Forming networks between rural schools and their local areas: Shared projects and their impact in the Asturian context

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Rural schools play an essential role in their local areas, helping stimulate the community and promoting activities with economic, social, and cultural impact on the area. This study aimed to identify the projects undertaken by 44 rural schools in Asturias (Spain) in collaboration with local agents and organizations by consulting the school management teams. It also sought their opinions about the impact of these projects. The study used a mixed methodology: quantitative, analyzing the data collected from a semi-open questionnaire, qualitative, and listing and describing the projects. The questionnaire included questions about the organizations the schools collaborated with, the goals and subjects of the shared projects, and funding sources, and asked for opinions about their impact. The results indicate that rural schools in Asturias have undertaken projects covering various subjects in collaboration with local authorities, cultural centers, libraries, public health centers, small businesses, and non-governmental organizations (NGOs). The respondents were very satisfied with the activities. They viewed their schools as a stimulus for their areas, stating that the projects encouraged a sense of belonging to the area and helped construct a collective identity. They also felt that they responded to shared needs, offered services to the community, allowed people to settle or remain in the area, and, to a lesser extent, helped local businesses and the local economy. Finally, the study concludes that these schools play an active role in their local areas and highlight the importance of external support in implementing initiatives that benefit the rural population.

Keywords: rural school, collaborative project, local development, leadership

In recent years, there has been a variety of research about rural schools, as evidenced by various bibliographic reviews. Fargas-Malet and Bagley (2022) identified five main lines of research about rural schools in the European setting: the study of

context, analyzing the concept "rural" and educational policies; the relationship between school and community, including school closures, the role of the school in the community, and the degree of family involvement; the learning environment, assessing educational practices, the impact of Information and Communication Technologies (ICT) on rural schools, and multi-grade classrooms; leadership, looking at school management teams, inter-school collaboration, and teacher training, among other topics; and finally, aspects related to equity in education and academic achievement.

Some studies have examined rural schools' limitations, problems, challenges, and advantages based on their characteristics (Santamaría & Sampedro, 2020). It is worth highlighting that some geographically isolated schools find it difficult to access certain services and report being ignored by the authorities, a lack of human and material resources, a digital divide, and a lack of stable teaching teams (Álvarez-Álvarez et al., 2020; Azano et al., 2020; Echazarra & Radinger, 2019; Kormos & Wisdom, 2021; Santamaría & Sampedro, 2020). In addition, rural schools' organization as classes with students from multiple grades (e.g., multi-grade classrooms) means that teachers need specific training to apply the most suitable teaching methodologies (Naparan & Alinsug, 2021), training that is often not provided when earning teaching degrees (Villa & Knutas, 2020). Rural schools are also affected by the increasing rural depopulation (Moreno-Pinillos, 2022).

Despite the difficulties these schools face, some of their characteristics, such as small class sizes and multi-grade classrooms, do offer learning opportunities as they allow tailored attention (Santamaría & Sampedro, 2020), encourage responsibility, cooperation, and support between peers (Villa & Knutas, 2020), and promote the development of innovative projects that stimulate creativity and critical thinking (Echazarra, & Radinger, 2019). Other strengths of rural schools include closer relationships between teachers, students, and their families, lower levels of conflict, and families' engagement with school (activitiesÁlvarez-Álvarez et al., 2020; Azano et al., 2020; Echazarra & Radinger, 2019). These make the school an ideal setting for implementing innovative methodologies, such as service-learning, where educational practice is linked to community needs and problems (Ingman et al., 2022).

The role of rural schools goes beyond just their teaching work; they are, in addition to educational institutions, agents of local development. Various studies have highlighted the impact of rural schools in maintaining population levels (Cedering & Wihlborg, 2020; Moreno-Pinillos, 2022; Santamaría & Sampedro, 2020). In contrast, school closures have negative repercussions on the area, accelerating the rate at which people leave, impairing community development and vitality, as well as weakening the area's economic and social growth (Haynes, 2022; Lehtonen, 2022; Sørensen et al., 2021).

Rural schools certainly play an active role in their local areas, participating in or leading projects that positively impact them (Zuckerman, 2020). They contribute to local

development through the various projects they drive and the initiatives they participate in alongside different agents and organizations. Many of these projects are planned to offer services that provide meeting points for the population, reinforce links to the area, share information about local heritage, or stimulate local life (Villa & Knutas, 2020). Doubtlessly, these schools have an essential function in their rural context: to promote the population's sense of belonging to the area (Villa & Knutas, 2020). It is crucial to analyze their projects with various local agents and organizations so as to determine their role in stimulating the area.

The present study examined the relationships between rural schools and their local areas. This field has recently attracted research interest in the European setting (Fargas-Malet & Bagley, 2022). The Spanish context frames the analysis, precisely that of Asturias, one of the Spanish regions with the most significant proportion of schoolchildren at rural schools (Ministerio de Educación y Formación Profesional, 2019), making it particularly interesting to study the impact of rural schools on their local areas.

Theoretical Framework

Recipes for Cohesion between the School and the Region: Collaborative Projects

Some studies have focused on analyzing rural schools' role in their local areas, looking at the relationships with families and other agents in the local community (Santamaría & Sampedro, 2020). The close bonds between rural schools and their local areas are one of their strengths (Fargas-Malet & Bagley, 2022) as it helps to ensure that their work stimulates the region, acting as educational, social, and cultural focal points for the community. Undoubtedly, rural schools contribute to social cohesion and benefit the community in many ways (Sørensen et al., 2021), positively impacting the area economically and socially (Haynes, 2022).

In this regard, some authors use the terms "community school" or "extended school" to label schools that offer services and activities to the community beyond the work of their teaching (Supule, 2019). The phrase "community active schools" has also been used for schools that play an active role in their community. It often happens in rural schools in various European countries, including Finland, Sweden, and Austria (Fargas-Malet & Bagley, 2022). Schools' active role is recognized and appreciated by members of the educational community (i.e., teachers, students, families), the local population, and local authorities, meaning they have particular importance within the community (Moreno-Pinillos, 2022). In addition, rural schools help glue communities together, stimulate social life, and perform other functions.

