Cogent Education

ISSN: 2331-186X (Online) Journal homepage: www.tandfonline.com/journals/oaed20

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To cite this article: Anne Kjellsdotter (2025) From margin to center? Rural students' engagement and future imaginaries in designing a sustainable city, Cogent Education, 12:1, 2594839, DOI: 10.1080/2331186X.2025.2594839

To link to this article: https://doi.org/10.1080/2331186X.2025.2594839

COGENT EDUCATION
2025, VOL. 12, NO. 1, 2594839
https://doi.org/10.1080/2331186X.2025.2594839

STUDENT LEARNING, CHILDHOOD & VOICES | RESEARCH ARTICLE

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From margin to center? Rural students' engagement and future imaginaries in designing a sustainable city

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ABSTRACT

Sustainability education has become central to curricula worldwide, yet little is known about how students in rural contexts experience and make meaning of sustainability. This study addresses this gap by examining how a sustainability project was enacted in a rural Swedish primary school. Drawing on classroom observations, field notes, and interviews with 22 students aged 10–12 and their two teachers, the analysis explores how students engaged with global sustainability discourses through locally grounded practices and multimodal design work in Minecraft. Informed by Bourdieu's sociology and the New London Group's multiliteracies framework, the findings show that students reimagined sustainability on their own terms, integrating rural values such as self-reliance, care for nature, and community belonging into their designs. The study contributes to sustainability education by illustrating how place-based and digital practices can enrich curricular work and challenge urban-centric assumptions about where sustainability knowledge and innovation reside.

ARTICLE HISTORY
Received 30 July 2025
Revised 12 November 2025
Accepted 20 November 2025

KEYWORDS
Sustainability; rural; education; primary school; Sweden

SUBJECTS
Social Sciences; Education; Education Policy & Politics; Education Policy; Curriculum; Social Sciences; Education; Education Policy & Politics; Education Policy; Pedagogy; Technology; Engineering & Technology; Technology

Introduction

Sustainability education has become a cornerstone of contemporary curricula worldwide. Schools are increasingly recognized as key sites for preparing young people to address the environmental and social challenges of the twenty-first century. Education systems are therefore expected not only to promote knowledge of sustainability issues but also to cultivate students' capacity to act, collaborate, and imagine alternative futures. This global educational agenda is articulated in the United Nations' Agenda 2030 and its 17 Sustainable Development Goals (SDGs), which call for transformative learning processes that empower students as agents of change, particularly in relation to Goal 11: Sustainable Cities and Communities.

Within this framework, Education for Sustainable Development (ESD) serves as a key pedagogical approach. In Sweden, ESD is broadly defined as the process of developing students' ability to understand and act upon the complex interconnections between environmental, social, and economic systems (Swedish National Agency for Education, 2022). It reflects a holistic and competence-oriented understanding of learning that extends beyond disciplinary knowledge to include values, ethical reflection, and action competence. Rather than constituting a separate subject, ESD is treated as a cross-curricular objective that permeates all subjects and grade levels. Consequently, all teachers share responsibility for fostering sustainability awareness, encouraging critical thinking, and supporting students' capacity to participate in shaping sustainable futures through inquiry, dialogue, and collaborative problem-solving.

The Swedish approach aligns closely with global ESD principles outlined by UNESCO (2016), particularly the emphasis on transformative learning and global citizenship. Yet its implementation also carries

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distinctive national features. First, Swedish ESD policy underscores democratic participation and the view of students as capable and active agents (Bengtsson & Plummer, 2024). Second, while other countries, such as Germany and Japan, often structure ESD around defined competencies or science-based environmental education, the Swedish model adopts a more pluralistic approach. Teachers are encouraged to integrate ethical, cultural, and social perspectives alongside ecological ones (Bengtsson & Plummer, 2024; Borg et al., 2014). This pluralism provides flexibility but also results in variation in how ESD is interpreted and enacted in schools. Consequently, differences in geographical and social conditions, particularly between urban and rural contexts, can shape how sustainability education is experienced and made meaningful in practice.

Nevertheless, when it comes to Scandinavian research studies, many rely primarily on document analysis, particularly of curricula and textbooks, as their main data sources (Bragdø, 2022). Thematically, the dominant focus has been on teachers' conceptions and attitudes toward education for sustainable development (ESD), often explored through comparative studies across different school subjects. In contrast, research that centers on students' perspectives or examines actual classroom practices remains limited (e.g. Bragdø, 2022; Trott, 2020). This imbalance leaves a gap in understanding how sustainability education is interpreted, experienced, and enacted by learners themselves. Since students are the ultimate participants and future agents of sustainable change, their perspectives are crucial for understanding how educational goals are translated into meaningful learning and action. Examining students' views also reveals how they negotiate curricular expectations and global sustainability discourses through their own lived experiences, an especially important issue in diverse contexts such as rural schools.

The study presented in this paper addresses this gap by exploring a classroom practice in a rural Swedish primary school during a sustainability project, focusing on how the task was designed and experienced by students aged 10 to 12. The project was part of a national program open to all schools, which provided guidance and support materials. This initiative aimed to explore the potential of such projects to foster sustainable mindsets and active citizenship from an early age. As members of Generation Alpha, those born from the early 2010s onward, these students are growing up in a highly digitalized world. However, emerging research suggests that rural youth often diverge from dominant portrayals of their generation, revealing a complex interplay between global digital influences and local rural heritage (Kjellsdotter & Erlandson, 2024).

