Innovation and inclusion in multigrade settings: A case study in a secondary rural school in Catalonia

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A R T I C L E   I N F O

A B S T R A C T

Today, it is essential that schools make profound changes that go beyond educational innovation, enabling social transformation and inclusion. The research addresses the work carried out in multigrade classrooms to promote inclusion and educational innovation in the classroom, considering the goal of achieving a more open and critical school where, in multigrade contexts, active methodologies and democratic structures are implemented, as well as changes in the resources used. This study is part of an R&D research project that aims to identify specific elements and practices developed in this area. Consequently, this article aims to analyse the features of the practices carried out in the multigrade classrooms of a secondary school in rural Catalonia considered to be innovative and pioneering in relation to the work carried out in the classrooms and in relation to the local area and community, fostering an inclusive educational context. The methodology used is an interpretative case study based on interviews with the management team, focus groups with students and families, pedagogical accounts with three relevant people related to the history of the school and, finally, participant observation during classes. The results show the link between the educational practices of the rural school and inclusion, as well as the consistency between the discourse and the reality observed in multigrade classrooms. The study reveals a wide range of innovative elements in the school's practices and discourse, such as personalised learning, teachers' reflective attitude, inclusion, democratic practices, community networking, and transformation through ICT.

1. Introduction

This article presents part of the results of the research project "(*Re*)Situating pedagogical renewal in Spain from a critical perspective. Five case studies in secondary schools in Aragon, Catalonia, Castile and León, Valencian Community and the Basque Country" (PID2019–108138RB-C22), which was carried out between 2021–2024. Specifically, it presents the results of the case study of the school-college located in Catalonia, which is multigrade not only out of structural necessity but also out of conviction and pedagogical choice. This school has a clear leadership and a commitment to inclusivity in the region and in classroom practices. Its main objective is to examine which aspects of the multigrade classrooms in this school, considering the pedagogical and inclusive value of educational practices, are linked to elements of innovation. All this is considered in relation to secondary education, which has been largely overlooked in educational research despite the existence of rural schools that incorporate it in Spain.

The methodology used is then set out, bearing in mind that the main objective is to identify the specific elements of the educational practices, in a multigrade context, that can be related to innovation and inclusion. Analysis and discussion of the data collected from the field work and organised in three scenarios is then presented, followed by the conclusions.

2. Literature review

2.1. Elements and educational practices in multigrade contexts: innovation for inclusion

There are several studies focusing on teaching and learning processes in the multigrade classroom that highlight their potential, in terms of improving learning by working with students of different ages together, allowing contact learning and the circulation of knowledge (Abós Olivares et al., 2021; Cornish & Taole, 2021; Hyry-Beihammer & Hascher, 2015; Santos, 2011). In addition, in many cases, the innovative potential of rural teachers is highlighted, as they adapt to different multigrade configurations and help promote inclusion not only in the classroom, in relation to their students, but also in the community (Boix, 2014).

Also, in this article we will focus links the work in the multigrade classroom with elements that could clearly be connected to innovation and inclusion (Abós Olivares, 2020; Mayoral et al., 2018). Some of them would be related to putting students at the centre of the educational process, the promotion of inclusive and transformative practices in schools, and beyond the school, influencing the context and the community itself, or the promotion of innovative teaching strategies, which leads to a transformation of educational spaces, times and resources. Traditional, transmissive and passive pedagogical practices could be significantly changed towards a new pedagogical paradigm, based on cooperative, personalized and comprehensive learning in multigrade classrooms (Forero-Pineda et al., 2006).

It should be noted that educational innovation as a concept is difficult to define, and it is necessary to highlight the unique characteristics of schools that are linked to it, as well as the issue at hand, which is the promotion of inclusion from the structure of multi-grade centres (De Castro-Calvo et al., 2024). Pericacho (2014) states that innovation is often presented as an invitation to improve certain aspects of the existing pedagogical model that could lead to educational improvement and inclusion (Ainscow et al., 2006). Our approach of educational innovation is closely linked to social transformation, consequently the school seeks to transform its educational practices both within and outside of the school for the education of all students in an inclusive perspective. In conclusion, school is the main unit to improve educational change. (López-Yañez & Sánchez-Moreno, 2021).

Related to the inclusive view, according to some authors, within the framework of Global Inclusive Education (GIE), a school designated as innovative and inclusive must respond to a series of aspects or dimensions inherent in its practices and school culture (Collet et al., 2022). All are necessary to continue advancing in education based on equity, social justice and inclusion. These goals have been on the agendas of governments, universities, research institutions, schools, and international organisations such as UNESCO and the OECD for many years.

Thus, GIE must be, simultaneously:

a) Systemic and intersystemic. Inclusion is inherent in the logic of the different levels of configuration, analysis and intervention of educational practices in schools and the education system (Bronfenbrenner, 1992). These levels would be the classroom as a micro level; the school and families; the educational system and, finally, the social, political and economic system specified territorially in the different communities. In this article we are going to focus mainly on the first and second level.