The links between schools and their regions can be established in various ways. Miller (1995, cited in Supule, 2019) indicated that rural schools can get involved in the community in three ways. On the one hand, rural schools can be thought of as serving the local population by offering cultural, training, and social resources. Many schools

become intergenerational meeting points that provide essential services for the local people, such as summer learning activities, courses and workshops for families and adults in general, and spaces for outside activities (Álvarez-Álvarez & Vejo-Sainz, 2017; Supule, 2019; Villa & Knutas, 2020). There are also examples of activities designed to reinforce school–community relations by promoting joint discussion and reflection that initiatives align with the interests shared by the school and its local area (Moliner et al., 2017).

On the other hand, a connection with the area can be established through teaching practices involving the students in activities and projects related to their surroundings and by linking those activities to elements of their own culture, the natural environment, traditional crafts, or local business activities. These teaching practices motivate students and their families (Moreno-Pinillos, 2022); they give a practical element to curricular learning and encourage knowledge and appreciation of local heritage (Villa & Knutas, 2020). In addition, some schools invite their students to participate in service-learning projects, resulting in reported improvements to the schools and their regions; they encourage intergenerational cooperation, develop professional skills, and enable collaborative working (Ingman et al., 2022).

Finally, an additional possibility is involving students in rural enterprise projects. Although these types of experience are less widespread (Supule, 2019), they greatly interest students' professional training. Business-based projects, combined with Science, Technology, Engineering, Arts, and Mathematics (STEAM) methodology, encourage the development of creativity, science and technology competencies and student motivation, and they help cultivate enterprising attitudes in rural students, as indicated in some experiences (Amri et al., 2021). These projects may be planned in cooperation with families and function as initiatives that provide occupational and economic benefits to the rural population. The project "Hilvanando culturas" [Binding cultures together] run in schools in Aragón (Spain) is based on creating a dressmaking workshop that promotes businesses and women's employment in the rural environment (Neila & Llorente, 2019).

External support and collaboration are essential for projects that consolidate the ties between schools and the community. Many schools maintain cooperative relationships with various agents or organizations and count on the unconditional support of the population or collaboration with NGOs, associations, or local institutions for multiple projects that ultimately benefit the community, for example, in rural Norwegian schools (Villa & Knutas, 2020). In Spain, rural schools often undertake collaborative projects with various entities, such as local authorities, cultural centers (e.g., museums, libraries, and foundations), associations, public health centers, NGOs, or other schools, which promotes community connectedness (Álvarez-Álvarez & Vejo-Sainz, 2017). Consequently, it is essential for the participants to start with everyday needs and interests

and to plan and consider them together (Moliner et al., 2017). In this way, rural schools become essential drivers for the community and vice versa (Villa & Knutas, 2020).

This means there is a need to look more thoroughly at the projects these schools undertake and understand the topics they prioritize, the organizations they bring together, and their impact on their area. In addition, because external support is fundamental, it is also essential to look at funding sources and the collaboration of external agents and organizations, their functions, and the support they provide. The present study analyzes the role rural schools play in their local areas. Consequently, it helps to raise their profile and acknowledge their contribution as components of social cohesion and stimulus to both rural life and the rural economy. In this context, the role of school management teams is critical for establishing and maintaining contact with the various local agents (Nordholm et al., 2022) to undertake joint projects. They know their schools' projects and are a privileged source of information for identifying and highlighting their involvement in the community. For this reason, the present study sought their perspectives as have other similar studies about rural schools (Álvarez-Álvarez et al., 2020; Nordholm et al., 2022).

Objectives

This study aims to: 1) identify the projects undertaken by rural schools in Asturias in collaboration with local organizations or social agents and to determine the roles they played; 2) describe the defining characteristics of the projects (i. e., objectives, subjects, priorities, etc.); and 3) determine their impact on the local area. This was achieved by consulting the schools' management teams responsible for the projects and their management.

Method

This study resulted from a research project funded by the Spanish Ministry of Education (PID2020-115880RB-100). It is a descriptive, exploratory, and analytical study, according to Cohen et al. (2011). The study used a mixed methodology: a) *quantitative*, based on the analysis of data collected via a questionnaire surveying the opinions of Asturian rural school management teams to identify the projects they have undertaken with various agents in their local areas; and b) *qualitative*, in that the projects are described and analyzed, along with their impact on the local area.

Sampling context

The Principality of Asturias (Spain) has 57 rural schools. Over three-quarters (44) of the schools participated— by reporting their management teams' opinions—a sample representing 77.19% of the population. The distribution of the schools by region is shown in Figure 1.