Despite these contextual distinctions, national educational directives apply uniformly across all Swedish schools, regardless of their geographical or socio-cultural conditions. Yet, rural and urban communities differ significantly in their social structures, economic realities, and everyday lived experiences. These differences can shape how students relate to sustainability issues, suggesting that a one-size-fits-all curricular model may fall short of meeting diverse educational contexts.

In response to this challenge, scholars have called for a more contextualized approach to curriculum. Gruenewald (2003) introduces *critical pedagogy of place*, a framework that combines place-based education with critical pedagogy, encouraging students to engage deeply with their local environments while examining the broader social and historical forces that shape them. Building on these ideas, Roberts (2023) critiques the urban-centered assumptions embedded in national curricula, particularly in the Australian context. He highlights how curricular knowledge often overlooks the perspectives of rural and Indigenous students and calls for renewed attention to 'the knowledge question', that is, whose knowledge is legitimized and prioritized. Without such critical reflection, he warns, education risks becoming technocratic and exclusionary, further marginalizing already underrepresented voices.

Previous research thus underscores how variations in place- social, cultural, economic, and geographic- shape both the challenges and possibilities of sustainability education (e.g. Gruenewald, 2003; Roberts, 2023). Recognizing these differences is crucial for designing educational experiences that are inclusive, equitable, and genuinely transformative, especially in diverse settings such as rural schools.

Sustainability education in diverse school settings

Over the past two decades, both Swedish and international research have increasingly examined sustainability issues across different school levels and contexts. A common thread across this body of work is the integration of ecological, social, and economic dimensions of sustainability alongside an emphasis on student agency, community-based learning, and reflective pedagogies. However, despite this

broadening focus, research varies considerably in how deeply it engages with the lived experiences of learners and the contextual conditions shaping their participation.

Swedish research has contributed significantly to understanding how Education for Sustainable Development (ESD) is implemented across age groups, although the emphasis has largely been on pedagogical design and teachers' perspectives rather than on students' meaning making processes. For instance, Olsson et al. (2016) demonstrated that ESD positively influences younger students' sustainability consciousness, particularly in the early years of schooling. Yet the decline in engagement among students aged 15 points to challenges in maintaining their interest and deepening understanding over time- a finding that underscores the need to explore how students themselves experience and sustain such learning. Similarly, in early childhood and lower primary education, studies by Larsson and Samuelsson (2019) and Samuelsson et al. (2019) show that when children are positioned as capable agents, they develop a sense of ownership and responsibility for sustainability issues. These studies reveal the transformative potential of participatory pedagogies but offer limited insight into how older primary students negotiate sustainability in more structured, curriculum-driven tasks.

Recent Nordic research has extended this understanding by examining how sustainability education is represented in curricular materials and teacher practices. Vesterinen (2024), through a content analysis of Finnish primary school guidebooks, found that while sustainability themes are widely included, explicit links to the development of key sustainability competences, such as systems thinking or action competence, are often weak or implicit. Similarly, Ohlsson et al. (2024) identified four pedagogical practices central to Swedish preschool teachers' work with sustainability: teacher presence, grounding in children's experiences, agency, and communication. Together, these studies reveal a strong pedagogical commitment to ESD but also a recurring gap between policy intentions and classroom realities, where sustainability is often taught as content rather than experienced as lived practice.

International research has reinforced these insights, emphasizing the importance of participatory and action-oriented learning. Hacking et al. (2013) argue that incorporating children's voices into school sustainability agendas fosters ownership and empathy, while Trott (2020) documents how collaborative climate action projects can enhance students' critical and civic engagement. Similarly, studies in Indonesia and China (Ai-Jou et al., 2024; Ballantyne & Packer, 2009) demonstrate that inquiry-based and game-supported learning can cultivate systems thinking and environmental awareness among young learners. These diverse approaches highlight the pedagogical value of experiential and multimodal learning, yet most of these studies are situated in urban or institutionally well-resourced contexts.

The intersection of ESD and rural education, by contrast, remains underexplored. Existing Nordic and international research (Corbett, 2007; Corbett & Forsey, 2017; Rosvall et al. 2018) suggests that rural youth often face conflicting expectations, to pursue education and mobility while maintaining attachment to local communities. This 'learning to leave' narrative contrasts sharply with the place-based ethics emphasized in sustainability education, revealing a structural tension between educational aspirations and lived rural realities. Few studies have examined how rural students themselves interpret and engage with sustainability education within these conditions. As a result, we know relatively little about how global sustainability discourses are translated, reimagined, or resisted in rural classrooms.

In summary, these studies point to three key patterns. First, research has advanced understanding of pedagogical intentions and curricular frameworks but paid limited attention to how students make sense of sustainability through everyday classroom practice. Second, while learner agency is increasingly emphasized, it is often conceptualized through teacher accounts rather than students' own voices. Third, the rural dimension- where issues of identity, opportunity, and place profoundly shape learning- remains marginal in sustainability education research.

Against this background, the present study seeks to address these gaps by examining how education for sustainability unfolds in a rural Swedish primary school. By focusing on students' participation in a nationally framed classroom project, the study explores how rural youth negotiate the relationship between global sustainability ideals and local lived experiences. This analysis contributes to a more situated and equitable understanding of sustainability education, raising broader questions about how curriculum, place, and agency intersect in shaping students' future imaginaries.