Incorporated. According to the authors, inclusion cannot be considered within each system or agent in isolation or in a segmented manner. Neither horizontal segmentation (of agents) nor vertical segmentation (of levels of configuration, analysis and intervention of educational practices) is acceptable. Therefore, inclusion within the systems themselves and between systems and actors needs to be oriented in a holistic way and thus link it to educational innovation for all.

a) Interwoven. By this dimension, the authors mean that educational inclusion must be embedded and capable of infusing, guiding and shaping every educational context and its practices. There is no (good) way to provide inclusive education if inclusive education is not a shared goal. This must reconfigure in a contextual and concrete way the educational practices and actions developed at all levels, systems and actors and their relationships.

b) Qualitative. Inclusion, within the consideration of global inclusive education, cannot be measured with generic numerical indicators, but is contextual, qualitative and experiential. Quantitative evidence can provide certain elements for evaluation. Therefore, in the case at hand, the evidence gathered can be highly valid. Within this framework, it is essential that the educational practices promoted are satisfactory for all students and allow for the inclusion of all of them in the classroom.

Finally, it should be mentioned that inclusive education cannot be proposed simply 'because it is the right thing to do now', but because it has ethical, educational and social significance for educational improvement. So, it is a question of rights and social justice, as evidenced by numerous declarations and laws (Collet et al., 2022), which must be translated into action in the classroom ensuring equal opportunities to be together, live with dignity, and learn without limits

Since exclusion, discrimination, and oppression in schools have different faces (Soldevila-Pérez, Farré-Riera and Simó-Gil, 2025). It is imperative to move towards the construction of more inclusive cultures) that value the presence, participation and learning of all students as a fundamental right, without forgetting those who are affected by one or more axes of inequality (Soldevila et al., 2025). This is precisely where multigrade rural schools play an important role, as they are a heterogeneous context in themselves that is

conducive to all this work, which must be taken advantage of by committed teachers (N. Carrete-Marín et al., 2024).

This inclusive framework ought to serve as the foundational basis for critically examining teaching and learning processes. For this reason, the didactic methodology of the teaching learning processes is based on the interests of the students, contemplates activities in different physical contexts, maintains a synergy between individual and group work, occurs in active, collaborative, and participatory learning contexts, stimulates communication and artistic creation, using different communicative languages, and has a formative nature, is continued over time and shared with students and families. Generally, they are processes in which project work is widely used and there is no use of textbooks as an exclusive teaching tool. Third, the teaching role is characterized by promoting educational contexts using various teaching-learning strategies, seeking to offer a comprehensive education and promoting the participation of the entire educational community (Cornish & Taole, 2021).

Thus, for this active participation of the students with a significant role in the teaching-learning processes is crucial. And even more so in multigrade classroom contexts. They are processes in which self-esteem, participation and the positive and balanced development of the students is the driving force that promotes them. Likewise, the student is a unique, differentiated being, with both rights and objections. They are also encouraged and intellectually stimulated through learning oriented towards inquiry and the development of projects in which the creation and contribution of proposals around issues that concern them is promoted.

The students are the protagonists of the teaching and learning process (Pericacho & Andrés-Candela, 2018), an aspect that is usually related to the personalisation of learning and the implementation of school projects or activities that place the students at the centre (Romero García et al., 2024). The organisation, methodologies, didactics and other school elements and strategies are thought, designed and built so that students can develop holistically, enhancing all their capacities. At the same time, they are considered active and indispensable agents in decision-making and school participation (Soldevila et al. 2025). The different educational stages and levels establish an educational relationship. Pupils from different years and with different educational interests meet, interact, work and, most importantly, learn together. This entails a complex organisation on the part of the teachers for the coordination of schedules, methodologies, planning and didactic decisions (Domínguez Rodríguez, 2016; Pericacho, 2014; Villanueva, 2018), including the choice of resources in the multigrade classroom in line with the pedagogical decisions and didactic strategies carried out (Cornish, 2006; Cornish & Taole, 2021; N. Carrete-Marín et al., 2024). As argued by Hyry-Beihammer & Hascher (2015) the interaction in multigrade classes between students of different ages, which allows learning from and with peers, can be seen as a key resource that could be more effectively exploited in teaching practices. In multigrade classes, peer learning can also be seen as a "teaching resource": children utilize their part of the time to help their peers, thus reducing demands on teachers' time.

Teachers have a reflective attitude towards educational action, in the sense that they dialogue, debate and make decisions about the educational practices they develop from a critical perspective (Feu-Gelis & Torrent Font, 2019). They seek to design and build quality teaching and learning processes, adjusted to the reality they operate in and that are true models of change (Pericacho and Andrés-Candela, 2018). Frequently, this reflection and teaching commitment to provide educational quality means that teachers are in continuous and permanent training, which guarantees increasing, updating and improving their knowledge.

