

How are the Sustainable Development Goals Being Worked Within the Schools?

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Abstract

The integration of the Sustainable Development Goals (SDGs) in educational centers has become an imperative need to prepare new generations with the necessary competencies to respond to new global challenges. Schools, as educators, have a responsibility to foster education that promotes sustainable development, ensuring that new generations adopt practices and values that contribute to building a more equitable and sustainable future.

The goal of this article is to provide an overview of the actions and experiences related to the SDGs that are being carried out at schools in the Autonomous Community of the Region of Murcia (Spain). A purposive sampling was carried out, and the sample consisted of 40 educational centers. The centers were selected based, firstly, on their consideration as key agents in the development of the SDGs and, secondly, on their territorial representativeness. A descriptive qualitative research approach was adopted, using a semi-structured in-depth interview, with teachers and members of the management teams, as an instrument to collect

information. A content analysis based on grounded theory was conducted, which made it possible to identify the agents promoting actions and programs linked to the SDGs, as well as to categorize by theme the different actions being developed by the centers to contribute to the development of the SDGs and the 2030 Agenda.

Keywords: Educational activities, education for citizenship, descriptive study; Sustainable Development Goals, world citizenship.

Introduction

In 2015, the Member States of the United Nations adopted the 2030 Agenda for Sustainable Development, which represents a global commitment to action on behalf of humanity in the 21st century. The Agenda represents a global commitment to action in favour of people, the planet, prosperity, universal peace and access to justice, in response to the pressing challenges facing humanity in the 21st century. It sets out 17 goals and 169 targets of an integrative nature in order to “harmonise environmental, social, educational, cultural, political and economic aspects and guide them towards forms of organisation that will mitigate global change” (Moreno & Bolarín, 2015, p. 36). The promotion of a holistic approach that acknowledges the intricate nature of global challenges (Mebane et al., 2023) is essential for addressing a multitude of interrelated issues, including poverty and hunger eradication, gender equality, climate action, peace and justice (Oliveira et al., 2020).

In light of the above, the Agenda and its Sustainable Development Goals (henceforth referred to as SDGs) provide a comprehensive framework that guides governments, international organizations, the private sector and civil society towards more equitable, sustainable and resilient development (Sangiuliano et al., 2023) by fostering collaboration and cooperation between countries and diverse actors. This framework calls for a novel approach to education, one that recognizes its intrinsic value and contribution to the realms of social well-being, sustainable development, and good governance United Nations (UN, 2014, p. 2) in terms of Education for the Development of Global Citizenship (EDCG).

This globalized approach entails an understanding of the reciprocal relationship between local actions and decisions and their global repercussions, as well as the interdependence between diverse communities and ecosystems across the planet. This awareness is vital for addressing global challenges such as poverty, climate change and inequality (Sobrinho et al., 2023). Furthermore, global citizenship encourages respect for cultural, ethnic and linguistic diversity, thus facilitating the development of inclusive and peaceful societies. Concurrently, it fosters empathy and solidarity towards those facing difficulties in disparate global contexts, inspiring individuals to act for the collective good (Mayr &

Volmer, 2024; Sanz et al., 2023). Global citizenship education serves to prepare individuals for the challenges of the contemporary world, while simultaneously promoting fundamental values such as justice, equity and mutual respect. This enables them to contribute meaningfully to the construction of a more just, sustainable and peaceful world. By coordinating efforts and resources around shared objectives, the SDGs can stimulate innovation, investment, and collective action on a global scale.

Background

The commitment of Spain to the 2030 Agenda, the SDGs and the EDCG has prompted the government to incorporate specific recommendations in the current Organic Law 3/2020 of 29 December, which amends Organic Law 2/2006 of 3 May on Education (LOMLOE, 2020). In its preamble, the Organic Law 3/2020 of 29 December, which amends Organic Law 2/2006 of 3 May on Education (LOMLOE, 2020), recognizes the importance of addressing the proposals of the 2030 Agenda. Furthermore, it establishes that educational plans and programs must contemplate the development of competencies, skills, values and attitudes to train citizens who contribute to a more sustainable world. The school occupies a privileged place to work on the SDGs, because there is a synergy between the SDGs and the goals of the school in addition to having these anchored in the curriculum of all educational stages (Salinas, 2021). This places the school at the forefront of educational institutions, making it a key player in societal transformation (Cabrera & Bianchi, 2023; Hernández-Castilla et al., 2020). It also highlights the responsibility of the school in developing proposals aligned with the SDGs within its educational environment. It is, thus, incumbent upon educators to develop curricula that foster critical thinking, problem-solving, and collaboration among students, equipping them with the tools to navigate the challenges of the 21st century effectively (Bikfalvi et al., 2024; Briede et al., 2024; Goller & Rieckmann, 2022). Furthermore, it offers students a comprehensive understanding of the interconnectivity between social, economic, and environmental issues (Calatayud & Guardado, 2022; Mayr & Volmer, 2024). This reflects one of the main challenges facing protracted and ineffective education reforms in education (Briede et al., 2024).

