust their abilities to learn new skills and try new pedagogical approaches. This combination of experience, philosophical and ethical alignment with sustainable practices and willingness to embrace change have been found to be fundamental for their positive response to this type of pedagogical approach.

4.2.2. Parents and students

During the interview process, it became clear that only a limited number of parents are highly motivated and have embraced the school project and activities. This has been a limitation to the development of the school project, which relies on community participation (see Section 4.3 - Theory of Change). It is worth noting that the six interviewed parents and two students are extremely satisfied with the school project. As already mentioned, I was not able to interview parents who are not actively engaged with and generally satisfied with the school. Having clarified this, interviewed parents and students have embraced the school project. They find the school is innovative and refreshing. Also, they are motivated by its whole-school approach towards sustainability. Students enjoy going to school and are engaged with activities such as tending the vegetable garden and learning about native flora and surrounding environmental issues and they share that knowledge at home. In turn, parents actively participate in school activities and maintenance.

This positive acceptance of the school and the project can be attributed to an affinity in a common world-vision in topics such as sustainability and climate change. In fact, four of the interviewed parents have built their houses using similar biotecture principles to the ones applied at the school:

‘We try to align ourselves with principles of permaculture, for example. We try to take advantage of what the place has to offer. We have a vegetable garden, we built our house with mud walls, we harvest rainwater for irrigation, and we do other activities that coincide with the school ethos.’

Interviewee 10 – Parent

The whole-school hands-on approach was appreciated by all interviewed parents and students. In numerous occasions they highlighted the fact that children were enthusiastic about their experiential learning and were eager to share what they knew:

‘It is amazing to work in the school and see what kids are experiencing and they want to explain which are native plants (..) They are constantly experiencing and learning by doing, not like in other schools that you need to plan in advance in order to try to do something similar.’

Interviewee 04 – Educator

Moreover, interviewed parents showed a certain degree of dissatisfaction with the status quo in terms of climate change, unsustainable practices and national education policies such as curriculum and staffing practices.

Parents appreciate the active learning principles the school promotes such as learning about native species of flora and fauna and conducting research about environmental issues in the surrounding area. Finally, when the school opened in 2016 approximately 15% of families had vegetable gardens at home, whereas in 2019, 80% of families did. That is a promising indicator that some school policies and practices have found their way into homes across the school community. Trespassing school boundaries and reaching the community is one of the desired outcomes of the school project.

4.3. Theory of Change

In this section, an ‘ideal’ Theory of Change (ToC) is presented based on interviews, findings, document analysis and literature review. It is worth emphasising that this Theory of Change does not represent the current situation at School No.294, but rather a contextualised ideal scenario for this educational project. This ToC represents a positive scenario for the school project and its community, especially in terms of inputs and long-term outcomes. Moreover, this ToC could be used as a possible roadmap for future action.

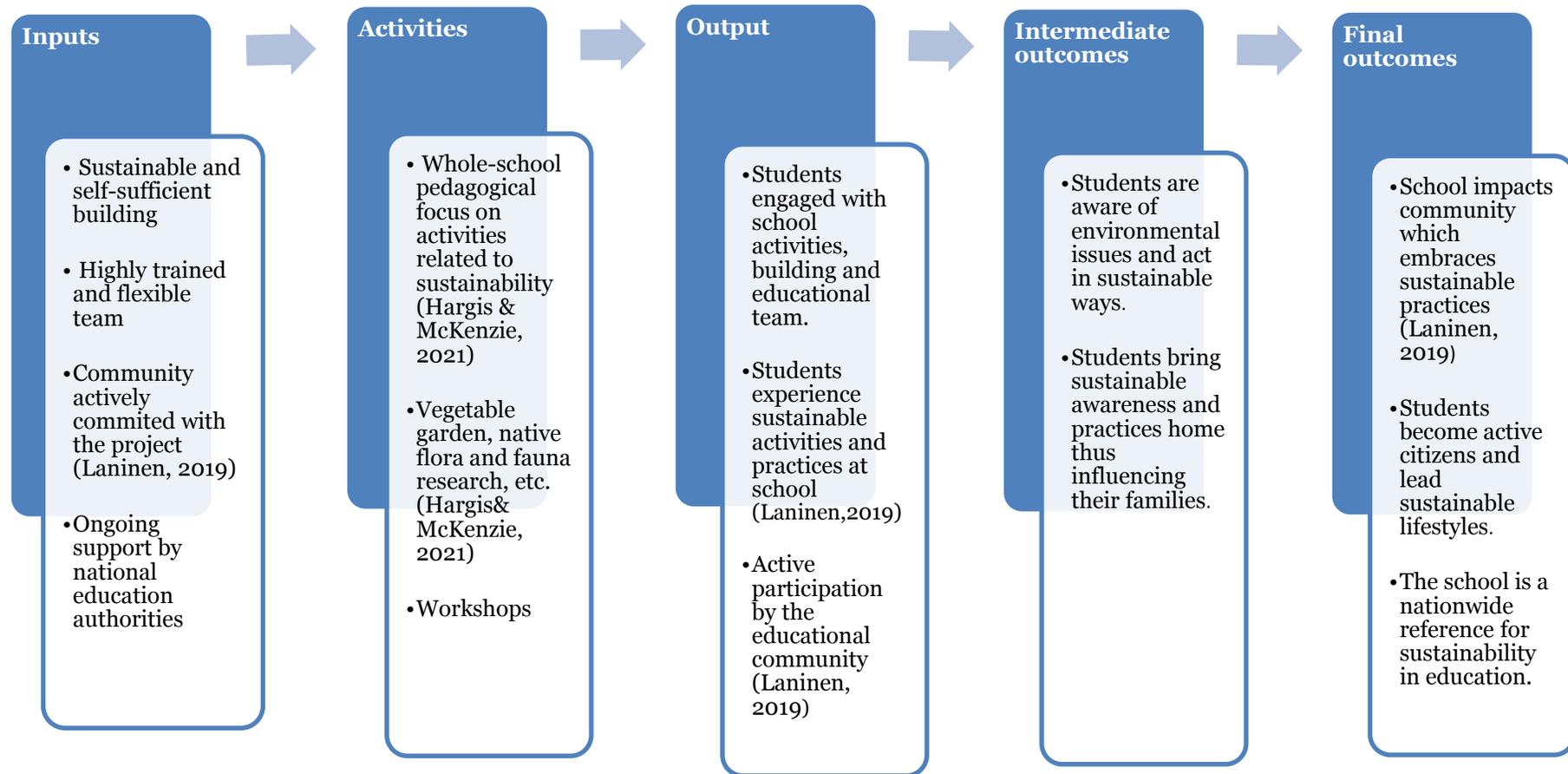


Figure 4. 'Ideal' Theory of Change based on findings, document analysis, literature review and interviews. Source: Author's elaboration.

Several discordances can be observed if we compare the Theory of Change and the findings of this study. The most substantial differences have been found in terms of inputs. Based on findings, there are two elements present in the school project that appear to be aligned with the Theory of Change, the Earthship sustainable and self-sufficient building and the committed professionals - Headteacher, Motivated teacher, Vegetable Garden Expert and Tagma volunteers- who have embraced the project from its inception. On the other hand, there are challenges still to be addressed such as the level of professional development and commitment of other educators, engagement and participation by most members of the community and support by national educational authorities.

These are complex issues that require a fluid collaboration between the school's educational team, the community and education authorities. NGO Tagma has played an important role as a liaison between the school educational team and national education authorities in the initial process of the project. The educational team is currently trying to consolidate the educational project by tackling some of these challenges, hopefully with the support of Tagma and the Vegetable Garden Expert. It is worth noting that analysing outputs and outcomes is beyond the scope of this research. However, I recommend that these are prioritised in future research (See Chapter 5 – Conclusion).

4.4. Transformative education: enablers and barriers

As previously mentioned in the literature review, 'Transformative education for sustainability' can be defined as learning processes that transform how we comprehend the relationship between humans, nature and wellbeing (Laininen, 2019). One of its key objectives is to harmonise the natural environment with communities that lead sustainable lifestyles (Cook, 2019). Transformative learning could lead towards a 'cultural transformation into a sustainable society and world' (Laininen, 2019, p.180).

Context is key in policy enactment. Ball et al. (2011) identified four contextual dimensions in which school policy is enacted: situated, professional, material

and external. Based on the above findings, enablers and barriers to transformative education for a sustainable future have been identified in School No.294 considering Ball et al. (2011) policy enactment theory. The following table illustrates this analysis:

	Enablers	Barriers
Situated	Location Commitment by some parents	Lack of community engagement Tensions
Professional	Whole-school active pedagogy Experienced and flexible staff Shared values	Uneven commitment by members of the educational team
Material	Sustainable and self-sufficient building	Maintenance Staffing: unstable professional team High student/teacher ratio
External	International network of 'sustainable' schools Support by external actors	Lack of support by national educational authorities National policies regarding canteen food Standardised curriculum

Table 3. Enablers and barriers to transformative education for sustainability using Ball et al. (2011) contextual enactment framework. Source: Author's elaboration.