Teachers and public administrations are interested in improving the quality of educational practices, processes, and systems an improvement focused on values such as social justice, participation, and equity, among other democratic values (Asociación de Maestros Rosa, 2015; Domènech Francesch, 2015; Febrer & Tort, 2015; Prats Gil, 2015; Torrego & Martínez Scott, 2018). School and educational practices maintain a relationship and active commitment to the local community (Aguilar Vallès, Domènech, Muñoz Moreno, Coma Ainsa, & Aymerich Balagueró, 2011; Balsells, Majó Masferrer, & Manzano, 2011) a bidirectional relationship where the social environment is nourished by the school and the school makes the most of the the educational opportunities in its social environment, for all (Collet et al., 2022). Thus, in the inclusive and multigrade educational context presented in the article, the importance of relationships with the community is also highlighted. Promoting the participation of the educational community should have as a common goal to improve education and, ultimately, to share the purpose of educational and social transformation of the local community. This commitment to the local community occurs with the school community, especially with the families, but also with the local entities, associations, and services, with which synergy and complicity are sought. Furthermore, from this relationship the school builds part of its pedagogical identity since it develops educational projects that are based on its closest reality (Pericacho & Andrés-Candela, 2018). This commitment to the local community is characterized by three elements:

a) The complicity goes beyond the nearest local community and there is also networking with other educational agents, especially with teachers from other municipalities and regions. This is an aspect that is clearly related to the work carried out in the multigrade classrooms of the rural school, including synergy with the local community and agents, with the school being a dynamic agent of local development. Therefore, the school cannot forget to include the local dimension in the work carried out in the multigrade classroom (Boix, 2014).

b) In the design, construction and development of school practice and daily life, some perspectives, theoretical references and pedagogical currents that at the time had a notable impact on improving quality are taken as references and adapted to the reality of the school (Bolaño, 2015; Esteban, 2016; Esteve, 2016; Hernández Huerta & Gómez Sánchez, 2016; Lorenzo Lacruz, 2014, 2016; Feu-Gelis & Torrent, 2019; Marqués- Sureda, 2011; Ortiz de Santos et al., 2018). In this regard, in relation to multigrade classrooms, they need to be seen as much more than laboratories of educational innovation, but rather as spaces where learning contexts and significant experiences are promoted that are constantly adapted to seek the success of all students, working together in the classroom (Boix & Rius, 2019).

c) Innovation, understood as changes in strategies and materials motivated by technological advances and globalisation, is present in the school. Above all, digital tools become part of daily school life (Carrete-Marín & Domingo-Peñafiel, 2022; Escudero et al.,

2018), whether in the work in the multigrade classroom, the organisation of the school or in the relationship with the rest of the community outside the school.

Taking all this into account, rural schools, which already have multigrade classrooms, can be schools linked to spirit of innovation in contexts of inclusive educational practices. The conception of GIE, understood as a fair and effective inclusive education, helps us to consider a perspective that integrates the classroom, the school, families and the community. From this inclusive perspective, analyse a specific school to understand how innovation is conceptualized in them today and what distinctive elements can be identified, highlighting the work carried out in the centre's multigrade classrooms.

3. Methods

The main objective of the research project in which this article is framed is to identify specific elements and practices developed in the secondary schools related to inclusion and to link and analyse the educational practices with the innovative pedagogical discourse. Taking this into account, the research was designed in two phases. In the first phase, the innovative and inclusive view was theoretically conceptualized and in the second phase, using an interpretive paradigm different multiple case studies and the narrative construction of pedagogical stories with one or more professional references from each school for each of the five participating regions were carried out.

3.1. Data collection

This article presents the data of the case study located in Catalonia. Collection of the fieldwork data was carried out during the 2021–2022 academic year.

In total, 22 informants participated and were interviewed in semi-structured or in-depth interviews. The difference between these two types of interviews is due to the nature of the objectives that are intended in the research. First, the semistructured interviews (with a script of questions based on the theoretical framework of closed questions) that were conducted with students, teachers, members of the management team and families, to know his vision and opinion regarding PR in school. On the other hand, in-depth interviews were conducted with people linked to the development of the school over time with the aim of showing the changes and transformations experienced and, in this way, write narratively the pedagogical stories in relation to the inclusion and innovation of the participating secondary schools. In addition, non-participant observations were carried out for approximately two weeks directly in the classrooms and different spaces of the school, for the secondary stage, and, finally, three discussion groups were held: one with teachers, another with students, and the third with families. All this allowed data to be collected from different perspectives for a holistic approach.

During the whole process, the study considered the ethical aspects of educational research in the social sciences and was approved by the Research Ethics Committee of the University of Vic – Central University of Catalonia. Prior contact was made with the school and the participants before starting the field work. The corresponding informed consents were signed indicating that the participants could revoke their participation in the study at any time. The interviews and the focus groups were voice recorded and the data from the observations were collected through filed notes and, later, content analysis tables. In short, it ended a prior negotiation process, made commitments to and worked together with the school – that is, research *with*, not *about* – in which feedback with all the teachers was given and received during the whole research process.