Figure 1

Geographical distribution of rural schools of Principality of Asturias (Spain) in the study
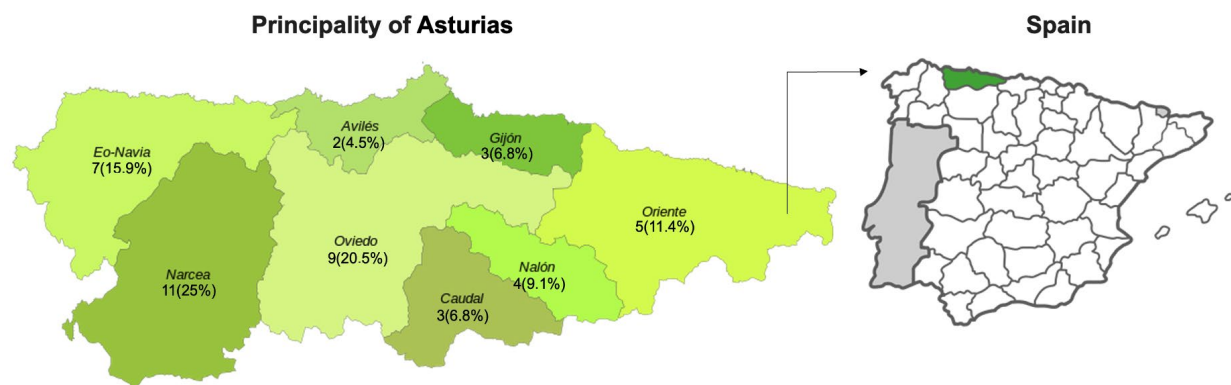
The survey reflected the opinions of the management teams in the various rural schools; 25 (56.8%) were men, and 19 (43.2%) were women. Two (4.5%) were between 25 and 29 years old; 3 (6.8%) were aged 35–39; 8 (18.2%) were aged 40–44; 14 (31.8%) were aged 45–49; 7 (15.9%) were aged 50–54; 6 (13.6%) were aged 55–59; and 4 (9.1%) were aged 60–64. Almost half of the respondents, 21 (47.7%), worked in *Colegios Rurales Agrupados* (CRA) [Grouped Rural Schools]; 10 (22.7%) worked in *Colegios Públicos de Educación Infantil y Primaria* (CEIP) [Public Infant and Primary Schools]; 9 (20.5%) worked in *Colegios Públicos de Educación Básica* (CPEB) [Public Basic Education Schools]; 3 (6.8%) worked in *Escuelas Unitarias* [Unitary Schools]; and 1 (2.3%) worked in an *Escuela Hogar* [Home School]. Most of these schools (36; 81.1%) had multi-grade classes whereas 8 (18.2%) had full ordinary classes.

Based on the data, the respondents who began their teaching careers in rural schools have decided to continue teaching in them (Table 1).

Table 1

Percentage distribution of the respondents based on their teaching experience

		Total amount of years of teaching				
		< 5	6-10	11-15	16-20	> 20
Years of teaching only in rural school	< 5	100.0	0.0	42.9	7.1	4.8
	6-10	0.0	100.0	14.3	7.1	9.5
	11-15	0.0	0.0	42.9	71.4	23.8
	16-20	0.0	0.0	0.0	14.3	28.6
	> 20	0.0	0.0	0.0	0.0	33.3

The respondents indicated that, in addition to their managerial functions, 14 (11.8%) were homeroom tutors, 10 (8.4%) were specialist teachers, and 9 (7.6%) were floating teachers who were teaching in more than one school. In terms of teaching, half 28 (50%) taught primary education, 20 (35.7%) taught infant education, and 8 (14.3%) taught secondary education. They were asked about how satisfied they were with their work in the rural context, and 38 (86.4%) reported being very satisfied, 5 (11.4%) reported being satisfied, and 1 (2.3%) reported not being very satisfied.

Instrument

The questionnaire (see Appendix A) used for the survey was designed for the study—with high reliability ($\alpha=0.800$). It has a semi-open structure to gather quantitative and qualitative data to enhance the study. The instrument collected the responses from the management teams in the rural schools in Asturias. They were asked about local institutions, cultural organizations, businesses, NGOs, universities, and other schools with whom they had shared projects or participated and what roles they felt were played in those projects. They were asked to detail the collaborative projects' objectives and topics and identify funding organizations that provided them with the resources they needed for those projects.

In addition, they were asked about their opinions of the impact of the projects: a) on the school, indicating how satisfied they were with the shared experience; and b) on development in the local area, indicating how—in their opinion—the projects contributed to driving local business and economic activity, the services offered to the community, attracting people to the area or helping people stay in the area, meeting shared needs between the school and the local area, promoting local heritage (tangible or otherwise), and promoting a sense of belonging to the rural context.

Procedure

The study phases were as follows:

- *Phase I: Design and validation of the questionnaire*. A pilot study with a small sample representative of the target population confirmed that the questionnaire met the criteria for reliability and validity.
- *Phase II: Data collection*. The Principality of Asturias Department of Education helped send an email asking the heads of each rural school to participate in the study by responding to the questionnaire online.
- *Phase III: Statistical treatment of the collected data*. Using SPSS v26, a descriptive analysis (frequencies and percentages) of the study's target variables was performed.

Results

The section below summarizes the information collected from the rural Asturian schools' management teams about the projects they had undertaken in collaboration with various local institutions or organizations and their thoughts about the impact of those projects on the local area.

The web of relationships between the schools and the various local organizations encouraged numerous projects (Figure 2). 86.4% of the respondents indicated doing projects with local authorities, and 63.6% undertook educational activities with local cultural organizations (i. e., libraries, ethnographic museums, folk music or artistic associations, etc.). 56.8% reported establishing bridges for collaboration with small farms, local businesses, and COGERSA (an Asturian waste management consortium). 45.5% had various projects with the University of Oviedo, often associated with students from infant and primary education degrees doing practical work. In addition, 40.9% reported collaboration with local NGOs, and lastly, 31.8% collaborated in activities with other schools.