4.4.1. Situated contexts

Enablers

The situated contexts that enable transformative education for sustainability at the school are its location and commitment by some parents. The school is

situated in a semi-rural area, which allows it to have relatively big school grounds. This has enabled having a sizeable vegetable garden and green spaces for outdoor learning activities. Moreover, in rural schools there is a tendency to work with vegetable gardens and soil (Interviewee 02 – Educator). The commitment by a small group of parents in terms of support for school activities and maintenance has been regarded as fundamental by educators (Interviewee 01 – Educator; Interviewee 03 – Educator).

Barriers

On the other hand, the two situational barriers are the lack of commitment and support by most parents and tensions within and between stakeholders. As for the lack of commitment shown by the community in school activities, both parents and educators explicitly expressed their concern with this issue:

‘The community in Jaureguiberry is very difficult, it is hard to get them involved.’

Interviewee 06 – Parent

‘I wouldn’t say there is a community in Jaureguiberry, but maybe little groups that sometimes connected or not, even at enmity at times.’

Interviewee 01 – Educator

In general, interviewees agreed that the community has not taken ownership of the building or the sustainable school project (Interviewee 01 – Educator; Interviewee 02 – Educator; Interviewee 03 – Educator; Interviewee 05 – Educator; Interviewee 06 - Parent). This has been identified as a major barrier to the school’s pedagogical practices both by educators and parents (Interviewee

01 – Educator; Interviewee 05 – Educator; Interviewee 06 – Parent). On the other hand, parents and members of the educational team who are committed with the school and the project have established a strong bond (Interviewee 06 - Parent). It is worth mentioning that the decision to build the school in this location and thus within this community was made by national education authorities. The rationale behind the selection of Jaureguiberry for such a unique project by national education authorities could not be identified but has been a decisive factor for this school project.

Furthermore, tensions within and between different actors have been a barrier to the school project. These tensions have been subdivided in three close-nit groups:

- tensions with national education authorities
- tensions within the community
- tensions within the educational team

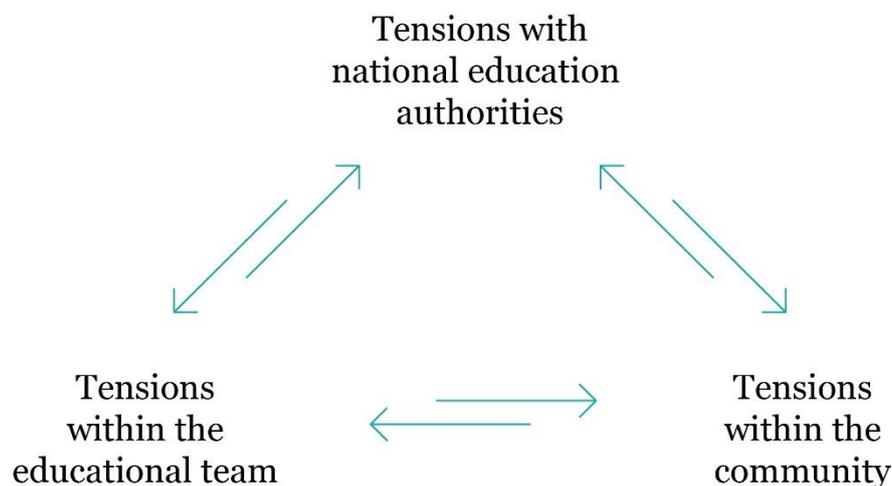


Figure 5. Tensions between actors. Source: Author's elaboration

In general, participants showed dissatisfaction towards national education authorities and how they have acted towards the school (Interviewee 01 –

Educator; Interviewee 03 – Educator; Interviewee 04 – Educator; Interviewee 06 – Parent; Interviewee 08 – Parent; Interviewee 11 - Parent). Both parents and educators consider the school has been ignored by the authorities when assistance has been requested, for instance for maintenance issues (Document 6 – Formal communication with ANEP; Interviewee 01 – Educator; Interviewee 04 – Educator; Interviewee 05 – Educator, Interviewee 06 – Parent; Interviewee 07 - Parent).

The school was showcased in the media when it opened in 2016 and was celebrated by national education authorities, but it receives little attention in order to face its unique maintenance challenges (Document 6 – Formal communication with ANEP; Interviewee 01 – Educator; Interviewee 04 – Educator; Interviewee 06 - Parent). Most interviewees agreed that national education authorities have been ineffective in providing support in issues such as teacher training and staffing, and in infrastructure maintenance. This has created tensions between the educational team and the school community with educational authorities.

Regarding tensions within the community, as previously mentioned, only a few members of the educational community actively participate and support school activities such as workshops, meetings, garden maintenance, etc., which has generated tensions among parents and between the educational team and some parents (Interviewee 01 – Educator; Interviewee 05 – Educator; Interviewee 06- Parent). Tensions within the educational team are further developed in the following section.

4.4.2. Professional and material contexts

Enablers

The professional contexts that have been identified as enablers are its whole-school active and place-based pedagogical practices, its experienced and flexible staff and shared values regarding sustainability. In terms of material context, the key enabler is the school sustainable and self-sufficient building.

As previously mentioned, the school has had two pillars: its Headteacher and Motivated teacher. They are both experienced professionals in the field who have embraced sustainability as a lens for their educational practices. Their professional and life experiences, which have shaped them and their values (Howell and Allen, 2019) have also been recognised as enablers. The role of a qualified and committed Headteacher cannot be overstated; studies have shown that they are the key actor in the implementation of climate change education projects at the school level (UNESCO, 2016). Moreover, the whole-school active pedagogical approach carried out in the school is aligned with characteristics that seem to be effective for climate change education: it is personalised and designed to engage students (Schweizer, Davis and Thompson, 2013; Chang and Pascua, 2017; Monroe et al., 2019). Further, students are encouraged to carry out projects, such as research, that address climate change issues. These place-based practices can increase students' climate science knowledge and interest (Peñalba et al., 2012; Monroe et al., 2019).

Climate change was not identified as a central element of the school's approach, but rather sustainability and sustainable practices (Interviewee 02 – Educator; Interviewee 03 – Educator). There is a strong focus on the vegetable garden, the study of native flora and fauna, renewable energy and sustainable water cycles (Interviewee 01 – Educator; Interviewee 02 – Educator; Interviewee 03 – Educator; Interviewee 05 - Educator). Through these activities, the aim is to get children acquainted with their surrounding natural environment through the active study of complex relations between water, weather, insects, plants and animals (Document 5 – Institutional Project 'Una Escuela Sustentable'). The school provides concrete answers and showcases possible ways to tackle complex environmental issues such as water scarcity, organic food production, water treatment and energy production and consumption (Interviewee 01 – Educator; Interviewee 02 - Educator). These pedagogical strategies ground theory into practice. Students experience practical and sustainable solutions, which can translate into knowledge they bring home (Interviewee 02 – Educator; Interviewee 08 – Parent; Interviewee 13 - Student). The transformative pedagogical approach towards sustainability in School No.294 is action-oriented and focused on behavioural dimensions, rather than on cognitive, socio-emotional or justice-focused (Hargis and McKenzie, 2020).

CCE should pay special attention to the socio-emotional and action-oriented dimensions since, ultimately, its objective is to encourage and enable sustainable lifestyles. The cognitive and justice-focused perspectives can serve as the knowledge and ethical considerations for such behaviours and attitudes. Interviewees were enquired about the pedagogical approach the school takes towards climate change education. They were provided with five global perspectives based on the work by Perkins et al. (2018). Responses were inconclusive; most interviewees believe there is a combination of approaches. The two most popular identified approaches were:

- focusing on student-centred pedagogies which are transformative and lead to a climate change curriculum and;
- fostering student-centred participation in researching and mitigating climate change.

Furthermore, it was not possible to identify specific sources of information regarding climate change, sustainability and climate change education for the educational team but rather a combination personal and professional experience, guidance from the Vegetable Garden Expert and personal curiosity and research by members of the educational team (Interviewee 01 – Educator; Interviewee 02 – Educator; Interviewee 03 - Educator).

The building is a defining feature of the school, it is an essential element of pedagogical practices and serves as an educational tool. It was built in a highly visible location -next to the main highway that connects the capital city and the most touristic beach town- which draws interest from locals and tourists, and it is an appealing feature for passers-by, media, researchers, potential parents and students. Moreover, due to its unique biotecture features, it is regarded as a 'living' building by members of the educational community because it requires being used and maintained in order for its correct functioning (Interviewee 03 – Educator; Interviewee 05 – Educator; Interviewee 06 – Parent; Interviewee 08 – Parent; Interviewee 10 - Parent). The building and its unique characteristics are natural pedagogical gateways to discuss sustainability issues such as food, water, pollution, energy, flora, consumption, upcycling, etc. Moreover, a

fundamental concept in climate change education is cross-curricularity (Perkins et al., 2018), which students appreciate at School No. 294:

'We work the topic of the environment everyday only by walking into the school. We somehow talked about it in every subject. (..) sometimes we would have specific talks about climate change (..) but the topics of the environment and climate change are always present.'

Interviewee 12 -Student

Even though the building has been identified as a key element to the school's pedagogical approach, it is how educators and students interact with the building what makes this school unique:

'You could remove the building today and they (Headteacher and Motivated teacher) would still be able to teach as they do. The building is a set of pedagogical tools, but it doesn't do anything by itself. Sometimes I've heard people saying the building teaches. No, teachers teach.'