3.2. Case study: IE barnola

IE Barnola is a school for early childhood, primary and secondary education, publicly owned and located in the rural municipality of Avinyó, in the Bages region (province of Barcelona, Catalonia). The municipality has an area of 63.23 km2 and a population of 2270 inhabitants. Currently, it is the only school in the municipality. Most of the families and students are Catalan speakers and come from the same village or from other surrounding villages. As for multigrade classrooms, in the case of this school, although they could have regular graded classrooms, they opt for multi-grade as a pedagogical option and form of organisation (Domingo-Peñafiel, 2014). In the school, classrooms are mainly cyclical, containing two classes learning together most of the time. In this way, groups of approximately 24 pupils are established. In any case, these groups can vary, and other groupings can be made in which all the pupils are together or even mixed from the different educational stages. In the case we are dealing with here, multigrade groupings can be seen not only between different years of secondary school but also between secondary and primary school, although on a more ad hoc basis for some projects or educational actions. It is a school in constant movement since it systematically rethinks its educational project and school model in favor of promoting educational improvements in students and maintaining a close relationship with its local community, which is essential in these schools due to their role in the community beyond education, for its revitalisation (Boix, 2014).

3.3. Analysis

As for the data analysis, an initial coding was created from the most relevant thematic axes of the theoretical framework and based on the research objectives of the project, to facilitate the classification and analysis of the information collected through the different instruments. The transcribed documents were analysed, reducing the data using the ATLAS.ti programme v. 23. The information derived from the interviews, discussion groups and observations were transcribed verbatim and exploited through the above-

mentioned programme after coding and categorising the data and following the same criteria. Table 1 below shows the selection of codes that were considered to reduce and analyse the results for this article, bearing in mind the proposed objectives to respond to them. To achieve this, processes of fusion and reorganisation of codes were carried out until a final axial coding was reached.

After deciding on the codes, the process followed for the qualitative analysis of the content of the data collected was as follows: identification and selection of representative quotes for each of the study codes, some of which were converted into broader themes and categories; and description and interpretation of significant quotes belonging to the registered categories or themes. Credibility criteria of the resulting information were also considered such as the high frequency of appearance of the detected codes, the saturation of the information that would justify the content interpretations and, finally, the contrast of the resulting information with the findings obtained in the systematic review and other similar studies related to the object of study.

4. Results and discussion

4.1. Traces of inclusion and innovation in multigrade contexts in the secondary school

The research carried out has led us to detect traces of inclusion and innovation in the multi-grade classrooms of a rural school that currently has pupils between the ages of 3 and 16, specifically considering the secondary school stage. These traces have been detected based on the qualitative content analysis mentioned above. All the data collected is important for detecting and understanding, from the analysis of the data, the information that will be presented below in relation to educational practices in the multigrade classroom and the implications of placing students at the centre of educational decisions from an inclusive perspective and attention to the diversity of the classroom inherent in this type of school. It is also necessary to understand the three levels (classroom, school, and community) from GIE perspective.

Below we highlight the most significant ones detected from the voices of the participants. From the data obtained, we can see that, from its beginnings, IE Barnola was a school committed to Catalan language and culture, and the 1990s were characterised by a pedagogical activism that combined textbooks with pedagogical experiences such as placing pupils in small groups of different ages and physical spaces to discuss topics of interest in early childhood education and thematic projects in primary education. As one of the teachers at the school states, "we worked to ensure that Catalan publishers and public schools were viable here" (teacher 1, focus group).

In this period, teacher education was characterised by an interest in integrating innovations in subject content. It can be seen from the data collected that the school always had an innovative tendency and that within this, attention to diversity and interaction between pupils were seen as positive elements, promoting multi-grade structures and groupings from the very beginning. The teaching staff, always with a vision of lifelong learning, tried to promote educational practices that facilitated the learning of all pupils, without exclusions. All this is relevant because in the Catalan context, the years of the democratic transition (1975–1985) were structured around active schools that formed part of an alternative pedagogical response to the Francoist model. These were years of ferment with the training initiatives of the Summer Schools led by the creation of the Escola de Mestres Rosa Sensat in 1965, which brought together teachers to improve educational practice with the pedagogical changes proposed (Feu et al., 2024). In this sense, this school also embraced all of this and its spirit of innovation, the reflective nature of the teachers and their concern for educational improvement could be appreciated, as the participants report experiences of continuous training and pedagogical meetings from this time onwards, glimpsing successful experiences in other schools.

The participants comment that during the 2005–2006 academic year, the school increased the number of teachers thanks to the regulation of the Catalan educational administration that extended the state schools' teaching timetable by one hour to equal that of the semi-private schools. This public policy measure had repercussions since it renewed a large part of its teaching staff, which required reflection on the educational project that united the school and continued to implement changes and improvements. Furthermore, during the 2015–2016 academic year, the school changed its management team after 15 years of stability, and this coincided with the possibility of getting involved in more projects that would lead to significant changes. As the school principal points out: "when we

Table 1
Codes used for qualitative data reduction (related to inclusion; innovation; and multigrade context, based on the information gathered).