This study is guided by the following research questions:

i. How do rural primary school students engage with sustainability education within the framework of a national initiative?
ii. What educational challenges emerge when implementing a sustainability task in a rural primary classroom in Sweden?

Theoretical foundation

To understand how rural students engage in the classroom task of designing a future society with attention to sustainability, Bourdieu's (1989, 2000) concepts of *habitus, capital, field*, and *site effects* are applied in combination with the New London Group's (2000) multiliteracies framework, particularly the notion of *Design*.

Bourdieu's sociological framework provides a way to conceptualize how individuals' dispositions and practices are shaped by, and in turn shape, the social and physical spaces they inhabit. In rural contexts, where social networks are often close-knit and intergenerational, *habitus,* the embodied dispositions shaped by past experiences, can influence how students imagine the future and engage with sustainability. *Social capital*, referring to the resources embedded in social networks, is especially relevant in rural settings, where familiarity and trust within the community both support and constrain innovation (Bourdieu, 1989, 2000). The classroom task, therefore, takes place within a field of education that intersects with other fields, such as local politics, agriculture, and environmental activism, where different forms of capital (economic, social, cultural) are valued and contested.

Furthermore, is the notion of *site-effects* (Bourdieu, 2000), which highlights how the physical and social characteristics of a place shape the possibilities for action and change. Rural youth, situated at the intersection of local traditions and global discourses on sustainability, may experience tensions between inherited ways of living and emerging possibilities for transformation. These tensions can open spaces for agency, moments where the *habitus* may shift in response to new experiences or fractures in the field. In this study, the classroom becomes a key site where these shifts can be initiated, negotiated, or resisted, as students engage in the imaginative process of societal design.

Complementing Bourdieu's structural perspective, the multiliteracies framework developed by the New London Group (2000) conceptualizes learning as a process of *Design*, where meaning is actively created, recontextualized, and transformed through multimodal and cultural resources. In this view, learners are not passive recipients of knowledge but active designers who work with *available designs*-the social, linguistic, and semiotic resources available to them- to produce the *redesigned*, or new forms of meaning and representation. This perspective is particularly relevant for the analysis of students' sustainability projects, which require them to imagine and communicate alternative futures through diverse modes of expression (Cope & Kalantzis, 2015; Jewitt, 2008). Research within the multiliteracies tradition emphasizes that meaning making is situated and involves multiple modes of communication as well as embodied forms of representation. In previous studies, the concept of *Design* has been used in research within schools as well as in other institutions such as museums (Adami et al., 2022; Kress, 2014; Öman & Hashemi, 2015).

Crucially, the New London Group's (NLG) framework situates literacy and meaning making within social and cultural practices, aligning with Bourdieu's emphasis on the social embeddedness of action. As students work collaboratively to envision sustainable futures, they are engaging in *transformative design*, reworking inherited meanings and practices in response to contemporary challenges. This process is shaped not only by the teacher's scaffolding but also by the broader field of sustainability discourse and by students' own *habitus* and access to various forms of capital.

Together, Bourdieu and the NLG framework offer complementary perspectives: while Bourdieu contributes to understanding the social structures and dispositions that shape how students approach the task, the NLG framework highlights how meaning is actively negotiated and transformed through semiotic work. This theoretical grounding enables a nuanced analysis of how rural students engage with sustainability, design futures and potentially shift their own and others' positions within intersecting social fields.

Materials and methods

The sub-study presented in this paper is part of a three-year research project[1], initiated in the spring of 2022, which focuses on three rural research sites in Sweden. With a population of just over 10 million, Sweden has only 10 cities with more than 100,000 inhabitants and 115 smaller cities with populations ranging from 10,000 to 100,000. These urban areas collectively account for 63% of the population. Currently, Sweden is divided into 290 municipalities and 21 counties, encompassing both urban and rural areas as defined by international standards. According to the Confederation of Swedish Enterprise, the three research sites in the larger project are classified as 'rural communities,' meaning they have fewer than 15,000 inhabitants in the largest urban area and a low commuting rate (less than 30%).

The three research sites were located approximately 300 kilometers apart, reflecting a considerable geographic spread and variation in local conditions. The municipality featured in this sub-study is situated about 200 kilometers from the nearest larger urban city. These characteristics illustrate the distinctly rural nature of the community and provide essential context for understanding local schooling conditions and opportunities for sustainability education.

Previous research from the research project highlights the complex interplay between rural culture, educational practices, and digital transformation in Swedish communities (Erlandson & Kjellsdotter, 2025; Kjellsdotter & Erlandson, 2024). These studies show that rural life is deeply shaped by traditional values, particularly those connected to farming and local identity, which often stand in contrast to national education policies and metro-centric ideals that prioritize formal schooling and global competitiveness. Pupils in rural areas, especially those from Generation Alpha, navigate tensions between their local heritage and the global digital cultures they engage with during leisure time, thereby reshaping their sense of place and identity (Kjellsdotter & Erlandson, 2024). While these young people creatively appropriate digital subcultures to extend their communicative spaces beyond local constraints, their future aspirations remain partly anchored in inherited socio-economic structures. The research also underscores the pivotal role of ethnographers in these contexts (Kjellsdotter & Erlandson, 2025). By adopting a co-productive approach, ethnographers not only expose, and challenge entrenched social dynamics but also contribute to educational reflection and potential transformation.