Interviewee 05 – Educator

The attractiveness of the building draws attention, but it is in fact the educational team who makes -or not- an interesting and effective use of the building as a pedagogical tool towards sustainability (Vare, 2020). Studies have shown that schools that attempt to be 'sustainable' have encountered contradictions in terms of their 'green' infrastructure and school ethos (Vare, 2020). This is partly the case of School No.294, in which the Headteacher and Motivated teacher have set a clear school ethos and practice that prioritise sustainability but have encountered resistance from other educators or parents.

Barriers

On the other hand, the professional barriers identified are the uneven commitment by members of the educational team. Further, the material barriers are infrastructure maintenance, staffing practices which lead to an unstable professional team, and high student-teacher ratio.

Educators have shown concern about tensions within the educational team, which have been partly caused due to staff turnover (Interviewee 01 - Educator, Interviewee 02 - Educator, Interviewee 03 - Educator). Such instability has resulted in lack of consistency in how the educational team is formed.

Ultimately, these tensions are due to different 'pedagogical and worldview' visions (Interviewee 01 – Educator, Interviewee 03 - Educator, Interviewee 05 - Educator). In short, new teachers who joined the team were not aligned with the school's pedagogical approach which is centred around sustainable activities, practices and the use of the building as a pedagogical tool towards sustainability. Conversely, new staff have felt pressured to apply a new pedagogical approach they were not accustomed nor trained to do (Interviewee 02 - Educator). This has created tensions within the team. Parents have also shown their discomfort with this uncertainty:

'We don't know if she'll have the same teacher, that is the lottery game we play every year.'

Interviewee 10 – Parent

Staffing practices have led to a lack of consistency in how the educational team is formed. This, in turn, has caused tensions and contributed to the overarching feeling by educators that the school's potential has not been 'fully exploited' yet:

‘That is why the school has not achieved its full potential. New teachers slowly start adapting to the project and when the school year ends, they leave and someone else comes. We’ve had a different preschool teacher every single year.’

Interviewee 04 – Educator

Staffing practices have been a barrier to establishing a consolidated professional team, which has been detrimental for educational practices. Decisions to remove or incorporate new teachers are made by national educational authorities annually. Teachers are assigned based on a ranking system that ponders years of experience (ANEP, 2015). This limitation could be partially overcome by including the Headteacher in the selection process of new teachers. Some of the suggested criteria for new teachers could be the applicants’ interest in sustainability and climate change as well as their previous professional experience in education projects with similar practices and objectives. Apart from hiring practices, teacher retention should be prioritised by national education authorities. In this unique school project, a qualified and stable educational team is a fundamental input for its development, as identified in the Theory of Change. In terms of professional training, there have been shortcomings as well. National education authorities did not provide the educational team with training when the school opened or thereafter (Interviewee 01 - Educator, Interviewee 02 - Educator, Interviewee 05 - Educator). The educational team attended numerous workshops organised by NGO Tagma on Saturdays during 2016 in an honorary basis (Interviewee 03 – Educator).

Regarding student-teacher ratio, members of the educational team have shown concern because even though their student intake has not changed -80 students approximately-, in 2021 one primary school teacher position has been removed from their team. Thus, there are only three professionals interacting with students on a daily basis: the Headteacher, the Motivated teacher and a pre-school teacher. The Headteacher and the Motivated teacher are responsible for teaching all primary school grades, almost 70 children aged 6 to 12; this 70/2

student teacher ratio is a significant barrier for transformative education for sustainability, which requires a high degree of personalised learning opportunities.

4.4.3. External contexts

Enablers

The external contexts that enable transformative education for sustainability are the support of external actors such as the Vegetable Garden Expert and volunteers from Tagma NGO, and the fact that the school is part of an international network of ‘sustainable schools’ (Una Escuela Sustentable, 2021).

First and foremost, it is worth noting that all work done by external actors since 2016 is unpaid and voluntary (Interviewee 01 - Educator). The support the school has had from skilled professionals such as the Vegetable Garden Expert and volunteers from Tagma in terms of training, assistance and guidance related to infrastructure functioning, maintenance, vegetable garden, and other activities are at the core of the school’s pedagogical practices. The Vegetable Garden Expert has been point-person for training, maintenance and educational activities related to the vegetable garden (Interviewee 01 – Educator; Interviewee 03 - Educator). Studies have shown that sustainability-oriented education projects tend to be more successful when they have access to external experts (Hargis and McKenzie, 2021; UNESCO, 2016). Their work is deeply appreciated by members of the community and educational team:

‘The Vegetable Garden Expert joined the team in 2016 and has been working as a volunteer since. Along with Tagma, they have been fundamental pillars. Every time we’ve needed them, they have helped us. I personally have a deep bond with them and admire them.’

Interviewee 02 – Educator

Tagma has recently created a network between the three 'Sustainable Schools' it has built -one in Uruguay, one in Argentina and one in Chile. This school network is in its inception and initial meetings between educational teams are being held. The aim is to create cross-national educational projects in which students can be part of international teams studying diverse topics such as bird migration, seasonality in native plants and vegetables, etc. This international network could become an integral element for school practices in the future.

Barriers

On the other hand, the overall lack of support by national educational authorities, the standardised curriculum and national policies regarding school canteens have been identified as barriers.

The lack of adequate responses in terms of maintenance and staffing by education authorities have been already been discussed above (see Sections 4.4.2 'Professional and material contexts' and 4.2.1 'Educational Team'). As for the curriculum, the school follows the national curriculum because it is a public school (ANEP-CEIP, 2013). Nonetheless, there are no standardised tests in Uruguay and therefore schools -and teachers- have considerable autonomy when it comes to educational content and provision. Regarding the school canteen, national regulations stipulate that meat and dairy must be included in the school menu (Interviewee 02 – Educator; ANEP-CEIP, 2013). Both the meat and dairy industry have been linked to high greenhouse gas emissions, deforestation and unsustainable practices of land use (Garnett, 2009). This is in direct contradiction with the school's ethos and sustainable approach. Schools must act as they teach, school practices need to show different aspects of sustainability and encourage students to lead sustainable lifestyles on a daily basis (Laninen, 2019). It is debatable if this tension should be resolved at the school level or rather at an institutional and legislative level.

Last but not least, the high expectations the school has caused has been identified as both an enabler and barrier to transformative education for sustainability. For instance, it has encouraged some families to move to the

vicinity of the school or to take their children despite long commutes. One interviewed family decided to move near the school after a visit for instance:

“As soon as our child saw the school she fell in love. It was late 2016 and there was an art exposition (...) the school was empty, but you could tell how special it was. Our child told us ‘I want to come here’.”

Interviewee 08 – Parent

The fact that the school is well known, called “Escuela Sustentable” (Sustainable School) and its unique building have attracted external experts, media, researchers and families. Nevertheless, meeting high expectations is challenging and these can lead to a negative effect on how the school project is perceived.

4.5. Summary of Findings

Findings have shown that members of the educational community have responded to the school’s climate change education policies and practices differently; while some have embraced the school project, others have ignored or rejected it. This could be partially explained by the degree of philosophical and ethical affinity each actor has with the school project regarding sustainability, climate change and the role of education in leading sustainable lifestyles. This highlights the importance of having community support before establishing a project of these characteristics. On the positive side, some school activities seem to be effective in reaching families. For instance, the number of families growing and tending vegetable gardens at home has grown from 15% to 80% in only three years.

An ideal Theory of Change was designed based on interviews, document analysis and literature review, and was briefly contrasted with the findings. The major challenges in terms of inputs seem to be the lack of: i) community

engagement, ii) support by national education authorities, and iii) stable and highly trained professional team.

Finally, enablers and barriers to transformative education for sustainability (Laininen, 2019) were identified and analysed through Ball et al. (2011) policy enactment lens. The key identified enablers are: i) having qualified and committed Headteacher and professionals, ii) sustainability as a cross-curricular priority, iii) action-oriented pedagogical approach, iv) access to external experts and, v) the unique self-sufficient building. Conversely, major barriers are: i) lack of community engagement with the school project, ii) lack of support by educational authorities, iii) unstable educational team, iv) tensions between actors and, v) standardised curriculum.

5. Conclusion

The aim of this qualitative case study was investigating how different actors in the community have responded to climate change education policies and practices in the first sustainable and self-sufficient public school, School No.294 in Uruguay. The research questions were:

RQ1: How have the educational team, students and parents interpreted the climate change education policies of the school and how have they reacted to these policies in their own practice?

RQ2: What personal and contextual circumstances can explain the different interpretations and reactions to the climate change education policy among actors in the school community?

The data collection methods were interviews and document analysis. The semi-structured interviews with 17 participants were conducted from November 2020 until March 2021.

The findings of this study indicate that there has been a wide range of responses to the school's climate change education (CCE) policies and practices between and within actors. For instance, two educators -the Headteacher and Motivated teacher- have embraced the project and have been key for its development since its inception, whereas other educators have struggled to do so. This can be partially attributed to professional experience and training but especially to the degree of alignment between each individual and the school project in terms of perspectives towards sustainability, climate change and the role of education in leading sustainable lifestyles. Moreover, the role of external actors such as the Vegetable Garden Expert and volunteers from Tagma has been found to be fundamental in terms of support, assistance and training.