Selected codes	Citation frequency
Features of the school	36
School philosophy	13
Methodology, teaching strategies and inclusion	73
Relationship and openness with the local community	38
Materials and resources: integration of ITC and digital culture	
	60
Times	13
Spaces	47
Assessment	13
Role: teachers, students, families, others	56
Organisation and grouping of students	16
Democracy and participation; students, teachers, families, community	
	45

started this process, our intention was because we believed that we had to update ourselves, that we had to try to reach all the students, since we had the perception that there were many of them who were losing out. And so, we began to look around us and find out about newly created schools, born with educational projects with a different approach, much more inclusive, competency-based, etc." (head teacher, interview). For three years, the exchange of experiences and self-reflection as a school was even more promoted with the aim of fostering a transformative educational project and moving from content objectives to a competency approach. As one teacher argues: "you realise that a change in the management team means introducing changes in many things that you had already taken as routine and you say: yes, the change was necessary to advance pedagogically" (teacher 2, focus group). The distributed leadership of the current management is experienced as one of the key parts in this process of educational transformation, as well as commitment to the faculty. In the 2019–2020 academic year, the school became a primary-secondary school, so secondary education courses were also launched in addition to the primary courses. In spite of this, the previous reflection and positive vision of multigrade in terms of attention to diversity meant that not only was there a desire to maintain the structure and multigrade work in the classroom, but also to transfer it to secondary education and to make teachers aware of the need to work in this way and to put students at the centre of pedagogical decisions. This journey helps to contextualise the changes carried out over time and to understand the educational implications in secondary school classrooms, focusing on three crucial scenarios for multigrade classrooms, as shown in the following section in more detail based on the results obtained and analysed.

4.2. The educational implication of placing students at the centre of their learning process

4.2.1. Scenario 1: personalisation of learning

Field work with the school shows that one of its hallmarks is the personalisation of learning to place students as protagonists of the teaching and learning process. In the school, this aspect conditions a good part of the pedagogical decisions made, such as the classroom methodology, the organisation of the students in the multigrade classroom, the teaching materials used and the assessment. As the principal argues: "What we have tried to do is to make the students more independent, to make it a more personal task. In fact, rural schools have also been forced for a long time to try to work with different levels, not to give something to everyone equally. And therefore, what we have tried to do is to take advantage of all this experience as well" (head teacher, interview). From this perspective, the school promotes multigrade work as a core aspect of its project, convinced of the educational benefit it entails for each student, in terms of attention to diversity and the possibility of personalising learning. In this sense, and as one of the secondary school teachers points out: "through the new cooperative pedagogies, the multigrade approach, coeducational work, etc. we have more possibilities of attending to all the cases and personalize learning to respond to the diversity of students" (teacher 3, focus group).

The students are organised in classrooms in which boys and girls of different ages, and therefore interests and characteristics, learn together (Boix, 2023), where interaction and shared work between students from different years in various workshops, activities and projects is facilitated and promoted. Organisational changes are seen in spaces and times promoting this pedagogical and inclusive value of multigrade teaching, fostering the circulation of knowledge for the improvement of all students regardless of their age or learning levels (Santos, 2011). As a student argues: "I also think that the way of working here is more autonomous and you decide a lot about what you want to do and even where you want to do it. We can move around the school within certain learning objectives that you must achieve. But I also think that this is very interesting because you know more about what you must learn, and you are more motivated" (student 1, focus group). The school's inclusive approach guides the learning of each student, respecting their specific needs and their maximum personal and educational progress, ideas that align with the perspective of global inclusive education (Collet et al., 2022).

With this perspective, the students not only feel called on to participate, but the school encourages pupils to make decisions about their own learning, autonomously and democratically. In this process, tutoring, dialogue, and constant exchange with teachers are essential to guide their progress and the evaluation of what they have learned: "the personalisation of learning has helped us all to advance as far as we felt appropriate for us, at our own pace" (student 1, focus group). Another student points out that, "the way of working here is more autonomous and you decide a lot about what you want to do, the objectives you must achieve. And this is very good because you know more about what you must learn" (student 2, focus group). Students and teachers jointly review the weekly objectives of the different subjects, either individually in the tutorials or as a group in the projects they carry out. These changes in relationships are also observed in the mobility of students entering and leaving the classroom, as well as of teachers to accompany them in this personalised learning. Academic or curricular work is often mediated using material resources that go beyond the conventional use of the textbook (Pericacho & Andrés-Candela, 2018), based on teaching and learning technologies and individual or collaborative work platforms, be they digital or not. The use of digital tools offers new learning contexts, as Escudero et al. (2018) point out, since they allow constant access to information and enable more dynamic and shared learning modes. However, educational action is not reduced to having quick access to information, but rather to the critical selection of knowledge and the collaborative work that can be facilitated with it (Feu et al., 2024).

In this context, drawing on the perspective offered by one family: "as a family I stress the importance of working with technology and that is why they have acquired many digital skills. But what worries me is the use made by each child. Mine has a problem with the screens and it's very difficult to manage it. We are currently managing this because it is a continuous dance, and the family and school must work together. It is necessary to teach the benefits and dangers and awaken critical thinking" (family 1, focus group).