Figure 2

Networks of institutions and organizations collaborating with rural schools
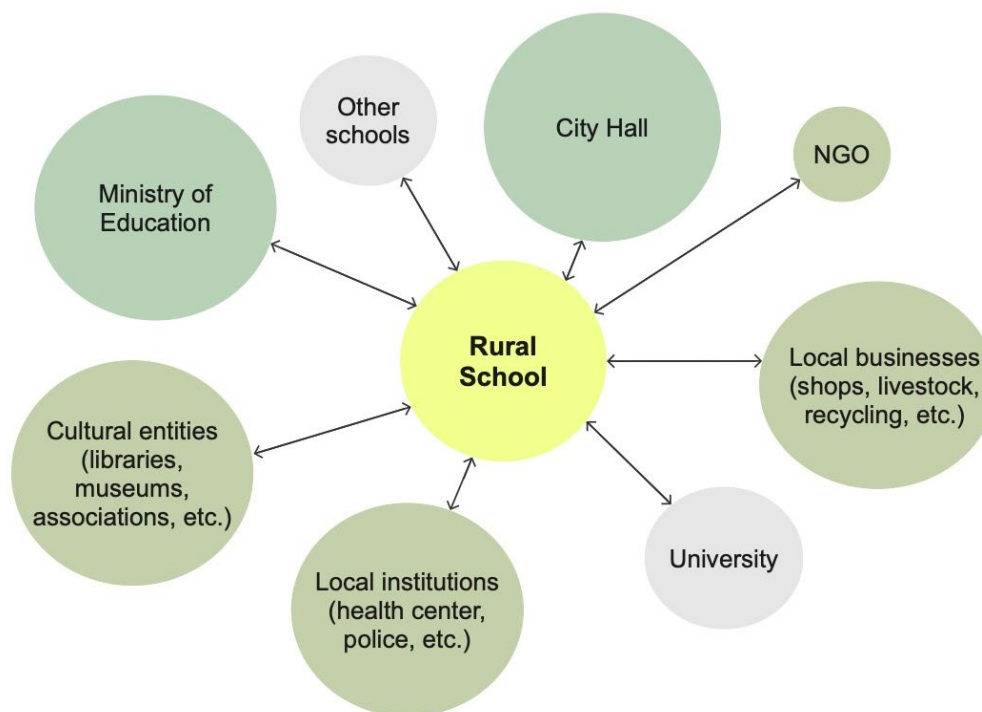

Figure 3 shows that 34.7% of the projects that rural Asturian schools participated in sought to open themselves up to the local area for mutual enrichment, offering local people workshops, conferences, and courses. Just over a fifth (21.5%) promoted service learning by involving the schools in social action (such as accompanying older people or

cleaning up natural spaces). Just under a fifth (19.0%) sought to preserve tangible or intangible rural heritage through conserving typical rural constructions (*hórreos, paneras, and cabazos*) or preserving popular folk songs. The same proportion (19.0%) was aimed at consolidating the local population. A smaller proportion (5.8%) promoted business and economic activity by promoting tourism, emphasizing local attractions (archeological sites, prehistoric *Castro* settlements, cave paintings, and local beauty spots), or promoting the production of local or artisan products (such as cheeses, wines, local cakes, and pastries).

Figure 3

Shared school projects, grouped by objective
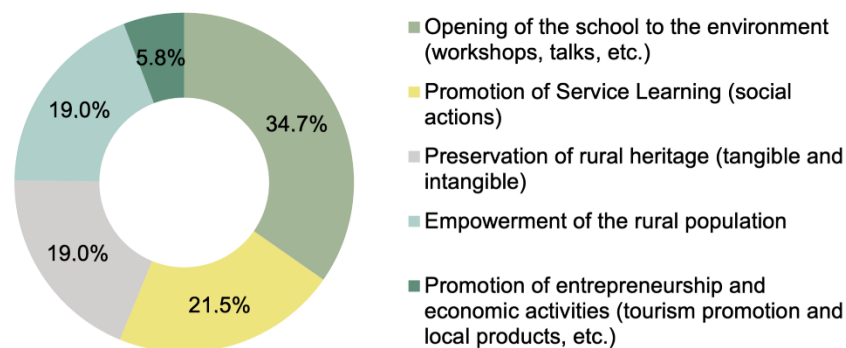
According to the school management teams, 38.6% of their schools drove the projects they participated in with local organizations and social agents, leading the various activities and phases. 34.1% were active project participants, whereas 22.7% were beneficiaries. More specifically, Figure 4 shows their predominant roles, considering the various projects they were involved in.

Figure 4

Roles played by the schools in the projects they took part in
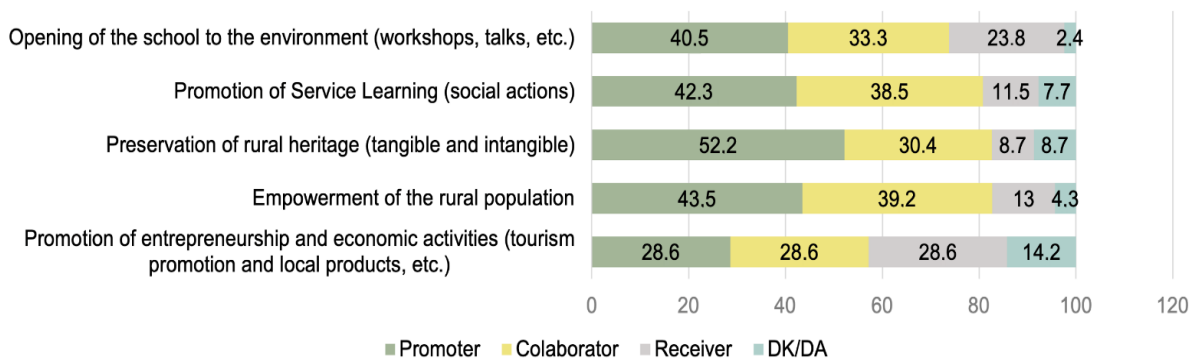
Most respondents noted driving or participating in projects prioritizing various topics (Table 2), some of which were associated with Sustainable Development Goals

(SDG) such as caring for the environment, healthy habits, sport, harmonious living, co-education, and interculturality. Others had cultural components, such as reassessing the local area. There were also strictly pedagogical projects related to methodological strategies that affect school education regarding curriculum and values.