Regarding students and parents, I was able to interview 6 parents and 2 students who are satisfied with and engaged with the school project. Therefore,

due to this limited -and skewed- sample I do not believe that a full and comprehensive answer can be offered based on the available data. During the interview process, it became clear that only a small number of parents are actively engaged with the school project and activities. Interviewed parents and students are motivated by the school project and find it innovative. They appreciate the whole-school approach towards sustainability and try to apply at home what is worked with at school.

Some practices seemed to have reached most school families, e.g. the number of school families growing vegetable gardens at home increased from 15% to 80% from 2016 to 2019. Moreover, all interviewed parents shared a certain degree of dissatisfaction towards the state of affairs regarding climate change, unsustainable practices and national educational policies.

How climate change education policies and practices are interpreted by members of the educational community differs based on contextual variables such as previous beliefs about climate change, sustainability and the role of education in social change. Moreover, the school has a clear focus on the action-oriented dimension over other CCE dimensions such as knowledge, justice-oriented and social-oriented (Hargis and McKenzie, 2020).

Then, an ideal Theory of Change based on interviews, document analysis and literature review was designed and contrasted with the research findings. Several discrepancies were found in terms of inputs; only two elements seem to be adequate: the sustainable and self-sufficient building and the commitment by two qualified and experienced educators with the project.

Further, based on Ball et al. (2011) contextual policy enactment framework and Laininen (2019) concept of transformative education for sustainability, enablers and barriers were identified for this school project. The main enablers are having a committed and qualified Headteacher and professionals, sustainability as a cross-curricular priority, action-oriented pedagogical approach, support by external experts and its unique biotecture building. Conversely, barriers include lack of engagement by most of the community, lack of support by authorities, tensions between actors, standardised curriculum and lack of a consolidated educational team due to national staffing practices.

To conclude, this case study exemplifies some of the complexities of conducting Climate Change Education projects and highlights the crucial role of community support. When dealing with climate change education, having a sustainable building and taking a whole-institution approach in which climate change and sustainability are cross-curricular priorities (Hargis and McKenzie, 2020) might not be sufficient for a school project to fulfil its goals. Apart from a qualified and stable team, proactive support from the community and authorities can prove to be key enablers or barriers for this type of educational project.

5.1. Limitations

This study has presented several limitations. Firstly, this case study is best suited for instances of creating deep and meaningful connections with participants rather than brief online communications. Lengthy observations and fieldnotes are part of the richness of case studies. The fact that this research was conducted entirely online may have had an impact on the degree of participation and may have affected the quality and depth of interviews.

In order to achieve depth in ethnographic qualitative studies, it is important to gain a 'holistic overview of the context under study: its logic, its arrangements, its explicit and implicit rules' (Miles and Huberman, 1994, p.6). Conversely, my analysis was based on a limited number of interviews. As already mentioned, all participants who are members of the school community were enthusiastic, passionate and extremely supportive of the school project. I acknowledge this is not representative of the whole of the school community, partly because lack of community participation was mentioned in several interviews.

5.2. Impact of this Research

This study has been presented at Xpertise, a series of academic talks at the University of Glasgow. These sessions provide the opportunity for students and staff to present their research to an academic audience.

Furthermore, the findings of this study will be presented to the educational community and national authorities on June 21st. I will describe the research process and findings and allow for questions and discussion. The aim is that the findings of this study become valuable input for the educational team, parents and national education authorities.

5.3. Further Research

Climate change education is an incipient field within the education arena. Regarding this school, further research could focus on outputs and outcomes; how do we measure school impact in the case of School No.294? What has been the impact of the school project in students, parents and the community as a whole? How has the school been inserted in the national educational landscape? What lessons have been learnt in this process? How can the lessons be applied in other schools/projects across the country?

From a broader perspective, there are extensive opportunities to further develop our knowledge in understanding climate change education in terms of quality, measurement and communication both from a qualitative and quantitative perspective. Extensive research is required in terms of climate change education outcomes, monitoring and evaluation.

Moreover, there are considerable research gaps regarding what climate change education can or should encompass in terms of provision, content and to what end; what is 'effective' high-quality CCE? What can CCE look like in the Global North and the Global South? Whose climate is changing and how does that shape CCE in terms of provision and objectives in each country/region/community? How can content, processes and objectives between CCE projects across the globe be compared?

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Appendix

Appendix I – Public School No.294 in pictures



School No.294 in Jaureguiberry. Source: Una Escuela Sustentable, 2021.



Indoor hall and garden. Source: Una Escuela Sustentable, 2021.



Outdoor vegetable garden. Source: Author's collection



Seeds bank. Source: Author's collection.



Classroom. Source: Author's collection.

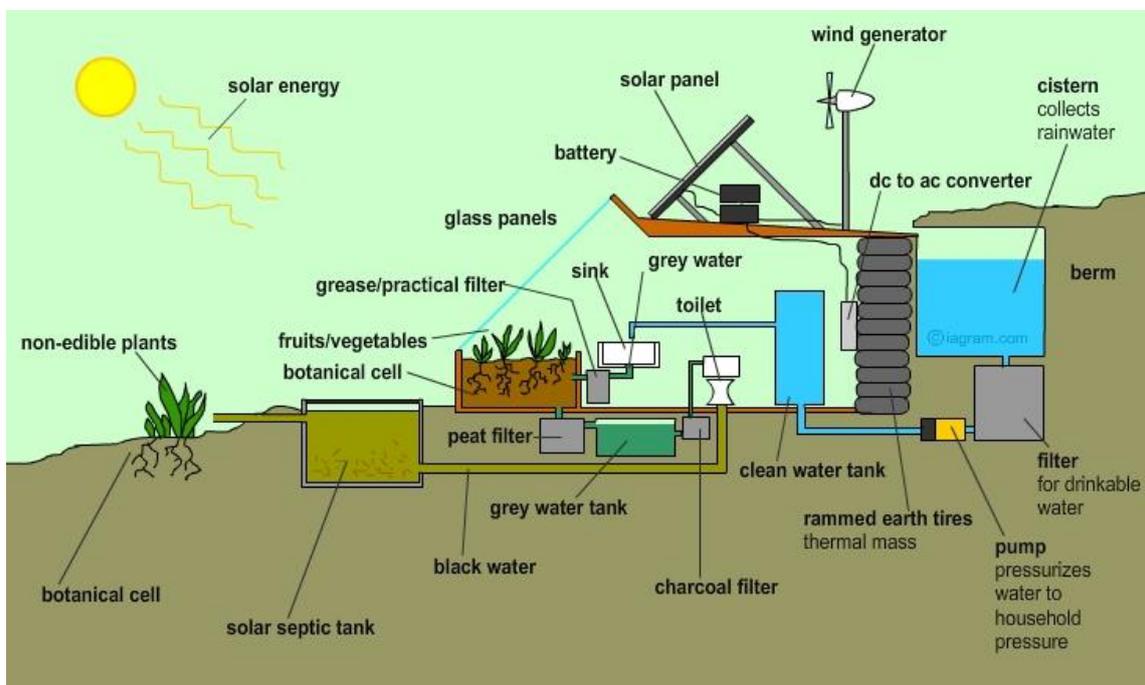


Figure 6. Earthship Principles. Source: ArchDaily. 2021. Latin America's First Earthship is a Sustainable School Built from Found Materials. Available at: <https://www.archdaily.com/889236/latin-americas-first-earthship-is-a-sustainable-school-built-from-found-materials>

Appendix II - Plain Language Statements

Adults as Participants



Declaración Informativa en Lenguaje Sencillo

Participantes Adultos/as

Información sobre el proyecto y el investigador

Nombre del proyecto: "Educación para el Cambio Climático en Escuela No.294 de Jaureguiberry, Uruguay: un estudio de caso".

Investigador: Diego Posada

Supervisor: Dr. Oscar Valiente

Curso: Maestría GLOBED – Education Policies for Global Development (Políticas Educativas para el Desarrollo Global, www.globed.eu)

Introducción

Le invito a participar en un proyecto de investigación. El proyecto se centra en la percepción de los distintos actores de la comunidad educativa sobre la educación para el cambio climático en la escuela de su hijo/a.

Antes de que decida si quiere participar, es importante que comprenda por qué se lleva a cabo la investigación y qué implica. Por favor lea este documento con atención. No dude en ponerse en contacto conmigo si tiene alguna duda o quisiera tener más información. Espero que este documento aclare las dudas que usted pueda tener sobre el estudio.

1. ¿Cuál es el objetivo del estudio?

El estudio es mi tesis de maestría. El objetivo del estudio a corto plazo es intentar averiguar cuáles son las percepciones de los distintos actores dentro de la comunidad educativa de la escuela No.294 de Jaureguiberry con respecto a las políticas y prácticas de educación para el cambio climático que se llevan a cabo en la escuela. A mediano

plazo, los resultados de este estudio pueden ser utilizados por la escuela y su comunidad para reflexionar sobre sus políticas y prácticas.

2. ¿Por qué se me ha elegido para participar?

Porque su hijo/a va a la escuela y usted forma parte de la comunidad educativa de la escuela No.294 de Jaureguiberry.

3. ¿Tengo que participar?

No. Es su decisión participar, o no, en este estudio. Si usted decide no participar no hay ningún problema. Asimismo, si luego de haber participado usted cambia de opinión le ruego que se comunique conmigo y no usaré ningún dato que me hubiera brindado.

4. ¿Qué implica participar?