The teachers are also in charge of designing the teaching materials to carry out the different educational actions, adjusted to the different levels and rhythms of learning (Carrete-Marín & Domingo-Peñafiel, 2022; Pericacho & Andrés-Canela, 2018), so it is essential to have quality time to accomplish it. In this student-centred pedagogy, evaluation is based on the learning process and has a clear regulatory function of the learnings. To do this, the school organises, at the end of each term, a week of reflection on the evaluation of

each student. Likewise, hetero evaluations are carried out by the teaching staff, but also co-evaluations and self-evaluations of learning by the students, practicing continuous evaluation and not based solely on final tests such as exams.

4.2.2. Scenario 2. permeability between the school and its social environment

The data collected shows that IE Barnola works to build relationships with the community based on collaborations and links between students, teachers and administrative staff and different external agents, such as families, entities, institutions and other community resources to promote a global, responsible and committed learning for the students. That is, the school is conceived as an institution that is open to the community, linked to the conception of inclusive global education that advocates the importance of the relationship between schools and their communities and territories (Collet et al., 2022). Furthermore, this relationship with its social environment and ties with the community are aspects related to the local dimension that are also highlighted in other studies as a project that is usually promoted in rural schools and that must feature in the educational practices carried out in multigrade classrooms (Boix, 2014; Fargas-Malet & Bagley, 2023; N. Carrete-Marín et al., 2024).

From the data it can be seen how the IE Barnola school also aspired to become an agent of social change in such a way that young people can develop active citizenship around ecological sustainability, the promotion of culture, language and popular traditions, feminism and the promotion of human rights. These aspirations are materialised in educational actions and projects with a view of social transformation, such as the Green School certification, which they have held since 2012, and other educational projects such as *Conéctate* and *Conexiones*. In the *Conéctate* project, students reflect, through assemblies, on different topics related to human rights, emotional education, coeducation and other current issues. Young people lead these spaces for reflection and consider that their voices are recognised within the school since they debate issues that concern and interest them. As a student argues, "in our class there have been discussions between students and teachers about these topics. There are discussions like that about feminist things and there are always discussions of these and many different opinions" (student 3, focus group). The teachers state that their purpose is to open the doors of the school with a global and complex perspective and to accompany the students in critical reflection to promote a more just, egalitarian and equitable society.

The *Conexiones* project, on the other hand, emerged from the school's initiative together with the municipality's town council. This is a unique project carried out in the third year of compulsory secondary education in which all students carry out 50 hours of internships in different companies in the local area. In this way students experience the work environment, with which they undergo a process of self-knowledge according to their interests and motivations and reflect on their academic and professional orientation. As a teacher points out: "from the *Conexiones* project we have contacted all the companies in the town so that the students can do some internships. This is also good to do with a small town and a small educational centre. And, also, because everyone responds favourably and wants to collaborate with the school" (teacher 2, focus group). In these projects, work with the community fosters a sense of belonging and collective identity; that is, feeling pride in the school and the community (Aguilar Vallès, Domènech, Muñoz Moreno, Coma Ainsa, & Aymerich Balagueró, 2011; Balsells, Majó Masferrer, & Manzano, 2011). As one of the participating families states regarding the school offering secondary education: "the village is happy since the primary-secondary school has been here. It's an advantage that the kids stay here because 12 years old are very young to leave. All schools should be primary-secondary schools" (family 2, focus group). Therefore, although this network of relationships encompasses different experiences and levels of interaction, they all share the same purpose: to promote roots in the local communities and active commitment with the different agents of the community (Collet et al., 2022).

4.2.3. Scenario 3. spaces and times at the service of learning

This pedagogical approach has led the school to rethink the role of time and space to satisfy the active, experiential and meaningful learning of the students. Regarding to the organisation of time, as stated in the data provided by the centre, "time is at the service of the school's educational project" (head teacher, interview), and not the other way round, because it aims to respond to the current competency-based curriculum. The school hours at IE Barnola are from 9 a.m. to 4 pm., a schedule shared by all the school's educational stages (ages 3 to 16). The schedule was decided considering three pedagogical principles: the increasing workload with age, people's health and the organizational continuity between the school and the community. As can be seen, this schedule aims to facilitate family life so that all students at the school start and end the school day at the same time, with a break at midday. The idea is to organise healthy schedules, avoiding intensive hours in secondary education, and it is justified pedagogically since they seek rational schedules to promote meaningful learning in conjunction with social and family life (Pericacho, 2014).

Another aspect that stands out is the community perspective in time management. The school has coordinated with the agents of the municipality in the Avinyó 360° community Project – a project that promotes full-time education involving all the municipality's educational agents – to advance the schedules of extracurricular activities and link them to the end of the school day at 4 pm., with the purpose of finishing the educational day earlier, including school activities (formal education) and extracurricular activities (non-formal education). In addition, specifically analysing the teaching schedule for the 2021–2022 academic year, the school has opted for ample and flexible times that are not distributed according to subjects and areas of knowledge, but are rather based on a more globalised approach, organised in 90-minute or two-hour slots to carried out different activities according to the programming of the teaching team and the monthly objectives of the students. The teachers say that the flexible timetable allows students to make the most of the teaching time and thus create a relaxed work environment in which they can deepen their learning without feeling the pressure of a fragmented schedule.