Table 2

Percentage distribution of schools by topics prioritized in the projects

Themes	Fre(%)
a) Sustainable Development Goals (SDGs)	
Sustainability and environment	38(86.4)
Healthy habits	37(84.1)
Coexistence, co-education, interculturality, etc.	36(81.8)
Sport Promotion	26(59.1)
Culture (heritage, museums, ethnography, etc.)	18(40.9)
b) Educational Projects	
Encouragement to read	33(75.0)
ITC (audiovisual, robotics, STEAM, etc.)	33(75.0)
Emotional education	32(72.7)
Implementation of innovative methodologies	25(56.8)
Scientific learning	20(45.5)

The vast majority of schools (86.4%) were involved—with others—in projects closely related to sustainability and care of the environment. It is worth highlighting their links to programs such as School Allotments and Schools for Recycling, in collaboration with COGERSA. Schools also participated in environmental projects such as the Three R's (reduce, reuse, recycle) to promote the circular economy. Some schools collaborated with the Lids for New Life (*Tapones para una nueva vida*) initiative from Fundación Seu. Others were part of the Repsol Zinkers project, aimed at raising student awareness of the need to promote ecological transition and a sustainable economy through recycling.

Most schools (84.1%) participated in projects encouraging healthy habits in collaboration with the Principality of Asturias Health Department. Dental health was a particular interest, especially in critical stages of child development; many schools were

part of a project called A la Conquista de la Boca Sana [The Struggle for a Healthy Mouth] in which pediatricians and dentists took part in activities, workshops, and talks aimed at students and their families. Some schools also collaborated closely with local health centers, inviting health specialists to give workshops about first-aid, hygiene, sex education, and relationships. Others did specific activities related to nutrition and healthy eating habits in collaboration with local shops (i. e., greengrocers, butchers, fishmongers, etc.).

Sport was also a priority for 58.1% of the schools. Concern about playing sports was evidenced through participation in activities promoted by the regional Department for Education, Culture, and Sport, such as inter-school tournaments and competitions. These initiatives also promoted awareness and preservation of sports-related Asturian cultural heritage associated with traditional rural sports and games, with activities run with the assistance of social centers. Schools did other activities with local authorities, such as Yoga for Children, to teach them techniques for relaxation, concentration, balance, and awareness of their bodies. Some schools participated in the *Biciescuela* [Bike-School] program, which promoted cycling as sustainable transport and involved the local police talking about road safety. Most schools also organized fun runs, collaborating with local charities or support groups.

Over three-quarters (81.8%) of the management teams reported that their schools participated in projects that promoted harmony, co-education, and interculturality in collaboration with inter-municipal social services centers to develop equality programs. Participation in the Asturian government's Project *LOITA* (Ley de Ordenación Integral del Territorio de Asturias) [Law of comprehensive planning for the territory of Asturias] was significant, aimed at enhancing synergies between rural and urban areas and mutual enrichment. Specifically, it raised awareness of the role of rural schools and the benefits of their teaching model (small class sizes, multi-grade classrooms, personalization, innovation, cooperation, family involvement, contact with nature, etc.) while bringing cultural opportunities enjoyed in larger cities.

Some schools were involved in the *Rompiendo distancias* [Breaking Distances] program to encourage intergenerational communication. Similarly, other schools encouraged activities with older people through projects such as *Güelifriends* [Grandfriends] for sharing experiences through enjoyable activities. Other projects were aimed at equality and diversity, involving families in the educational process. In addition, supportive activities were done in collaboration with charities such as Save the Children with others helping people experiencing homelessness (*Asociación Albéniz*) or helping children with cancer (*Asociación Galbán*).

There was a particular emphasis on co-educational projects with schools participating in activities together with nationally recognized organizations such as the *Centro Mujer y Ciencia* [Center for Women and Science] (Centro Superior de

Investigaciones Científicas, CSIC) and internationally recognized bodies such as WISE Diversity (Centro Nacional de Investigaciones Oncológicas, CNIO) [National Center of Oncological Research] to promote female talent in science. This was complemented by events such as Women's Week and projects highlighting women's careers in science. In addition, spaces for debate were created where women from various professions spoke, underscoring their contribution to society. Similarly, intercultural projects were organized to understand other countries and their peculiarities, promoting acceptance and help for migrant families or families from different cultures.

Around two-fifths (40.9%) of the schools ran cultural projects with local or regional organizations to raise awareness of the ethnographic heritage in towns and villages (i. e., museums, visitor centers, etc.). The *Rutas para Compartir* [Routes for Sharing] projects brought together rural schools from various regions to highlight their cultural richness through exchanging traditions, language traditions, folklore, food, etc. Other projects promoted local tourism by producing informative walking routes. Some schools opted for service learning and did social activities that combined tradition and business (such as making and selling typical local desserts, artisan wood products, etc.). Artistic projects, such as *ConectArt* and *El Museín,* brought various schools together. Others held competitions for drawings, making the local area and the school into artistic objects and collaborating with local artists to decorate the local surroundings (such as building facades and garage doors) (Figure 5).

Figure 5

The Trampantojos art project in the village of Vega (Asturias)

Note. Ribadesella Town Hall.

Projects of a more pedagogical nature should not be ignored. Three-quarters (75.0%) of the schools did activities related to encouraging reading in collaboration with municipal libraries (such as reading activities and storytelling). These included the Travelling School Library, promoting the exchange of books between various rural schools, and participation in national and regional competitions. 72.7% of the schools incorporated activities about emotional education via workshops or stories. A similar proportion (75.0%) were part of projects to develop digital competencies in the audiovisual sphere, robotics, STEAM, and computational thinking.

A little over half (56.8%) of the rural schools were concerned about offering quality education, employing innovative methodologies in collaboration with the University of Oviedo, such as the *Caravana de los Sentidos* [Caravan of the Senses] project (Figure 6). This involved the creation of an interactive multisensorial stimulation classroom, encouraging learning by discovery and developing motor, social, and intellectual skills, particularly in children with special educational needs.

Figure 6

The Caravan of the Senses project

Note. Padre Ossó Faculty (University of Oviedo).