La participación implicaría tener una entrevista individual de manera virtual conmigo. La entrevista tendrá una duración aproximada de 45 minutos y se grabará para un posterior análisis. Las entrevistas serán concluidas antes del 15 de diciembre, 2020.

5. ¿Mi información y datos son confidenciales?

Toda la información y datos serán almacenados de forma digital. No se recopilan ni procesan datos personales en este estudio. Si quiere, usted puede elegir un seudónimo que luego podrá ser utilizado al presentar los resultados y la tesis de fin de curso. Si durante nuestra conversación percibo que usted está en peligro, tendré que ponerme en contacto con las autoridades competentes.

6. ¿Qué sucederá con los resultados de este estudio?

Voy a analizar los datos recolectados y serán parte de mi tesis de maestría. Toda persona que participe recibirá un resumen de los resultados por escrito antes de junio de 2021, y me reuniré de manera virtual con el equipo educativo de la escuela para discutir los resultados preliminares. De esa manera, estos podrán ser utilizados en la planificación del próximo año escolar. Asimismo, el trabajo final de tesis podrá ser presentado ante colegas y profesores. Toda la información personal identificativa será destruida cuando concluya el proyecto, en setiembre de 2021.

7. ¿Quién ha aprobado este estudio?

Este proyecto de investigación ha sido aprobado por la Junta de Ética de la Facultad de Educación de la Universidad de Glasgow.

8. ¿A quién puedo contactar por más información?

Si tiene alguna duda sobre el estudio por favor contácteme a mi correo electrónico académico, 2515513p@student.gla.ac.uk. Asimismo, puede ponerse en contacto con mi supervisor, Dr. Oscar Valiente - oscar.valiente@glasgow.ac.uk o con la Dra. Barbara Read, Encargada de la Junta de Ética de la Facultad de Educación - barbara.read@glasgow.ac.uk.

Si le interesa participar por favor envíeme un correo electrónico a 2515513p@student.gla.ac.uk.

Muchas gracias por su tiempo,
Diego Posada

Students



Invitación a participar en un proyecto sobre el cambio climático y tu escuela



Hola! Me llamo Diego, y soy un investigador uruguayo de la Universidad de Glasgow, Escocia.



Me gustaría saber qué pensás sobre las actividades relacionadas al cambio climático que se hacen en la escuela. Me gustaría tener una charla contigo en una plataforma virtual.



Me gustaría grabar nuestra conversación. No tenés que responder a ninguna pregunta que no quieras. Podés decidir de parar o terminar la charla en cualquier momento. La charla va a ser privada, solamente entre nosotros y va a durar 20-30 minutos.



Nuestra charla me ayudaría a saber qué pensás sobre esas actividades y hacer un trabajo para la universidad.



Si querés saber más sobre el proyecto, tu madre o padre me pueden escribir a mi dirección de correo:
2515513p@student.gla.ac.uk

Si te interesa participar y si tu madre o padre están de acuerdo ellos se pueden poner en contacto conmigo a mi correo:
2515513p@student.gla.ac.uk

Gracias por tu tiempo! :)

Diego

Educational team



Declaración Informativa en Lenguaje Sencillo

Equipo Educativo

Información sobre el proyecto y el investigador

Nombre del proyecto: “Educación para el Cambio Climático en Escuela No.294 de Jaureguiberry, Uruguay: un estudio de caso”.

Investigador: Diego Posada

Supervisor: Dr. Oscar Valiente

Curso: Maestría GLOBED – Education Policies for Global Development (Políticas Educativas para el Desarrollo Global, www.globed.eu)

Introducción

Le invito a participar en un proyecto de investigación. El proyecto se centra en las percepciones de la comunidad educativa sobre la educación para el cambio climático en la escuela.

Antes que decida si quiere participar, es importante que comprenda por qué se lleva a cabo la investigación y qué implica. Por favor lea este documento con atención. No dude en ponerse en contacto conmigo si tiene alguna duda o quisiera tener más información. Espero que este documento aclare las dudas que usted pueda tener sobre el estudio.

1. ¿Cuál es el objetivo del estudio?

El estudio es mi tesis de maestría. El objetivo del estudio a corto plazo es intentar averiguar cuáles son las percepciones de los distintos actores dentro de la comunidad educativa de la escuela No.294 de Jaureguiberry con respecto a las políticas y prácticas de educación para el cambio climático que se llevan a cabo en la escuela. A mediano plazo, los resultados de este estudio pueden ser utilizados por la escuela y su comunidad para reflexionar sobre sus políticas y prácticas.

2. ¿Por qué se me ha elegido como participante?

Porque usted forma parte del equipo educativo de la escuela. Como tal, usted es parte integral de las prácticas y políticas educativas que se llevan a cabo a diario. Su participación es fundamental para que la investigación tenga la profundidad y reflexión deseadas.

3. ¿Tengo que participar?

No. Es su decisión participar, o no, en este estudio. Si usted decide no participar no hay ningún problema. Asimismo, si luego de haber participado usted cambia de opinión le ruego que se comunique conmigo y no usaré ningún dato que me hubiera brindado.

4. ¿Qué implica participar?

La participación implicaría tener una entrevista individual de manera virtual conmigo. La entrevista tendrá una duración aproximada de 45 minutos y se grabará para un posterior análisis. Las entrevistas serán concluidas antes del 15 de diciembre, 2020.

5. ¿Mi información y datos son confidenciales?

Toda la información y datos serán almacenados de forma digital. No se recopilan ni procesan datos personales en este estudio. Si quiere, usted puede elegir un seudónimo que luego podrá ser utilizado al presentar los resultados y la tesis de fin de curso. Si durante nuestra conversación percibo que usted está en peligro, tendré que ponerme en contacto con las autoridades competentes.

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Voy a analizar los datos recolectados y serán parte de mi tesis de maestría. Toda persona que participe recibirá un resumen de los resultados por escrito antes de junio de 2021. Además, me reuniré de manera virtual con el equipo educativo de la escuela para discutir los resultados preliminares. De esa manera, estos podrán ser utilizados en la planificación del próximo año escolar. Asimismo, el trabajo final de tesis podrá ser presentado ante colegas y profesores. Toda la información personal identificativa será destruida cuando concluya el proyecto, en setiembre de 2021.

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supervisor, Dr. Oscar Valiente - oscar.valiente@glasgow.ac.uk o con la Dra. Barbara Read, Encargada de la Junta de Ética de la Facultad de Educación - barbara.read@glasgow.ac.uk.

Si le interesa participar por favor envíeme un correo electrónico a 2515513p@student.gla.ac.uk.

Muchas gracias por su tiempo,
Diego Posada

Appendix III – Consent Forms

Adults



Formulario de Consentimiento – Adultos

Nombre del proyecto: “Educación para el Cambio Climático en la Escuela N°294 de Jaureguiberry, Uruguay: un estudio de caso”

Investigador: Diego Posada González

Supervisor: Dr. Oscar Valiente

Declaración

Declaro que he leído y comprendo la “Declaración Informativa en Lenguaje Sencillo” que se me ha brindado. Comprendo que mi participación es voluntaria y que tengo la libertad de retirar mi consentimiento de participación en cualquier momento.

Soy consciente que todas las personas que participen en la investigación serán referidas a través de un seudónimo en el análisis y trabajo final.

Mi decisión de participar o no participar en estudio no afectará de manera alguna mi situación laboral o la situación académica de mi hijo/a.

Uso y almacenamiento de datos

- ♦ Todos los nombres y datos que pudieran ser utilizado para identificar a individuos será anonimizado.
- ♦ Todo el material y datos serán considerado confidencial y se guardarán en un lugar seguro.
- ♦ Los datos de carácter personal serán destruidos una vez concluido el proyecto.
- ♦ Los materiales y datos podrán ser utilizados en publicaciones, tanto impresas como en línea.

- ♦ Renuncio a mis derechos de autor sobre cualquier dato recolectado como parte de este proyecto.
- ♦ Soy consciente que otros investigadores autorizados pueden utilizar mis palabras en publicaciones, informes, páginas web, solo en caso que se atengan a las condiciones de confidencialidad de la información dispuestas en este documento.

Por favor marque con una cruz (x) el casillero que corresponda:

Doy mi consentimiento a la grabación de las entrevistas.

NO doy mi consentimiento a la grabación de las entrevistas.

Acepto tomar parte de este proyecto de investigación.

NO acepto tomar parte de este proyecto de investigación.

Nombre: _____

Firma: _____

Fecha: _____

Les agradecería si pudieran firmar, escanear y enviar este documento a mi correo electrónico académico, 2515513p@student.gla.ac.uk. Si no puede imprimir y escanear el documento, puede enviarme un correo electrónico que incluya el siguiente texto:

“Por la presente, (su nombre completo) brinda su consentimiento para participar en la investigación de nombre: “Educación para el Cambio Climático en la Escuela N°294 de Jaureguiberry, Uruguay: un estudio de caso” llevada a cabo por Diego Posada González”.

Gracias,

Diego Posada

Students



Formulario de Consentimiento – Estudiantes

Educación para el Cambio Climático en la Escuela N°294 de Jaureguiberry, Uruguay: un estudio de caso

Me gustaría saber qué pensás sobre las actividades relacionadas al cambio climático que se llevan a cabo en tu escuela. Quiero que sepas que:

- Tenés la libertad de responder o no responder a las preguntas, como vos prefieras.
- Podés decidir terminar la entrevista en cualquier momento.