However, the focus of this paper is to analyze a rural classroom task by examining how primary school students engage with a sustainability initiative. Drawing on ethnographic data, the paper explores the educational challenges and possibilities specific to rural contexts, contributing to the broader discourse on rural transformation.

The setting, the participants and the task

This sub-study focuses on one of the research sites, a group of participants living in a small, rural village in Sweden. This site was selected because the school had recently participated in a six-week sustainability project and provided a rich opportunity to observe how sustainability was interpreted and enacted in a rural context, where local traditions, economic activities, and community relations differ significantly from urban settings (Kjellsdotter & Erlandson, 2025). Focusing on this site allowed for an in-depth exploration of how students engaged with global sustainability discourses through locally grounded practices. The decision to present this case separately from the other research sites reflects its distinct contribution to understanding how place-based conditions shape students' experiences and meaning-making in relation to sustainability education.

The local community at this site is primarily agricultural, with farms specializing in forestry, crop cultivation, and animal husbandry. The landscape is characterized by small clusters of buildings, including a grocery store, residential homes, and a school that also houses a public library. The local culture is deeply rooted in a rural working-class tradition, with generations of farmers and laborers maintaining strong ties to both land and community. Many children in the area grow up on farms where agriculture plays a central role in everyday life. Parents often combine farm ownership with other occupations, reflecting a long-standing lifestyle that blends agricultural labor with diverse sources of income.

In recent years, digitalization has increasingly influenced work, social interaction, and local institutions, including schools. The community's primary school serves approximately 260 students in grades one

through six, supported by 25 teachers. Additionally, a preschool unit accommodates 100 children, staffed by 25 educators. Due to the school's large catchment area, many students commute long distances by school bus, with some traveling up to an hour each way. The teaching staff also includes many who commute from nearby towns, though several are 'returnees', individuals who grew up in the area and have since returned to live and work in their home community.

The student population is diverse in terms of educational needs. The school accommodates children with special educational needs, and while the linguistic environment is largely homogeneous, with no students currently identified as second-language Swedish speakers, the recent arrival of Ukrainian families has added cultural and linguistic richness to the school. These students have quickly developed strong Swedish language skills and have integrated smoothly into the classroom environment. Most pupils are long-term residents whose families have lived in the area for generations. However, a smaller number come from families who have recently relocated from urban centers, with parents commuting to jobs in nearby cities.

The classroom task analyzed in this study is part of a national initiative organized by a non-profit organization focused on schools and students aged 10–12 years. The initiative challenges students to 'create a vision for a sustainable city'. Participating schools receive guidance in the form of instructional texts and supportive materials. Although participation is voluntary, many schools take part to align their teaching with the sustainability goals outlined in the Swedish national curriculum (Swedish National Agency for Education, 2022). The school in this study has participated in the initiative before.

The task was designed as a collaborative, interdisciplinary project involving subjects such as geography, civics and science. Students were divided into groups and assigned to design different areas of a sustainable city such as schools, hospitals, farms, transportation systems, and emergency services. They first built prototypes of these areas using cardboard and then recreated their designs digitally using Minecraft.

Spanning a six-week period, the project culminates in a regional competition. Throughout the process, students engage in reading relevant texts, group work, sketching, model construction, and digital design. At the conclusion of the project, students present their final city designs to a jury composed of local representatives. The jury evaluates the projects based on criteria such as innovative solutions, visual design, and how effectively the students have addressed the theme of 'a sustainable city'. To make the structure of the six-week sustainability project more transparent, the overview in Figure 1 illustrates how the project progressed from conceptual exploration to collaborative digital design and final presentation.

Data collection and analysis

The data presented in this study were collected during the autumn of 2024 at the participating school. An ethnographic approach was employed, incorporating participant observation alongside both formal and informal interviews (Hammersley & Atkinson, 2007). These methods were chosen to explore the research questions in depth and to gain nuanced insights into the social and educational dynamics of the setting.

Data collection involved systematic documentation through detailed field notes taken during and after each school day. Informal interviews with 16 students and 2 teachers were conducted during regular classroom activities, while formal interviews were arranged separately with both groups. All interviews were either documented in field notes or audio recorded. The format of the interviews varied, including individual sessions as well as small group discussions. All interviews and observation notes were originally conducted in Swedish. During the analytical process, the material was first coded and interpreted in the original language to preserve the authenticity of participants' expressions. For publication, relevant excerpts were translated into English with careful attention to maintaining both meaning

Figure 1. Overview of the six-week sustainability project.

Figure 2. Students illustrated part of the sustainable city in Minecraft.

and tone. Consideration was given to idiomatic expressions and culturally embedded references to ensure that the nuances of students' and teachers' expressions were not lost in translation. The English versions were compared against the original transcripts several times to check for accuracy and coherence. When ambiguities arose, the Swedish wording was revisited, and adjustments were made to achieve conceptual and emotional equivalence. This iterative approach aimed to produce translations that were faithful to participants' voices while remaining accessible and comprehensible to an international readership.

Ethical considerations were carefully observed throughout the study. Informed consent was consistently obtained from all participants, and the full school staff was made aware of the researchers' presence. All interviewees were briefed on the purpose of the study, and participation was entirely voluntary and treated with full confidentiality. Ethical approval for the project was granted by the Swedish Ethical Review Authority, and informed consent was also obtained from the parents of underage participants.