Other schools participated in the eTwinning project, which promoted collaborative work between European schools around a set topic to stimulate soft skills. Students sometimes participated in business projects linked to local development to benefit the local population (such as sociocultural activities, care, physiotherapy, digitalization in the third age, etc.), which even won national prizes. Other activities included the creation of Learning Academies, Young People with Ideas, and the Time Bank. Some schools collaborated with the sociocultural business Arkuos, which offered alternative learning spaces (Figure 7), encouraging participation and inclusion for the whole community.

Figure 7

Arkuos: Space for Socioeducational Activity.

Note. Arkuos Center (https://arkuos.org/)

Just under half (45.5%) of the schools did activities linked to scientific learning, participating in regional events as part of Science Week with other schools or the university. More specifically, some participated in the initiative from the Ministry of Science and Innovation and the business LabsLand, with the R3 Project: Rural, Remote, and Real—promoting natural science and technology practice in rural schools and training centers through remote experiments or simulations where the students interact

through a web interface, with their hands on the mouse and their eyes at the webcams (https://proyecto-r3.ingenieria.deusto.es/).

Lastly, other schools participated in PROA+ projects [Program for Guidance, Advancement, and Educational Enrichment] from the Ministry of Education to give guidance to educationally vulnerable students and reduce school dropout. Some schools collaborated with the Municipal Department for Childhood and Adolescence, a consultative body that organizes children's participation, giving them a space where they can express their ideas and make decisions in the local environment about issues that affect them directly or indirectly.

All the schools received funding for their projects from the Asturian Department of Education. Almost a third (31.8%) reported that their local town councils contributed to sustaining some of their initiatives and projects. A quarter (25%) of schools indicated that they received funding from the national Spanish Ministry of Education. 16.0% reported getting financing from their own schools or parent-teacher associations. A smaller proportion (6.8%) of the schools received help from private businesses for particular activities or to acquire resources.

Regarding the projects' impact and contribution to local development, the management teams' satisfaction with their collaborations with various local institutions and organizations depended on the subjects the projects addressed. Those related to harmony, co-education, interculturality, etc., and those aimed at education about sustainability and the environment produced the highest levels of satisfaction (Figure 8), followed by those about emotional education and healthy habits.

Figure 8

*Percentage distribution of management teams according to satisfaction with projects*
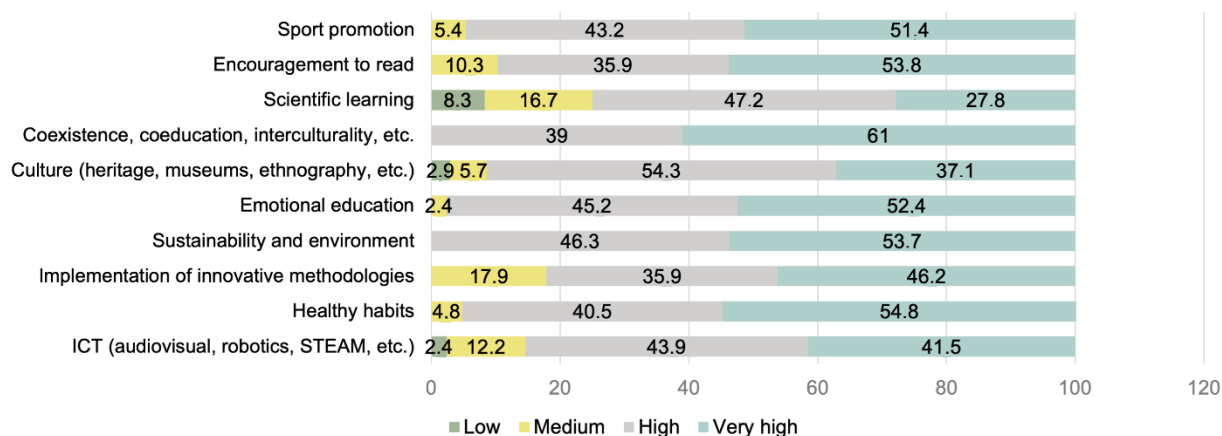
Most (86.4%) of the schools stated that they undertook projects that promoted a sense of belonging to the local area (Figure 9). Just over three-quarters (77.3%) said that their activities made a notable contribution to the creation of a collective identity. A similar

amount (75.0%) reported promoting initiatives that met the school and the local area's needs. Just under three-quarters (72.7%) said promoting local heritage (tangible or intangible) whereas around half (54.5%) announced initiatives that helped attract people to or keep people in the local area. Finally, around a third (34.1%) reported that their activity encouraged local business and economic activity.

Figure 9

Percentage distribution of opinions about the impact of projects on the local area
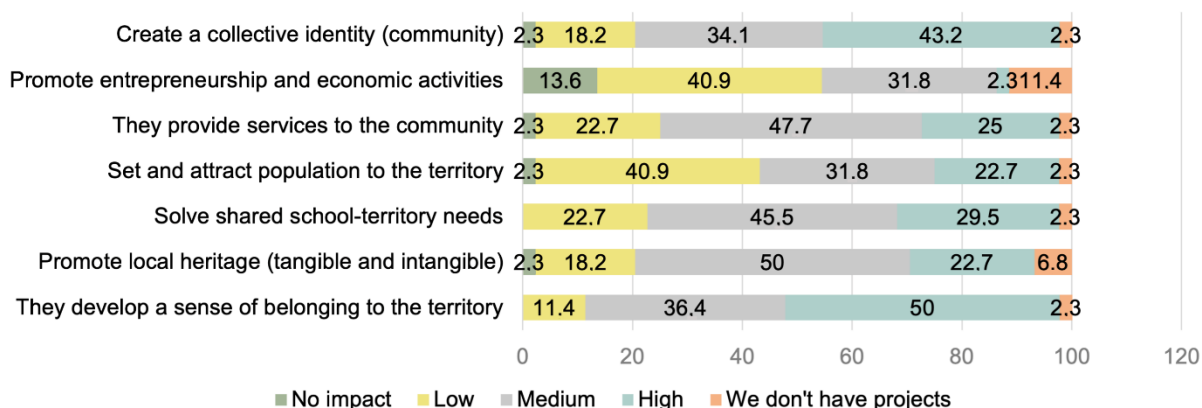
In response to the question about the schools' roles in local development, 68.2% identified them as active collaborators. However, 15.9% assessed it as relatively unimportant with only 9.1% indicating leadership and drive as the role played. The most critical respondents thought the schools' role was unrelated to the local area's needs (2.3%). On the other hand, when asked about schools' roles in promoting and creating collaborative networks with local institutions and organizations, 80.0% considered it to be important or very important (Figure 10).