¿Querés hablar sobre las actividades relacionadas al cambio climático que se llevan a cabo en tu escuela conmigo?

Por favor hacé un círculo alrededor de tu respuesta:



¿Puedo grabar nuestra conversación? Por favor hacé un círculo alrededor de tu respuesta:



¿Puedo contarle a otras personas lo que hablamos? No voy a mencionar tu nombre ni nada que te identifique. Por favor hacé un círculo alrededor de tu respuesta:



Por último, por favor escribí tu nombre en el cuadro. Gracias! 😊



Solo para madres/padres o tutores:

Por la presente doy mi consentimiento para la participación de mi hijo/a.

Nombre y apellido _____

Firma _____

Fecha _____

Les agradecería si pudieran firmar, escanear y enviar este documento a mi correo electrónico académico, 2515513p@student.gla.ac.uk. Si no pueden imprimir y escanear el documento, pueden enviarme un correo electrónico que incluya el siguiente texto:

“Por la presente, (su nombre completo) y (el nombre completo de su hijo/a), brindamos nuestro consentimiento para que mi hijo/a participe en la investigación de nombre: “Educación para el Cambio Climático en la Escuela N°294 de Jaureguiberry, Uruguay: un estudio de caso” llevada a cabo por Diego Posada González”.

Desde ya les agradezco por su tiempo,

Diego Posada

Appendix IV - Interview Guidelines

Educational Team

Antes que nada quiero agradecerte por tomarte el tiempo para charlar conmigo. Quiero que sepas que podés decidir no responder cualquiera de las preguntas, y en todo momento me podés interrumpir o preguntar cualquier duda. También podés decidir terminar la entrevista en cualquier momento. Te quiero recordar que todo lo que me digas es confidencial, no voy a usar tu nombre cuando escriba mi tesis. Quiero confirmar que me enviaste el formulario de consentimiento firmado, no? Antes de empezar, tenés alguna duda o pregunta para mí?

Escuela

- 1- Me podrías contar sobre tu experiencia laboral antes de empezar a trabajar en la escuela/Tagma?
- 2- Hace cuánto trabajás en la escuela?
- 3-Cuál es tu opinión del equipo educativo desde un punto de vista profesional?
- 4- Cuáles creés que son las fortalezas y debilidades de la escuela?
- 5- Cómo describirías el enfoque pedagógico de la escuela?
- 6- Cómo definirías la relación de la escuela con las autoridades públicas (ANEP y CEIP)?

Cambio Climático

- 1- Qué es el cambio climático? Qué pensás al respecto?
- 2- Qué es la sustentabilidad para vos?
- 3- Les interesa el cambio climático a los/as alumnos/as? Notás algún patrón en los distintos niveles de conciencia sobre el cambio climático en tus alumnos? (Por ejemplo: interés personal, familia, etc)

Cambio Climático en la escuela

7- Cómo se trata el tema del cambio climático y la sustentabilidad en la escuela? En tu opinión, es parecido a cómo se hace en otras escuelas donde has trabajado?

8-Cuál de los siguientes enfoques de educación para el cambio climático crees que está más alineado con la escuela?

- a) Enseñar ciencia de manera tal que se reconoce que la ciencia es compleja y tiene matices;
- b) Pedagogías que se enfocan en información, mitos y debates sobre el cambio climático;
- c) Un enfoque que invita a la investigación crítica y reflexionar sobre perspectivas globales;
- d) Pedagogía enfocada en el/la estudiante, que intenta ser transformativa y tiene como objetivo tener un currículum centrado en el cambio climático;
- e) Se promueve la participación estudiantil en la investigación y mitigación del cambio climático.

Por qué elegiste ese enfoque? Cómo se aplica en el día a día en la escuela?

Estás de acuerdo con el enfoque de la escuela en esta temática? Por qué (no)?

Qué se podría/debería mejorar?

Te gustaría agregar algún otro comentario?

Parents and students

Same introductory phrase as interview guide above.

	Padre/Madre	Estudiantes
Escuela	<p>¿Qué pensás de la escuela? ¿Te gusta? ¿Por qué (no)?</p> <p>Cómo fue la decisión de mandar a tu hijo/a a la escuela? ¿En qué se basó?</p> <p>¿Cuáles pensás que son las fortalezas y debilidades de la escuela?</p>	<p>¿Te gusta la escuela? ¿Por qué (no)?</p> <p>¿Qué te parece que funciona bien en la escuela? ¿Qué podrá funcionar mejor?</p> <p>¿Qué tiene de parecido y diferente con otras escuelas que conocés?</p>
Cambio climático y sustentabilidad	<p>¿Qué es el cambio climático? ¿Y la sustentabilidad?</p> <p>¿Qué son actitudes o actividades sustentables para vos?</p>	
Educación para el cambio climático en la escuela	<p>¿Qué actividades hacen en la escuela? ¿Te parece bien? ¿Qué actividades te gustaría que hicieran?</p> <p>Estás involucrado/a en actividades escolares?</p>	<p>Se habla del cambio climático / sustentabilidad en la escuela? ¿Cómo? ¿Qué se dice o hace al respecto?</p> <p>Te gusta hablar del cambio climático /</p>

		sustentabilidad en la escuela? Por qué?
	<p>Cuál de las siguientes afirmaciones creen que representa el enfoque de la escuela:</p> <p>se le da mucha importancia a la ciencia; hablamos de información sobre el cambio climático, mitos y debates; se nos pide que cuestionemos mucho y estudiamos diferentes perspectivas globales; se trabaja en el cambio climático en (casi) todas las materias, hacemos muchas actividades que nosotros elegimos y lideramos. estudiamos el cambio climático y cómo podemos mitigarlo (contrarrestar o minimizar los impactos ambientales negativos).</p> <p>¿Estás de acuerdo con el enfoque de la escuela en esta temática? ¿Por qué (no)? Qué se podría/debería mejorar?</p> <p>¿Te gustaría agregar algún otro comentario?</p>	

Appendix V – Example of Interview Script

Interview date and time: November 24th, 2020 at 5pm.

Interviewee 02 – Educator

Interview conducted on Zoom

D: Antes que nada, quiero agradecerte por tomarte el tiempo para charlar conmigo. Quiero que sepas que podés decidir no responder cualquiera de las preguntas, y en todo momento me podés interrumpir o preguntar cualquier duda. También podés decidir terminar la entrevista en cualquier momento. Te quiero recordar que todo lo que me digas es confidencial, no voy a usar tu nombre cuando escriba mi tesis. Quiero confirmar que me enviaste el formulario de consentimiento firmado. Antes de empezar, ¿tenés alguna duda o pregunta para mí?

D: Hola buen día antes que nada quería agradecerte por la entrevista y quería empezar por preguntarte un poco sobre tu experiencia laboral antes de trabajar en Jaureguiberry. ¿Cuál era tu perfil profesional?

I-02: Bueno este es el año número 33 que trabajo. Antes de esta escuela estuve en una escuela rural con unos 80 alumnos, éramos cuatro docentes y tenía una clase a cargo. Teníamos un invernáculo en el que trabajábamos huerta orgánica, ese principio de esta escuela (de Jaureguiberry) no era extraña para mí, sí lo fue de pronto los cultivos que no eran nuestros. Por ejemplo, el vivero interno pero no la parte de huerta externa, no. Lo venía trabajando desde la escuela anterior y la previa. Habíamos hecho varias actividades y juntándolo con contenido del programa con huerta y con cultivos orgánicos más bien. Tuvimos en una escuela túneles, invernáculo..

D: Tenés una historia de educación en ese sentido y por lo menos esa parte ya la conocías.

I-02: Sí esa parte si es muy común en la educación rural. En la educación es un recurso que debería haber.

D: Te consulto por curiosidad, ¿eso se hace por programa? ¿o eso depende de la voluntad de la escuela o de la maestra directora para hacer un invernáculo o una huerta?

I-02: Sí, eso depende de cada maestro. Es lo ideal pero no significa que se haga siempre. Ni ANEP ni CEP establecen que hay que hacerlo. Pero la historia de la educación rural en nuestro país ya trae incorporada el cultivo, la huerta, los invernáculos. Y en los últimos 15 o 20 años mucho trabajo con invernáculos. No con viveros, qué es lo que tiene Jaureguiberry.. viveros.

D: ¿La escuela de Jaureguiberry está tipificado como escuela rural o urbana según CEP?

I-02: Según el Consejo de educación primaria (CEIP) la escuela de Jaureguiberry es una escuela rural. Si bien el contexto de la población no es rural, sería más bien suburbano o de balneario, pero bueno.

D: ¿Hace cuánto trabajas en la escuela? ¿La elegiste vos la escuela?

I-02: Me traslade para esta escuela en diciembre 2015... de todas formas sin saber que existía este proyecto. Elegí Jaureguiberry porque era una escuela rural como las que yo tenía. "Como la que yo tenía" perdón, como en las que yo estaba ocupando un cargo. Las escuelas no son nuestras... pero me traslade para acá porque me venía a vivir a Piriápolis y es bastante cerca de Jaureguiberry. Entonces bueno, la pedí sin saber nada del proyecto.