The integration of the SDGs into educational curricula, and particularly into school-based activities, has the potential to foster civic engagement by inspiring students to become active participants in their communities and advocates for positive change. Concurrently, schools cultivate a culture of social responsibility by acknowledging the influence of individual and collective actions on global well-being (de Marcos & Sanahuja, 2021). In conclusion, this approach not only enhances the educational experience but also encourages students to become

agents of change, dedicated to the creation of a more prosperous and equitable world.

Since it is clear that schools have a responsibility to integrate the SDGs and prepare students for active citizenship, it is necessary to find the best way to work on the SDGs within the curriculum and educational centers. It is necessary to identify how they can be integrated into the curriculum, what type of activities are most appropriate for the development of the SDGs, and with which methodologies greater participation, involvement and commitment of students can be achieved. In order to work on the SDGs, it is necessary to involve and motivate students. Therefore, the design and development of the curriculum through certain methodological proposals is essential. Incorporating the SDGs and education for global citizenship in the work of educational centers requires the development of curricular proposals that guide what the educational objectives, learning contents, methodologies and evaluation criteria should be based on human rights (Dieste et al., 2019). Some authors, such as Salinas (2021), understand that the SDGs can be put into practice from any conversation, topic, project, etc., which makes it possible to raise open questions that arouse curiosity and motivation in students and lead them to reflection, knowledge and critical awareness. Salinas also recommends, at a methodological level, conducting interviews, developing collaborative activities, facilitating the participation of families and other people in the educational center through the development of workshops, interactive groups, dialogical readings, because interacting with others persons offers the opportunity to learn about other cultures, other more sustainable lifestyles, etc. It is about promoting the protagonism of students in transformation processes, encouraging them to take action (Salinas, 2021), or as Biesta (2016) points out, developing education for citizenship through experience and experience competence and participatory learning. In this sense, some authors recommend looking for the opportunities offered by different subjects, such as social sciences, natural sciences, mathematics and literature, to effectively integrate the SDGs (García & Moreno, 2021), and others argue that the perfect anchor of SDGs lies in the curriculum of all educational stages (Salinas, 2021). In terms of how to work on the SDGs in centers to promote student engagement and participation, active methodologies such as project-based learning, experiential learning (Coma et al., 2023) or service learning projects are recommended (Dieste et al., 2019). Other research on the SDGs in the field of primary and secondary education highlights the importance of systematization, adequate planning in the short, medium and long term, and collaboration between teachers and the entire educational community (Dieste et al., 2019).

On the one hand, faced with the challenge of responding to global citizenship education, formal education and curriculum, its planning, development and evaluation can promote changes to train critical and supportive citizens who

actively participate in improving society (Celorio, 2013; Dieste et al., 2019). On the other hand, the most important thing when working with the SDGs at school is the impact they can have on students' learning, their knowledge, values, attitudes and behaviours to promote a better world. However, in order to achieve this impact on learning, it is necessary to identify what factors influence students' motivation and engagement in actions and activities related to the SDGs. Once SDG actions have been implemented at school, it is also interesting to analyze the degree of awareness achieved by students regarding global issues, their ability to analyze complex problems and their willingness to participate in actions for change (Bruchner & Aragon, 2021).

The role that education plays in preparing young people for global citizenship is indisputable; therefore, both those responsible for educational policies and teachers themselves are increasingly oriented toward including the SDGs in the curriculum and in educational centers (Dieste et al., 2019; Goren & Yemini, 2017).