Therefore, the centre understands that learning requires time, and although the established time slots are respected, what determines dedication to the tasks and the flexible schedule is the concentration of the students and the diversity of rhythms and interests. For this reason, the preparation of the learning environment is a key factor in the school since this more global and

transdisciplinary approach favours freedom of movement during the school day. Moreover, this preparation is especially crucial in a multigrade context to accompany all students in their own learning process and in relation to each other.

As a teacher conclude: "we try to situate the field of knowledge within their experience, to make it meaningful. And to do this you have to leave the Department, the field to start mixing, and that takes a lot of work. And of course, I don't know if everyone is willing and wants to leave their comfort zone. But we try to break away, although you realize that sometimes you can't break away so many things (teacher 3, focus group). Therefore, despite the organisational complexities these changes in schedule may entail improvements in educational practices and putting students at the centre comes first. As a result, these schedule changes are identified as one of the elements related to innovation schools (Domínguez Rodríguez, 2016). Moreover, the need to have time for individual tutorials to ensure the monitoring of each student's learning is apparent. Regarding the use of spaces, it should be noted that they are organised in the service of learning and are consistent with the distribution of the educational times mentioned above.

The school has multipurpose and multifunctional spaces, with wide corridors in which to work in groups and with mobile school furniture that adapts to active and participatory methodologies: "the building changes in line with the way we teach" (teacher 1, focus group). Multifunctionality is understood as involving spacious rooms in which the "classroom" can be arranged in different ways (Domínguez Rodríguez, 2016; Villanueva, 2018). Therefore, space communicates that the ways of being in school are varied and that they do not always work in the same position, nor in a synchronized manner. This pedagogical change poses the challenge of having more spaces to develop educational activities in the stage of compulsory secondary education, as well seeking a balance between those spaces that allow more group organisational strategies and others where individual work can be carried out. The introduction of these changes involves solving certain difficulties, such as making it possible for the spaces to be multipurpose and adaptable to the school's educational activities. As a teacher argues: "the centre has multipurpose and multifunctional spaces, with wide corridors where multi-grade teams can work or with mobile school furniture that adapts to active and participatory methodologies. So, the building changes in accordance with the pedagogical form that is taught" (teacher 1, focus group).

Finally, the school has a large outdoor yard that has been used to construct two buildings where it was possible to locate the secondary school classrooms – the result of its transformation into a primary-secondary school – so that the schoolhouses the two stages in two different spaces. This schoolyard has been converted into different educational spaces that serve to increase the hands-on and experimental activities related to workshops and projects outside the classroom, as well as the possibility of interacting naturally with students from different educational stages (Cornish & Taole, 2021).

These three scenarios undoubtedly entail changes in the role of the students and teachers. The students go from being considered learners of a curriculum to learners of a better life through critical thinking and ethical awareness; and the teachers become multi-purpose teachers (Dominguez Rodríguez, 2016; Pericacho, 2014) so that what defines them is not their specialty but rather their ability to work in an interdisciplinary and globalised manner in the multigrade classroom. Since the objective is to share a common project, these relationships are woven under the principles of dialogic learning, creating opportunities for all to learn what matters and what matters to them.

In summary, the scenarios analysed configure the transformative nature of the school, with strong roots in the local community, through the implementation of joint projects with entities and with the participation of families and the rest of the community. To achieve this, it is essential to work to maintain a cohesive environment in favour of coexistence and attention to global inclusion education (Collet et al., 2022).

4. Conclusions

The results presented have allowed us to respond to the main objective of the article, focused on relating the inclusive educational practices carried out in the multigrade secondary education classrooms that are part of the pedagogical identity of IE Barnola. One of the most important is to place students at the centre of the teaching and learning processes, through different scenarios, in relation to the personalisation of learning, the permeability of the school with its social environment and the necessary changes in the spaces and times in the service of promoting improvements in student learning. Thus, the information collected and shown above in the results section has allowed us to highlight some of the singularities of the centre related to inclusive and innovative perspective, such as teacher reflection, pedagogical innovation, teacher training, adaptation to the times and the value of attention to diversity, the valuing of multigrade levels and the school's relationship with the environment.

More concretely, about the first scenario, it is worth highlighting the central role of students in the teaching and learning processes through educational experiences and projects based on their interests, thus fostering a personalisation of learning from an inclusive perspective. To achieve this, multigrade organisation in secondary education classrooms and, at times, interstage projects from secondary to primary, is crucial. It can be seen how multigrade teaching in the school is a pedagogical choice that entails changes in the organisation of the teaching staff and the teaching methodologies used in search of educational quality and equity (Boix, 2023; Boix & Rius, 2019). The results also show changes in the evaluation by competencies through different instruments managed by the students in collaboration with the teachers. Another aspect to highlight is that the school promotes active participation teaching strategies, banishing textbooks in favour of other resources in combination with technological resources (Carrete-Marín & Domingo-Peñafiel, 2022; 2023).