Figure 10
Percentage distribution of the role of the schools in creating and promoting collaborative networks in their local areas, according to their management teams
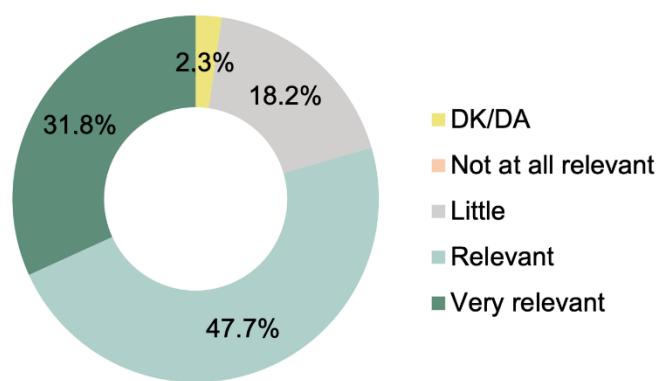
Discussion

The schools' management teams felt rural schools in Asturias to be a source of stimulus for the local area as most demonstrated having undertaken cultural activities together with local institutions as well as participated in projects with local cultural and social centers, libraries, ethnographic museums, and more, which involved various sectors of the population. Along similar lines, López-Álvarez et al. (2011) emphasized the central role of ethnographic museums together with schools for consolidating Asturian cultural values, solidifying bonds with the community, collecting and interpreting people's voices or testimony, and also offering guided or educational visits and workshops to enhance students' understanding of it so that visitors may be enriched by their heritage, value it, and look after it so that it lasts.

The schools also built bridges with local farms and shops, charities, recycling plants, and others, seeking an exchange of experiences and helping their students be aware of what these local businesses do so as to recognize their roles in rural development. It is worth highlighting the collaborative initiatives to transform the classroom into flexible learning spaces to develop 21st-century competencies. These local bodies are considered innovative learning environments and are a shared ecosystem where the student and their local community converge, as Carvalho et al. (2020) noted.

More generally, there is an essential collaborative network with diverse agents and organizations from schools' surrounding areas as the basis for various projects. In this regard, our results are consistent with the results from Álvarez-Álvarez and Vejo-Sainz (2017), who highlighted innovative projects in rural schools in Spain that were supported by the cooperation of public and private bodies.

Similar to the conclusion from Meyers et al. (2015), the links between rural schools and the university allowed the exchange of experiences and collaboration in joint projects, which provided mutual enrichment. More specifically—and despite the distances, in some cases from around 100 km away—around half of Asturian schools exhibited a smooth-flowing relationship with the University of Oviedo in Spain. These schools collaborated with practical components of the Infant and Primary Teaching degree to help facilitate degree completion of future teachers. They also shared projects that affected aspects of environmental education (Pérez-Solís & Torralba, 2021) and developed narrative competencies with digital applications (Del Moral et al., 2022), and so forth. However, other schools felt excluded from innovative projects to strengthen relationships between teaching teams and university research groups. This finding indicates a need to enhance the capacity of rural schools as a unique learning space, as noted by Monge et al. (2022), because teachers' initial training does not ensure the specific competencies for working in these schools at an organizational or functional level, something also recognized by Downes and Roberts (2017) about Australian schools.

Most of the respondents underscored the role of the school as a driver and collaborator in the projects they participated in. The school focuses on cultural stimulation for the area, which is realized through the educational projects they lead. It emphasizes being open to the local area by driving social actions and contributing to preserving local heritage. In addition, schools indirectly encourage the rural population to stay in the area as the schools there ensure that families will be in the villages (Lehtonen, 2021). Logically, schools are not in the business of promoting local tourism or local business, but their collaboration with local organizations may help reactivate life in the villages, and help generate work and wealth.

Looking at the subjects prioritized in the projects the schools participate in, many are in line with what has been laid down by supranational organizations such as the United Nations, as they are linked with sustainable development goals (e.g., education, sustainability, healthy habits, etc.), that help build bridges with their local areas. This finding coincides with the study by Dieste et al. (2019), who showed the treatment of SDG-related topics in rural schools in Zaragoza (Spain), with particular attention to cultural diversity, gender equality, responsible consumer habits, and solidarity. Schools also undertook purely pedagogical projects that had an impact on children's education in these areas through methodological innovations such as using ICT, STEAM, and scientific learning in an attempt to bridge the digital divide by offering rural students the same opportunities as students in urban environments as other countries also do (Kormos & Wisdom, 2021).

In parallel, initiatives also prompted participatory culture through fun, non-formal education spaces open to the community. Schools also drove the creation of networks in the local area through collaborative activities with geriatric care centers, people experiencing homelessness, or other schools through intercultural, co-educational projects promoting respect and attention to diversity. In addition, some activities raised awareness of the cultural wealth and traditions in the schools' local areas (e.g., linguistic variety, folklore, food, etc.). A few projects promoted rural tourism: educational walking routes, decorating the local environment with local artists, social action combining tradition and business, etc. Occasionally, students even participated in business projects linked to local development to benefit the local population, such as closing the digital divide in the third age, facilitating physiotherapy, and engaging in sociocultural activities.