Once data collection was complete, the material was reviewed and organized for analysis. Field notes were digitized and categorized into sections to facilitate pattern recognition and interpretation. This structured approach allowed for both a broad and detailed understanding of the data.

The analysis followed an iterative, multi-stage process informed by the thematic analysis framework outlined by Braun and Clarke (2006). The first step involved repeated readings of the data corpus to generate initial codes, capturing noteworthy elements across the dataset. These codes were then collated into preliminary themes, which were reviewed and refined in relation to both the coded extracts and the dataset. This iterative process helped sharpen the specificity and coherence of each theme and supported the development of a clear narrative aligned with the study's aims.

Following this, illustrative examples were selected to represent each theme. These extracts were chosen to ensure authenticity and transparency in reporting participants' experiences. The final phase of the analysis was guided by the study's theoretical framework, drawing on Bourdieu's concepts of habitus, capital, and field (Bourdieu, 1989, 2000), as well as the New London Group's (2000) multiliteracies framework. This theoretical lens provided deeper insight into how social positioning and semiotic practices influenced students' engagement with the sustainability task. By applying thematic analysis in conjunction with the ethnographic data, the study was able to generate a rich, nuanced account of how rural students participated in, and transformed a classroom task centered on imagining a sustainable future city.

Results

The results of this study reveal how rural students reimagined global discourses of sustainability through the lens of their own lived experiences and local knowledge. Through the collaborative classroom task involving the design of a sustainable city, students engaged in meaning-making processes using

multimodal practices and drew on rooted rural values such as self-sufficiency, community care, and environmental awareness.

The findings are organized into three themes that shed light on how rural students engage with sustainability education. The first theme examines how students relate their local experiences to the global discourses embedded in the classroom task. The second focuses on their use of multimodal and collaborative literacy practices in imagining and constructing a sustainable city. The third theme examines how students challenge urban-centric perspectives by integrating rural values and knowledge into their designs.

Rural students in the educational field between local experiences and global visions

The students' task, designing a sustainable city of the future, brought together two distinct knowledge domains: policy-driven global discourses of sustainability, outlined in the instructions of the task, and the students' own rural, situated experiences. Sixteen students, working in five groups, were instructed to work collaboratively and create a city design consisting of 10 areas as they planned themselves. These included a residential area, a recycling station with wind turbines, a school with a preschool, a transportation area with bus stops throughout the city, an industrial area where timber is produced, a hospital, emergency services, a farm with various animals and crops, and a final area: a marketplace where food from the farm could be purchased.

Notably, the inclusion of a farm and a local food marketplace suggests that rural knowledge and values were not discarded but recontextualized within the future-oriented and urban framework of the assignment. This supports an interpretation that students were not simply absorbing dominant discourses of sustainability but negotiating and reshaping them through the lens of their own life experiences. Their design choices reflect what the New London Group (2000) calls *available designs* - the conceptual and material resources drawn from their own contexts, shaped by a socio-ecological logic where food production, access to nature, and local self-sufficiency are central.

The multimodal nature of the project further illustrates this. Students began by sketching their assigned city areas and identifying necessary components. They then constructed cardboard prototypes, attempting to build them to scale. As one teacher explained:

> They also had to sketch what their area would look like and decide what needed to be included. We built prototypes using cardboard, and they tried to make them to scale. After that, they moved on to building in Minecraft, where they were expected to recreate the areas based on their prototypes. But I would say that a lot of the focus was on Minecraft itself. The game world really captured their interest, so it became a major focal point of the project. [Teacher interview, audio-recording]

Here, the shift from physical to digital environments, particularly the students' enthusiasm for Minecraft, highlights how meaning-making occurred through diverse semiotic modes: drawing, model-making, and digital construction. According to the New London Group (2000), this engagement with multimodal design is not just expressive but epistemic, shaping how knowledge is constructed and communicated.

Additionally, the teacher emphasized that the students remained highly engaged throughout, collaborating closely and supporting one another. Even students who normally showed little interest in schoolwork participated fully. This may indicate a temporary reconfiguration of the pedagogical field, where students' embodied dispositions often misaligned with traditional schooling became advantageous. The task also functioned as an introduction to urban infrastructure and community planning - knowledge largely unfamiliar to these rural students. As the teacher explained:

> The children learned about what a community is and what is needed for a community to function. We explored this in different ways. After gaining some basic knowledge about cities, they began thinking about their own community. I would say the hospital and the school became the main focal points - definitely. And also the farm. [Teacher interview, audio recording]

From a Bourdieusian perspective, the project unfolded within the *educational field*, where symbolic capital is assigned to certain competencies, such as digital literacy, environmental awareness, and structured reasoning. However, their enthusiastic engagement with the game world also reflects their own

student capital, gaming knowledge, creativity, and peer collaboration, which they invested actively in the task.

Yet, the students' investment in Minecraft also reflects a reconfiguration of the field's internal logic. Rather than simply complying with institutional expectations, they brought their own habitus - their play-based literacies and gaming experiences - into the school context. As such, Minecraft functioned not only as a legitimizing tool in the eyes of educators and competition organizers but also as a space for agency and cultural expression. This dynamic illustrates the interplay between institutional capital (school-sanctioned practices) and student capital (gaming literacies, creative imagination), producing a learning environment where global and local discourses of sustainability intersected.