The second scenario highlights the relationship of the school with the social environment and local entities. It is therefore necessary to highlight the importance that the primary-secondary school gives to democratic participation, organising spaces where students make decisions on questions that affect them and with a strong connection with the educational community inside and outside the school, through different projects with local entities (Feu et al., 2024). The active commitment to the local community (Aguilar Vallés et al., 2011; Balsells et al., 2011), through different projects such as *Conéctate* and *Conexiones*, constitute a feature of innovative and

inclusive schools since they enrich the educational experience of the students and exalt the history of the municipality, awakening a sense of pride and roots in the rural and local community (Collet et al., 2022).

Finally, the third scenario shows that promoting this pedagogical approach means rethinking how the times and spaces are organised to satisfy the active and meaningful learning of the students through the multigrade approach and participatory methodological strategies. It is a school whose spaces and times are at the service of the educational project, committed to a community perspective in this management (Domínguez Rodríguez, 2016; Villanueva, 2018). Since it is understood that learning requires time, broad and flexible slots are promoted that respond to a more globalised approach to the curriculum. To this end, the spaces are also conceived as multipurpose and multifunctional, communicating that there are different ways of inhabiting the school depending on the task to be carried out.

Another important element to highlight is the responsibility that society gives to secondary schools for grades. This social pressure increases for schools that choose to work in alternative ways. That is, those who are committed to implementing educational transformations and going against the tide, as is the case in the school studied; those who promote holistic work and eschew the curricular organisation divided by subjects, graduated classes as the main choice or textbooks as teaching materials for learning. Such schools must deal with the added pressure of defending the credibility of their educational project. In these contexts, the focus is basically on academic results, leaving aside the process of how young people's learning is understood, promoted and developed. Faced with this problem, clear and solid leadership from the management team, one capable of managing these pressures in favour of a project shared with the teaching staff.

In the case study analyzed, we can conclude that GIE perspective offers us a framework for reflection in which the Systemic dimension identified in the results (throughout the three scenarios) is key. We can remark that the Systemic dimension (focused on micro, meso and macro level of school) makes also visible the Incorporated and Qualitative dimensions. The Incorporated dimension emphasizes educational actions that consider inclusion from a holistic and committed perspective shared by all stakeholders (teachers, families, and the community), highlighting the school's ability to link inclusive actions with educational innovation for all and the reduction of exclusions highlighted in scenario 2. Finally, the Qualitative dimension highlights those educational actions aimed at personalized educational improvement for each student individually and cooperatively, considering each student and the organization of the school as indicated in scenario 1 and in scenario 3 of the results.

In consequence, innovation and inclusion make the school better for all when their changes are based on the idea of GIE in these three different levels: classrooms, centre and community where inclusion is a shared horizon to improve school ethos based on rights and social justice (Collet et al., 2022). Therefore, what is required is a management team that can overcome the resistance of some families as they question the degree of academic preparation of their children to face post-compulsory educational stages. However, the school studied shows a clear shared reflection process in the decisions made in favour of the educational improvement of all students, in addition to the great adaptive capacity to educational and social changes. Research has shown that the school promotes maximum education based on the implementation of reflective and tested changes to attend to diversity and establish ties with the educational community and social environment. In this regard, the school's actions need to be sustainable over time, with educational projects that go in the same direction and allow constant improvement through reflection based on educational quality and equity.

6.1. Limitations and future research

It should be noted that the case presented in the article is part of a larger research project, with four other cases, so it would be interesting to complement and compare the information provided in this article with that collected in the other Spanish regions that participated in the project. Above all, regarding the classroom practices, to compare the proposals of other schools that do not have multigrade classrooms to analyse the complexity of the work carried out in them and their pedagogical benefits. From this perspective, we could delve into the relationship between students of different educational stages and levels as it is one of the distinctive features of inclusive and innovative schools according to several authors, involving complex changes in schedules, methodologies and methodological decisions, as the results provided have been able to show (Domínguez Rodríguez, 2016; Villanueva, 2018). Furthermore, as a possible future research project, this study could be complemented by analysing the educational practices carried out in other similar schools in Catalonia or in other Spanish regions, whether rural or urban, whose pedagogical principles are based on personalisation of learning, the relationship with the local community in order to foster a sense of belonging and rootedness in the area and for its organisational and methodological implications. All of this from a shared perspective promotes a global inclusive education, capable of responding to Systemic, Incorporated and Qualitative dimensions presented in the theoretical framework of the article.

Finally, the research highlights the need to carry out more research to detect and generate a network of innovative schools that are committed to a more inclusive and democratic education, with multigrade classrooms, especially in rural areas, in order to establish contacts and synergies among them, always with the idea of transforming and improving the educational practices to move towards a pedagogical model shared with the community and a pedagogy based on personal growth and equity.

CRediT authorship contribution statement

Laura Domingo-Peñafiel: Project administration, Methodology, Writing – review & editing, Investigation, Supervision, Writing – original draft, Funding acquisition. **Laura Farré-Riera:** Writing – original draft, Conceptualization, Writing – review & editing, Investigation. **Núria Carrete-Marín:** Investigation, Writing – original draft, Writing – review & editing, Methodology. **Núria Simó-Gil:** Supervision, Writing – review & editing, Methodology, Writing – original draft, Conceptualization, Project administration, Funding acquisition, Investigation.

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