Conclusion

More generally, rural schools in Asturias demonstrated examples of the three forms of involvement in the community proposed by Miller (1995, cited in Supule, 2019) as they offered services for the local population, such as courses and workshops, undertook various types of activities and projects linked to the local area, and, to a lesser extent, promoted initiatives for business that supported local industry and the local economy.

It is also important to highlight rural schools' great interest in recognizing the role of teachers as stimulators for the area and spreaders of culture by collaborating with nearby institutions and organizations and raising awareness of their social and teaching work. The respondents had very positive opinions of the shared projects, noting their significant impact on the school and the local area. There is no doubt that rural schools create collaborative networks that increase the feeling of belonging to the local area while encouraging people to settle or stay there. However, there is a need for logistical and economic support from local institutions and organizations to strengthen a school's role as a stimulator, to be informed of possible sources of funding and potential national and international projects, and to support the teams managing them and the teachers.

This study offers a broad view of rural schools in Asturias, which may be compared with the other Spanish regions—and other countries—to identify common problems and effective responses to those problems, establishing and consolidating collaborative networks that would amplify the synergies with local areas.

Acknowledgments

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Appendix A

Rural schools and their relationships with the context

Research Project I+D+I: *The rural school: a basic service for social justice and territorial equity in Spanish areas with low population density.* Supported by the Spanish Ministry of Science and Innovation (PID2020-115880RB-I00)

1. PERSONAL INFORMATION	
Variables	**Categories**
1.1 Gender	- Woman - Man - Other
1.2 Age	- up to 24 years old - 25 - 29 years old - 30 -34 years old - 35 - 39 years old - 40 - 44 years old - 45 - 49 years old - 50 - 54 years old - 55 - 59 years old - 60 - 64 years old - More than 64 years old
1.3. Teaching experience (years)	- Up to 5 years - Between 6 and 10 years - Between 11 and 15 years - More than 5 years
1.4. Contractual situation	- Permanent teacher - Temporary teacher
1.5. Years of teaching in rural schools	- Up to 5 years - Between 6 and 10 years - Between 11 and 15 years - More than 15 years
1.6. Current role as teacher	- Home room tutor - Member of the management team - Floating teachers (teaching in more than one school) - Specialist teacher - Docente Compartido
1.7. Educational stages	- Infant Education - Primary Education - Secondary Education

1.8. Type of school where you teach	- Unitary School - CEIP (Infant and Primary Education School) - CRA (Grouped Rural School) - CPEB (Public Basic Education School) - EEI (Infant Education School) - Home School - Other
1.9. Area of Asturias where your school is located	(Avilés, Caudal, Eo-Navia, Gijón, Nalón, Narcea, Oriente, Oviedo)
1.10. Type of class organization at your school	- Multi-grade class - Ordinary class
1.11. Please indicate your satisfaction level from working in a rural environment	- Not satisfied - Little satisfied - Satisfied - Very satisfied

2. COLLABORATIVE PROJECTS BEWTEEN THE SCHOOL AND THE TERRITORY

Variables	Categories
2.1. Does your school develop or has recently developed shared projects shared with local organizations or social agents?	- No - Yes, with business (local shops, livestock, waste management consortium, etc.) - Yes, with NGO - Yes with local institutions (council, police, medical center…) - Yes, with cultural organizations (libraries, ethnographic museums, folk-music or artistic associations, etc.). - Yes, with other schools - Yes, with the University - Other (please, specify) - DK/ DA
2.2. From whom you receive economical support?	- Ministry of Education - Department of Education - Council - School - Private entity or local business - We don't receive economical support - Other (please, specify) - DK/DA
2.3. Please, indicate the objectives of your projects	- To open the schools to the rural environment for mutual enrichment (workshops, talks, etc.). -To promote entrepreneurship and economical activities (tourist promotion and local products). - To promote Service-Learning (school serving the community with social actions) -To contribute to the preservation of the rural heritage (tangible and intangible) - To avoid depopulation - Other (please, specify) - DK/DA

2.4. Topics addressed in the projects	- Reading promotion - Culture (heritage, museums, ethnography...) - Sustainability and environment - Coexistence, coeducation, interculturality, etc. - Emotional education - Sport promotion - Healthy habits - Scientific learning - Implementation of innovative methodologies - ICT (audiovisuals, robotics, STEAM, etc.) - Other (please, specify) - DK/DA
2.5. Please mention the current main projects of your school (name of the project, educational stage, organizations that participate, etc.)	(open answer)
2.6. Please indicate the role played by your school in the projects	- Recipient. - Active collaborator. The school participates actively - Promoter. The school leads all the actions and stages - DK/DA
2.7. Regarding the projects shared with the entities and/or social agents, please indicate the type of communication	- Department of Education - Council - Other local institutions (police, medical center…) - Cultural associations (libraries, museums, folk-music associations, etc.). - Schools - University - Private organization or business. - NGO - Other (please, specify) (Type of communication: none, occasional, frequent, we do not collaborate)
2.8. Please indicate your general level of satisfaction with the projects developed.	- Sport activities - Reading promotion - Scientific learning - Coexistence, coeducation, interculturality, etc. - Culture (heritage, museums, ethnography...) - Emotional education - Sustainability and environment Implementation of innovative methodologies - Healthy habits - ICT (audiovisuals, robotics, STEAM, etc.) - Other (please, specify) (Level of satisfaction: not satisfied, little satisfied, satisfied, very satisfied, without projects about this topic)
2.9. Please indicate the level of impact of the projects, regarding these aspects related to local development	- Creating a collective identity (community) - Promoting entrepreneurship and economical activities - Providing services for the community - Contributing to attract and keep people in the local area

	- Responding to shared needs school-territory - Promoting the local heritage (tangible and intangible) - Developing the sense of belonging to the territory (Level of impact: None, Low, Medium, High)
2.10. From your point of view, please indicate the role of the school in creating and promoting collaborative networks in the local areas.	- Not at all relevant - Little relevant - Relevant - Very relevant - DK/DA