D: ¿Sin tener ni idea? O sea ...pediste el traslado en diciembre 2015 cuando se estaba empezando a gestar la construcción de febrero de 2016.

I-02: Los traslados son en diciembre... todas las personas que nos trasladamos en diciembre ocupamos los cargos en febrero.

D: Entiendo... entonces cuando o firmaste para ser la directora de Jaureguiberry te cayeron Michael Reynolds, Martín y la gente de Tagma, y 100 voluntarios de todo el mundo. Todo ese show.

I-02: Claro mucha gente que yo no tenía idea qué era, en qué consistía, nada. No tenía ninguna idea nada... fue un desafío muy importante desde lo profesional y en lo personal también un gran aprendizaje también. Al principio

duro eh .. al principio duro porque literalmente decía “¿qué estoy haciendo acá?” “¿qué hice con mi traslado?” Porque luego que nosotros nos trasladamos tenemos que estar ahí 3 años, pero bueno ya voy en el quinto así que nada... el proyecto es hermoso. Es muy bonito, a mí el proyecto me encanta.

D: ¿Cómo te adaptaste al hecho de que vos pensabas trabajar en una escuela “normal” digamos y te encontraste con una escuela diferente, mediática, famosa, la primera autosustentable Latinoamérica? ¿Fue mucha presión para vos?

I-02: Sí sí ... había mucha presión nervios... mucha ansiedad pero bueno no sé... era tanta la ocupación porque tenía que estar ocupada múltiples cosas que me costaba saber dónde estaba. Literalmente se podría decir que no sabía dónde estaba parada. Además, el hecho estar tan expuesta... eso es lo que más era difícil... la exposición...la exposición con las autoridades, ante la prensa, a las entrevistas al público... que a eso no estaba acostumbrada, venía de una escuela relativamente tranquila como son todas nuestras escuelas pero no tenía nada que ver con esto.

D: Imagino que también vinieron un montón de preguntas o dudas de la gente “¿y qué van a hacer con el edificio?” y “cómo lo van a usar?” “¿cómo funciona tal cosa o tal otra?”

I-02: Claro claro...yo no tenía ni idea. Pero Tagma nos hizo una capacitación en 2016 que la teníamos los sábados. Hablo en plural porque también venía a otra maestra (la maestra motivada), y algunas veces las auxiliares. Los hacíamos de forma voluntaria porque ANEP no nos daba horas para hacerlo dentro de nuestro horario ni en días laborales. Entonces veníamos los sábados.

D: Eran vos y la Maestra motivada básicamente?

I-02: El equipo docente sí, pero a veces venía otra muchacha, pero como no era efectiva a veces venía y a veces no. Se involucró muy bien, era recién recibida me acuerdo. Trabajó mucho con La Experta de Huerta y se incorporó muy bien al proyecto. La Experta de Huerta se sumó en 2016 y trabaja en forma voluntaria hasta el día de hoy. La verdad que ella ha sido un pilar fundamental, así como lo ha sido Tagma. Siempre que necesitamos algo yo los llamé y vinieron y nos

ayudaron. La verdad que por lo menos de mi parte yo los aprecio y quiero muchísimo y los admiro también. Haber llegado a armar este proyecto ha sido intenso. Y bueno, a mí me permitió, no solamente en lo profesional, sino en lo personal también un aprendizaje importante... vincularme con tanta gente, te enriquece de una manera.. en el momento no te das cuenta, pero después mirando para atrás. Pensar que pasó tanta gente por acá, a visitarla, a hacer las visitas guiadas, la verdad que ha sido muy gratificante.

D: Hablando un poco de la escuela, ¿cuáles crees que son las fortalezas y debilidades de la escuela?

I-02: Desde un punto de vista profesional, es un recurso pedagógico invaluable porque los niños pueden vivenciar... el hecho de venir a esta escuela, ver cómo funciona, cómo funcionan los sistemas, el llevarlo a sus hogares, al menos parte de lo que aprenden acá. En un principio, cuando recién elegí la escuela prácticamente nadie tenía huerta por ejemplo. El año pasado se hizo una encuesta y el 80% de los hogares tenían algún tipo de cultivo orgánico en su casa. Este año que con el tema de la pandemia fue complicado, hay una serie de familias que tienen una huerta comunitaria y están trabajando en ella de forma orgánica. Hacen comida para vender. Son cosas que pienso que la escuela ha influido en todo eso. Se han hecho humedales y bioconstrucción, sé que se hace en todos lados, pero acá en Jaureguiberry se empezó a hacer más a partir de la escuela. Quizás se hayan arrimado más familias por la parte sustentable. Lo que ayuda más que nada es a concientizar, eso es lo más importante, que los niños sean reflexivos y que sepan en qué mundo estamos viviendo... que hay formas de vivir de otra manera, que no todo está perdido y que nos podemos alimentar de otra manera... que hay una forma de alimentarnos saludable, o un poco más saludable. Pero por lo menos se logró hacer festivales dónde no se vendieran refrescos ni comida chatarra, dónde se vendían licuados, sopas hechos con alimentos de la huerta. Y bueno, esas actitudes van quedando me parece en la familia y en los niños. Si no es en un 100%, bueno, no importa. Así se rescate 1, por ese 1 valió la pena. Fueron mucho más que uno, pero bueno. Nosotros no cambiamos a las personas. Yo cambio y a partir de cómo yo cambio cambia mi entorno. Si uno se compromete con el lugar y con el trabajo que se hace acá, el

cambio nuestro hace que tal vez otro también cambie. Pero es lo que nosotros hacemos, no lo que decimos. Es nuestra actitud la que permite eso.

D: Ahora que mencionabas la alimentación, ¿han tenido algún tipo de tensión con algunas familias por diferencias de opiniones con respecto al consumo de carne por ejemplo? En Uruguay consumimos mucha carne y bueno lácteos ni que hablar. ¿Cómo se ha dado esa interacción entre el proyecto que ustedes plantean y las costumbres de la realidad local... de la comunidad?

I-02: El comedor escolar es igual para todo el país. Tenemos un menú con determinados ingredientes que tenemos que utilizar, por ejemplo la carne. Hay algunas familias que son vegetarianas, y bueno ese día se les da la comida sin carne, por ejemplo. Hay una familia que manda el alimento. Nosotros no podemos como centro educativo público decir que hay que ser de determinada manera, no podemos entrar en ese campo porque estamos en una escuela pública. Igual tenemos un intercambio de opiniones como en otros aspectos, política, religión y una forma diferente de vivir. La escuela es laica.

D: Te quería preguntar sobre el cambio climático, ¿qué es para vos? Y luego te quería preguntar cómo se trata en la escuela.

I-02: En sí en la escuela... es un contenido que está dentro del programa. No solo en esta escuela, es un contenido específico en Ciencias Sociales dentro de Biología, hay contaminación... no tengo el programa acá en el momento. Se habla bastante del cambio climático, de contaminación de aguas subterráneas, temas ambientales que están específicamente en el programa. Se trata el tema con noticias de actualidad. Cuando daba clase yo tomaba una noticia de actualidad, y buscábamos información, se reflexiona. Lo que sí tiene esta escuela es la energía renovable, ya se está relacionando, ¿por qué el sistema eléctrico de la escuela es así? ¿Para qué? Y bueno y ahí se toman los distintos tipos de energía, la contaminación del petróleo, las consecuencias del cambio climático. Con al huerta por ejemplo, al no usar químicos... esos temas se tratan. Al usar agua de lluvia también... no se está usando el agua subterránea, la cual está contaminada por el uso de agroquímicos. En el marco del cambio climático y las sequías, las reservas de agua dulce y lo importantes que son para las consecuencias del cambio climático, el no usar aire acondicionado por ejemplo...

porque la escuela tiene acondicionamiento térmico pasivo... y todo esto está relacionado con el cambio climático... y me parece que es muy importante generar esa reflexión en los niños... en los niños y en la familia.

D: ¿Entonces se podría decir que es un tema que está integrado en el día a día de la escuela?

I-02: Sí... sí, y en el proyecto institucional. El proyecto de la escuela es “Una escuela sustentable”. Y en ese proyecto se abordan todas las áreas, dentro de cada área distintos contenidos. El proyecto es transversal a todas las áreas.

D: ¿Qué pensás que opinan los/as niños/as de la escuela sobre el cambio climático? ¿Crees que su percepción es parecida a tus escuelas anteriores o ves diferencias? ¿Quizás generacionales o de tiempo y actualidad?