Rural students' multiliteracies practices in imagining a sustainable city

During the design process the rural students engage in multiliteracy practices, using a range of modes including text, images, oral expressions to envision and design a sustainable city of the future. Throughout the classroom work students' experiences became visible in how they interpreted and responded to the task. During participatory observations and formal and informal interviews, many students express strong attachments to their rural surroundings. For example, one girl explained:

> If I were to relocate, it would be to Stoneby, where my grandfather owns a sizable farm. [Student interview, field notes]

This sentiment reflects a broader pattern. Most students imagined their future lives in the community or nearby smaller towns, such as Stoneby, rather than in larger urban centers. The idea of moving to a city was frequently described as intimidating. As also one teacher noted:

> There is a preconceived notion about larger cities. They do not dare to go there because it is dangerous … The students are used to the open fields here. But they can feel very comfortable spending an entire day in the forest or by the lake. [Teacher interview, audio recording]

Although, during the classroom work, rather than passively adopting dominant discourses, the students recontextualized them using resources already embedded in their life. Their imagined cities often prioritized elements that made sense in a rural logic: local food production, clean energy through wind turbines, and nature-integrated living environments. These locally grounded perspectives contrast with the global visions of sustainability embedded in the school task. Nevertheless, rather than rejecting the task's premises, students recontextualize them. They design urban environments using rural logic, prioritizing food production, clean energy, and community-centered infrastructure. Field notes from student interviews further illustrate this tension. One girl spoke about wanting to stay in the rural community even though she dreams of living in a large white house she saw on TikTok:

> I want to live as far away from a big city as possible … There are too many people, and it is expensive. My uncle bought a house in a big city, and it was not even nice, it cost 10 million (*Swedish crones*). [Student interview, field notes]

Despite her aversion to cities, she could imagine visiting once a year to shop in designer stores. At the same time, aspirational media such as TikTok introduced new imaginaries into her vision of the future. She dreamed of a large white house modeled after something she had seen online, but crucially, she still wanted to place it in her hometown. In another conversation, another student expressed fear of the nearest shopping center, stating:

> It is scary there. There are strange people, especially drunk old men. [Student interview, field notes]

These narratives complicate the idealized notion of 'future cities' often embedded in sustainability curricula by showing that students' imaginaries are grounded in values of security, familiarity, and relational proximity. While global discourses of sustainability frequently emphasize technological innovation and urban density, the students' designs instead highlighted open spaces, nature, and social closeness, elements they associated with a 'good life' and a sustainable future. The narratives show how students' imaginaries are shaped by intersecting forms of *symbolic capital*, rural familiarity, safety, social belonging,

and digital aspiration, which may or may not align with the urban-centric visions promoted by schools or policy documents.

Moreover, the classroom task unfolded in several multimodal phases: students began by identifying essential elements of a city, worked with books, created hand-drawn and cardboard prototypes, and finally translated their designs into Minecraft. One student described their group work:

> We started by figuring out what is important in a city and what is good to have. Then we worked with books, and after that we drew the city on paper and built it in cardboard. It was hard to make everything fit together. [Student interview, field notes]

Collaboration was a strong theme throughout the process, both in students' own reflections and in teacher observations. Students reported that they helped each other solve challenges, particularly when building complex structures in Minecraft, like a fountain. They exchanged tips, reminded each other of forgotten features, and worked collectively to complete the city. One student described how the group implemented smart solutions:

> We added big windows to let in sunlight, lots of electric buses so everyone can ride at the same time, locally produced food, and wind turbines to power the whole city. [Student interview, field notes]

The students' designs of a sustainable city should not be seen merely as imaginative exercises in planning, but as acts of negotiation within a stratified educational field. Through multimodal engagement, they attempt to reconcile global expectations with local values, producing hybrid visions that bring the countryside into dialogue with the future.

According to both students and the teacher, the project fostered not only subject knowledge, but also key competencies in sustainability, cooperation, and digital problem-solving. Students experienced what makes a community function, what counts as climate-smart, and how to integrate natural elements into urban planning. As one student put it:

> We learned to be helpful to each other, to think about nature in the city, and to solve problems together. [Student interview, field notes]

The students' design of a sustainable city reflects more than a school exercise in urban planning. It is a site of negotiation between global discourses of sustainability and local rural values, between institutional expectations and student agency. Through their multimodal designs and collaborative practices, the students quite literally brought their countryside into the future: integrating forests, farms, and community halls into their imagined cities. Their work demonstrates how sustainability learning can draw strength from rural knowledge systems and how creativity becomes a means of asserting belonging and agency within global educational agendas.

However, these locally grounded attachments reveal the tensions inherent in the educational field, where students are asked to engage with abstract, global visions of sustainability that may not align with their lived realities. Within Bourdieu's framework, this mismatch can be seen as a structural issue of unequal access to *cultural capital* - specifically, to urban, policy-driven, and technocratic discourses that dominate sustainability education. While such forms of capital are often taken as universally relevant within schooling, they may in fact marginalize rural knowledge systems, even as students attempt to reconcile the two.