I-02: Por un lado, pienso que hay una diferencia generacional. Porque sus padres, que ya son grandes, no hablaban de cambio climático ni cuidado al medioambiente. Antes no estaba en el programa ni se mencionaba. En la escuelas anteriores yo trabajaba con eso también, pero acá vemos una posible solución a una forma de vivir. De acá tenés una herramienta más, para por lo menos hacer algo. Aunque sea algo. En otras escuelas se puede trabajar también... en la huerta y el cultivo orgánico, el problema de la alimentación y en el uso de monocultivo. En el norte de nuestro país se planta mucha soja y trigo. Sin embargo, en Canelones también se plantan otras cosas autóctonas, de a poquito. Es un tema muy amplio que sería más bien político. Por lo menos dentro de la escuela podemos mostrar cómo se realiza el cultivo de soja, cómo se realiza el cultivo de trigo, cómo se realiza la forestación de eucaliptus para las papeleras y bueno... ¿en la escuela qué tenemos diferente? Árboles nativos, que de ellos podemos obtener frutos que luego utilizamos en la cocina por ejemplo para hacer mermelada de guayabo, si bien las plantitas están pequeñas o también arazá. Bueno, que tomen el gusto por alimentarse de otra forma, nosotros tenemos todos estos cultivos pero nunca le dimos importancia. Recién ahora hay una cultura de valorar lo nuestro, y recién está empezando. Intentamos relacionar eso, como lo hemos hecho, con la fauna y la importancia de los pájaros como polinizadores, por qué debemos cuidar los pájaros, las

aves... en mi generación recuerdo tener compañeros que andaban con honda. Bueno pero todo eso va sumando, me parece a mí. Pero también hay que involucrarse como docente y trabajar eso. Porque también puede estar el docente que está en la escuela sustentable pero trabaja Lengua, Matemática, etc, y... puede no trabajar esa parte que lleva al niño a una reflexión. También está en el docente en involucrarse y en ver cómo la escuela puede proporcionar un recurso para trabajar. Por ejemplo, ellos estuvieron trabajando uno de los principios de la escuela, el acondicionamiento térmico pasivo. Eso se realiza mediante entradas y salidas de aire en el terraplén. Entonces, un día viene una maestra y pregunta ¿“cómo se abre?” Bueno esta banderola tiene que estar siempre abierta, porque es la que hace circular el aire. “¿Cómo se abre?” Se abre por medio de una polea. Bueno, a raíz de eso los niños de primer ciclo empezaron a trabajar “polea” y la consigna de la maestra era hacer algún instrumento que funcionara a través de poleas. Entonces trajeron aljibes pequeños, y vieron cómo funcionan. Y ahí se puede trabajar física, “¿por qué se utiliza menos fuerza?” “¿por qué se utiliza la polea?” Es un recurso de la escuela, de un principio de la escuela que se utiliza para un contenido del programa.

D: En el proyecto que me enviaste, vi que hay muchas actividades, más que nada al final hay un listado de actividades. ¿De dónde sacan toda esta información sobre árboles nativos, aves, etc? ¿Cuál es su fuente de información? Porque ustedes saben mucho del ecosistema de la escuela, ¿de dónde sale esta información?

I-02: La Experta de Huerta tuvo mucho que ver con la parte de árboles nativos... y fuimos haciendo camino al andar. Acá vinieron a dar charlas los guardavidas de la zona, trabajamos con la Comuna Canaria, fuimos a la Quebrada de los Cuervos, fuimos a un lugar cercano donde hicimos un recorrido con un guardaparque que nos mostraba la distinta flora nativa y las aves. De todo se va aprendiendo. Luego libros que la Experta de Huerta nos ha proporcionado... mucha gente ha venido a ayudar a la escuela, así como vos ahora, mucha gente vino a hacer talleres. Entonces nos vimos enriquecidos de todo esto, los niños también. También se habló sobre los peces de la zona, han sido muchísimos talleres, que no lo recuerdo ahora. Este año no claro, pero hasta el año pasado se hicieron muchísimos talleres e intercambios.

D: ¿En general ha sido iniciativas tuyas o de gente que se acercó? ¿o ha sido obra de ANEP o CEP? ¿Esto fue obra del estado uruguayo que les dio esta capacitación profesional?

I-02: No, no no. Es gente que viene y nos propone y nosotros aceptamos o no. A nosotros nos gustaba, y bueno la Maestra Motivada también está muy involucrada con el proyecto y siempre está muy abierta. Pero eso nos ha enriquecido muchísimo.

D: De todas las actividades que mencionan, ¿cuáles creés que funcionan mejor y cuáles te gustaría mejorar?

I-02: Bueno este año nos hubiese gustado trabajar con la parte de hongos y no llevamos a abordarla. Por ejemplo, el estudio del terraplén. Aun no lo hemos abordado, lo que pasa es que dentro del proyecto de la escuela sustentable, hay pequeños proyectos anuales. No se puede abordar todo en un año. Además tampoco ha surgido, sino sería como abarcar demasiado. Es mejor tomar un aspecto y profundizar en eso. Así como el primer año se tomó la flora exótica, por estar en el vivero, los niños estaban sorprendidos, como nosotros también porque no conocíamos los árboles y plantas que habían en el vivero... bueno empezamos a investigarlas, ¿de dónde venían, de qué países, cómo funcionaban? El primer año nos dedicamos a eso y bueno a conocer un poco la escuela, cómo funcionaba, cómo funcionaban los sistemas. El primer año fue eso. El segundo año empezamos a analizar e investigar árboles exóticos y árboles nativos, porque se plantaron hasta 50 árboles nativos donados por dos viveros cercanos. Hicimos una ficha de árboles nativos, los chiquitos trabajaron con microfauna dentro del vivero, porque tenemos pulgones asociados con San Antonios por ejemplo. Y las asociaciones tanto de cultivos con animales. En tercer año por ejemplo, se digitalizó esa información. Se hicieron todos los códigos QR. El año pasado se trabajó con los microorganismos eficientes nativos. Este año, a pesar de la pandemia, se trabajó con carbón activado. Carbón activado, con distintos tipos de producción de insecticidas orgánicos. Se empezó a trabajar con los hongos y el reino fungi pero claro, al ser un año atípico no se pudo llevar a cabo en su totalidad. Pero bueno... la otra idea era hacer talleres con padres, que tampoco se pudo hacer. Eso es lo que me parece que falta, involucrar más a la familia y lo que los niños están haciendo dentro de

la escuela. Como este año no pueden entrar a la escuela, bueno, dentro de unos años sería lindo hacer talleres fuera del horario escolar con padres y sus hijos para mostrarles lo que están haciendo, cómo están trabajando la huerta, ¿qué tipo de insecticidas se pueden hacer? ¿Cómo se pueden realizar los men /sic/? Pero bueno hacerlo en la escuela. Incluso estuvimos vendiendo men el año pasado, que justo para esta escuela es fantástico.

D: Te puedo hacer una última pregunta. Volviendo un poco a la educación para el cambio climático, hay cinco enfoques globales para enfocar la pedagogía de educación para cambio climático. Quería saber tu opinión sobre cuáles están más alineados o representados en Jaureguiberry. Entonces te voy a decir las opciones y comparto mi pantalla así lo podés leer también. ¿Cuál de los siguientes enfoques de educación para el cambio climático crees que está más alineado con la escuela?

- 1) Enseñar ciencia de manera tal que se reconoce que la ciencia es compleja y tiene matices;
- 2) Pedagogías que se enfocan en información, mitos y debates sobre el cambio climático;
- 3) Un enfoque que invita a la investigación crítica y reflexionar sobre perspectivas globales;
- 4) Pedagogía enfocada en el/la estudiante, que intenta ser transformativa y tiene como objetivo tener un currículum centrado en el cambio climático;
- 5) Se promueve la participación estudiantil en la investigación y mitigación del cambio climático.

I-02: Las más... y bueno ellos investigaciones han hecho porque hay estudiado las men, el carbón activado, cosas que no sabían ni lo sabía yo tampoco. Pienso que el 4 y el 5, porque justamente se promueve investigar todo esto que mencioné y bueno la importancia del uso de todos estos productos y la mitigación justamente en el ambiente, en forma amigable con el medio ambiente. Ellos son los que realizan y son los protagonistas. Y bueno, a una

investigación crítica también, es justo lo que mencionaba. ¿Qué está pasando?
¿Cómo podemos mitigar todo eso que nos rodea? y bueno ... no sé... un halo de
esperanza por decirlo de una manera.

D: Te gustaría agregar algo?

I-02: No se me ocurre en este momento, cualquier cosa te aviso.

D: Si se te ocurre algo me mandás un audio y lo agrego.

I-02: Dale, muchas gracias. Espero que te sirva. Abrazo!

D: Gracias a vos! Saludos!

Appendix VI - Full list of codes

Code	Description	No. of Interviews	References
Benefits of school on community	References to how the school, its activities and practices have benefited the community at large (kids, parents, educators, etc)	10	19
Broader Community	References to the broader community living in Jareguiberry.	2	4
Climate Change	References to climate change, in or out of school context.	6	12
Commitment	Commitment of the person or family to the school and its project or activities	7	17
Educational Team	References to the educational team	6	17
Infrastructure	References to the building or other school infrastructure	6	12
Dissatisfaction with Status Quo	References to dissatisfaction towards the state of affairs.	3	6
Media	References to the school appearing in media outlets	2	2
Miscellaneous		4	6
Multiple Choice Question	References to multiple choice question: global tendencies in CCE.	5	7
National Education Authorities	References to national education authorities such as ANEP and CEIP.	4	15

Code	Description	No. of Interviews	References
National Education Policies	References to national education policies and practices.	2	10
Pedagogy	References to pedagogical practices.	9	30
Problems	References to difficulties and challenges in everyday school life.	7	22
Professional experience and development	References to interviewees' professional experiences or development in relation to the school	4	17
Reflections		10	37
School Activities	References to school activities and practices	9	18
School Community	References to the school community	6	19
School network	References to the school being part of a broader network.	3	7
Sustainable practices	Practices like growing their own food, using renewable energy, water collection, etc. outside of school premises	5	9
Tensions	Tensions or issues related to school activities and practices	7	16