Redesigning the urban from the rural margin

While the task called for an urban sustainability vision, the students consistently incorporated rural infrastructures and sensibilities into their designs. Schools, farms, hospitals, and communal meeting places were central features of their imagined cities. In this process of *redesign*, the students take up available global discourses, such as the smart city, clean energy, and climate action, and filter them through *Available Designs* rooted in their own habitus. The findings show a hybrid vision that both conforms to and resists metrocentric norms (Figure 2).

The symbolic geography of the rural-urban divide is especially salient. Many features that are typically absent or underdeveloped in the students' own communities- such as hospitals, public transportation hubs, and retail centers - are emphasized in their city. Their inclusion reflects not only aspirational

thinking but also the students' awareness of their current marginal positioning in relation to societal infrastructures often concentrated in urban centers. As the field notes reveal, students made detailed decisions about the infrastructure of their imagined cities:

> The hospital should be large so many people can come. It will have a glass roof and solar panels to save electricity. The emergency services, fire department, police, ambulance, will all be powered by electricity, and there will be a charging station in the parking lot. There is even a helicopter pad with an electric helicopter. [Excerpt from student writings, based on field notes]

These features demonstrate an embrace of sustainability ideals but filtered through the students' rural sense of what a 'complete' and functioning community needs, one that compensates for current local absences and articulates a vision of rural empowerment.

Through Bourdieu's lens, the students' work reflects attempts to accumulate and deploy symbolic capital within the educational field, where certain kinds of knowledge, often urban, technocratic, and policy-aligned, are more highly valued. Yet the students' designs challenge these hierarchies by reasserting the legitimacy of rural knowledge systems. Farms, for instance, are not marginal add-ons but central components of the imagined cities:

> The farm includes fields where food is grown for the marketplace. There are also pastures for animals and a small forest for berry-picking. [Excerpt from student writings, based on field notes]

Food production is not only valued for its environmental impact but also for its proximity and familiarity, indicating a localized understanding of sustainability that diverges from more abstract or market-driven models. This rural logic also shapes how students imagine governance and social participation:

> The city should have a large community hall where people can talk to those in charge of the city. Important decisions are made there. The building will have a glass roof and solar panels. [Excerpt from student writings, based on field notes]

Such statements reveal an emphasis on democratic participation, local autonomy, and dialogue, values often embedded in rural social life but rarely foregrounded in dominant urban-centric future imaginaries. Moreover, the multimodal format also allowed for a blending of rural material realities with global media imaginaries. One student group, for example, imagined electric airplanes, solar-powered schools, and sustainable factories that also produced toys and building materials:

> The factory cuts timber for building houses but also makes furniture and toys. [Excerpt from student writings, based on field notes]

Through these blended visions, students articulated rural futures that were not defined by lack or deficiency, but by innovation, care, and environmental awareness grounded in place-based knowledge. This sustainability task offered more than a creative classroom activity; it became a symbolic arena where rural students could claim legitimacy within a field often dominated by urban-centric assumptions. By drawing on their *habitus* and local cultural resources, they were able to transform a task shaped by global discourses into something deeply situated and personally meaningful. Their multimodal compositions not only challenged metrocentric hierarchies but also demonstrated how rural youth can act as agents of transformation, bringing the margin into the center on their own terms.

Discussion

This study contributes to sustainability education by exploring how rural primary school students in Sweden engage with a national classroom project on designing a sustainable city. Through the combined lenses of Bourdieu's sociology (1989, 2000) and the New London Group's (2000) multiliteracies framework, the analysis shows how students actively negotiated tensions between policy-driven discourses of sustainability and their own lived experiences in a rural context. Rather than merely reproducing curricular expectations, the students reinterpreted and transformed them, creating hybrid future imaginaries shaped by local logic, digital tools, and collaborative learning.

A central finding is that students did not see their rural identity as an obstacle but as a foundation for sustainable thinking. Their designs integrated clean energy technologies and public infrastructure, solar panels, wind turbines, electric buses, but always within a rural framework. Farms were central to

the imagined cities, not marginal additions. One group, for example, included a local food market directly connected to a working farm, complete with animal pastures, fields, and a nearby forest for berry-picking. These choices reflect an embodied understanding of sustainability as something rooted in proximity, community care, and ecological awareness, echoing the rural students' habitus and symbolic capital.

The notion of available designs (New London Group, 2000) is key to understanding how students conducted this task. Drawing from resources embedded in their daily lives, such as knowledge of farming, family traditions, and strong ties to nature, students recontextualized urban sustainability ideals to reflect rural sensibilities. The fact that many envisioned hospitals, schools, and police stations powered by renewable energy demonstrates their willingness to adopt global discourses, but always with a grounded perspective. As one student described, 'The hospital should be large so many people can come. It will have a glass roof and solar panels to save electricity.' Their visions of sustainability were not abstract ideals but tangible, place-responsive configurations grounded in what was missing or desired in their own communities.

These hybrid imaginaries reflect an important pedagogical insight: rural students are not passive recipients of sustainability education but active designers of meaning. Their engagement shows how local forms of knowledge, such as familiarity with farming, forestry, and community self-reliance, can be mobilized as educational resources, transforming what sustainability means in practice for rural learners.

The student's multimodal engagement, involving sketches, cardboard models, and Minecraft worlds, enabled them to negotiate complex ideas in ways that validated their existing literacies and collaborative practices. Minecraft became a space where gaming knowledge, creativity, and teamwork merged with school-sanctioned goals. The teacher noted that students who normally struggled in traditional subjects participated fully and enthusiastically in this task. This suggests that digital tools, when integrated meaningfully, can shift the dynamics of the educational field by valuing previously unrecognized forms of capital, such as student agency, digital fluency, and peer-led problem-solving.

Importantly, these findings challenge the dominant 'learning to leave' narrative in rural education (Corbett, 2007), which assumes that aspiration must be tied to urban migration. Most students in this study expressed a desire to remain in or near their home communities, despite being exposed to global sustainability ideals. One student, for example, dreamed of living in a white house she had seen on TikTok, but still wanted to place it in her hometown. Another described fear of the nearby shopping center and preferred the calm and safety of the countryside. These reflections illustrate a 'learning to stay' logic, where aspirations for innovation, design, and modern living are integrated with a strong attachment to place and local culture.

The results also suggest how sustainability education can become a site of symbolic contestation. Through their designs, students attempted to claim legitimacy within an educational field that often privileges urban, policy-driven, and technocratic forms of knowledge. By foregrounding food production, community-centered governance, and democratic participation, they redefined what counts as sustainable development. One group, for instance, included a community hall powered by solar energy where 'people can talk to those in charge of the city' and make important decisions. This emphasis on dialogue and local autonomy stands in contrast to top-down models of sustainability and suggests that students lived experiences can expand and enrich dominant discourses.

These findings align with broader research emphasizing the value of participatory and place-based approaches in Education for Sustainable Development (ESD). Students' creativity, engagement, and collaboration mirror insights from Ohlsson et al. (2024), who found that ESD is most effective when it builds on children's experiences and promotes agency. Similarly, Barratt Hacking et al. (2013) argue that including students' voices fosters ownership and responsibility. In this study, students' voices were not only heard, but they also actively shaped the project outcomes and generated new knowledge.

However, the study also exposes structural limitations within the national curriculum. Although the Swedish curriculum (Swedish National Agency for Education, 2022) promotes sustainability across subjects, it does so through a largely uniform lens that may fail to account for the diversity of student experiences and geographies. As Vesterinen (2024) notes, sustainability competences are often implied rather than explicitly supported. Without pedagogical sensitivity to context, such frameworks risk reproducing symbolic hierarchies that devalue rural perspectives. This study illustrates how those hierarchies can be

resisted, not through opposition, but through creative reworking of curricular goals in ways that honor rural lives and landscapes.

These structural limitations reflect what Roberts (2023) identifies as an urban-centered bias in national curricula, which often disregard the perspectives and knowledge systems of rural and Indigenous communities. His critique draws attention to whose knowledge is legitimized and prioritized in education and warns that without critical examination, curriculum design may become technocratic and exclusionary. This study offers a counter-narrative by showing how rural students, through creative reinterpretation, can reclaim agency and articulate sustainability in ways that reflect their own geographies and cultural values.

From an educational perspective, this points to the need for open-ended, multimodal, and context-responsive sustainability tasks that invite students to co-construct knowledge. When students are invited to participate as designers, not just recipients, they bring forward unique insights that challenge normative assumptions. They demonstrate that sustainable futures are not pre-defined blueprints to be memorized, but evolving imaginaries to be shaped through local knowledge, cultural values, and collective creativity.

Conclusion

The key findings from this study show that rural students engaged with sustainability through their lived experiences and local cultural capital. Rather than reproducing urban-centered models of sustainable living, the students integrated familiar rural elements, such as farms, forests, and marketplaces, into their imagined cities. These representations reveal how local values of self-reliance, care for nature, and community belonging can enrich sustainability education and broaden prevailing understandings of sustainable futures.

At the same time, the study demonstrates the potential of multimodal and digital tools to support students' meaning making. Working in Minecraft enabled them to visualize and collaboratively redesign sustainability concepts, transforming the classroom into a hybrid space where institutional goals and students' interests intersected. Through these multimodal practices, everyday literacies such as gaming and design became recognized forms of symbolic capital within the educational field.

By foregrounding the often-overlooked voices and experiences of rural students, this study contributes to sustainability education research in several important ways. It suggests that when local knowledge and multimodal resources are valued, sustainability education becomes more inclusive, participatory, and contextually grounded. For educators and policymakers, this highlights the need to recognize the diversity of sustainability imaginaries and to acknowledge the significance of place in shaping students' learning and engagement.

Future research could further explore how different contexts, such as rural and urban, affect students' sustainability imaginaries, and how digital design tools can foster participation and creativity in sustainability learning. Longitudinal studies might also examine how early educational experiences influence students' future aspirations and understandings of sustainability.

While this study offers important insights, it also points to the need for continued research into sustainability education in rural settings. This includes examining how local knowledge systems, community practices, and geographic diversity can be more effectively integrated into national sustainability frameworks. For instance, by drawing on community initiatives in renewable energy, local food networks, or nature conservation as entry points for school-based learning. Moreover, future studies could investigate how rural educators mediate between curriculum goals and the lived realities of their students. Ultimately, the students' work in this study reminds us of the importance of bringing sustainability expertise from the margin to the center.

Note

1. The project was funded by the Kamprad Family Foundation [Ref. 20220025].

Disclosure statement

No potential conflict of interest was reported by the author.

Funding

The project is funded by The Kamprad Family Foundation for Entrepreneurship, Research & Charity [Ref. 20220025].

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Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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