Research Problem

According to the 2020 Sustainable Development Goals Report, the world is not making sufficient progress towards achieving the global goals by 2030 (United Nations, 2020). The risk of not being able to achieve the SDGs is real and requires transformations in the economy, politics, education, etc. (Hernández Castilla & Opazo; 2020; Scones et al., 2020). Therefore, it is necessary to develop research that focuses on the educational aspects, going into depth on what work the centers are developing in relation to the SDGs, with what type of activities and projects they are linking them, with what methodologies they are developing them, what difficulties they are encountering for their integration, and what recommendations can be offered to better guide the work with the SDGs in the educational context. The SDGs should be made visible in the different curricula and shown as cross-cutting elements in different subjects and areas (Saraiva et al., 2024). As has been proposed, schools, as agents of change can be an effective means of promoting awareness, commitment and action towards sustainable and equitable development at local and global levels (Medina, 2020). Therefore, studying the actions carried out at schools is crucial, on the one hand, to evaluate the impact of teaching the SDGs, and, on the other, to identify best practices in curricular integration and pedagogy, with the aim of developing effective educational resources to train teachers and contribute to the advancement of the global sustainable development agenda (Hamwy et al., 2023; Jekabsone & Ratniece, 2023). In this regard, Jekabsone and Ratniece (2023) point to the need for the development of two specific aspects: the incorporation of sustainability in learning outcomes and the broadening of interdisciplinarity in the different programs.

The results of this research, like the rest of the research that focuses on analyzing the development of the SDGs in the educational system, make an important contribution to the achievement of the SDGs by helping make visible the work that schools are doing in relation to the SDGs and by contributing to the redesign of educational policies, pedagogical practices and teaching programs that focus on the SDGs. Therefore, a response is given to the approach of different authors who, on the one hand, appeal to the need to develop educational research that is forced to commit to the search for answers that guide the SDGs in their contribution to the promotion of a more just, sustainable and focused on the values of solidarity and diversity (Mentón et al., 2020), on the other hand, to carry out applied research aimed at the practice of the SDGs in order to catalyze approaches, methods and solutions that help be more effective and sustainable (Gavinola et al., 2022; Hernández Castilla & Opazo, 2020). Gavinola et al. (2022) point out that it is even necessary to face sustainability in conditions of certainty and compromise by the institutions in its development.

Therefore, this research responds to both an existing interest in the subject in the scientific community and a concern among educational centers to optimize resources and work as accurately as possible on the SDGs.

Research Focus

In view of the goal of this research, a study with an analytical and descriptive approach was developed. Given the nature of the information sought and in order to get closer to the knowledge of the object of study, a “non-experimental descriptive” research approach was chosen to provide an overview of the actions carried out at schools. In order to better understand the scope of the study, a descriptive-exploratory research design was used to present the projects, plans and activities carried out at schools.

The Goal of the Research and Research Questions

The goal of the research is to provide an overview of the implementation and state of development of the SDGs at educational centers in the Autonomous Community of the Region of Murcia (Spain). The research questions that guided the research are as follows: (1) Who proposes the initiative or where does the initiative to work on the SDGs in schools come from? (2) What kind of activities, projects or programs are being developed by primary and secondary schools in the Region of Murcia to respond to the challenge of the SDGs? (3) Among the 17 SDGs, what are the main issues that are being addressed in educational centers and which are not and with what methodology they are developed?

In order to answer these questions, we described and analyzed the programs and actions related to the SDGs developed at the centers of the region, making a correlation between the type of activity or program and the SDG addressed.

Research Methodology

General Background

This study is situated within the framework of non-experimental or descriptive research, which is primarily concerned with providing a detailed description of the characteristics of existing phenomena (Salkind, 1999). Accordingly, the study presented in this article responds to an action aimed at achieving a comprehensive understanding of significant educational and social phenomena. The aim of this methodology is to understand the way in which the stakeholders of a phenomenon experience it (Andić & Mažar, 2023; Sandín, 2003).

The study sample on which the data analyzed in this paper are based is presented below, followed by a description of the information collection instrument and the methodological procedure.

The Sample

The selection of the sample responded to a specific criterion: to select centers that are benchmarks in the region for their engagement with the SDGs and have a recognised track record in working with the 2030 Agenda. In this sense, the selection was purposive and based on criteria. The Department of Education of the Region of Murcia provided us with a list of centers that met the said criteria, and subsequently the research team made a selection based on the idea to achieve greater representativeness and significance. It was decided to follow the criterion of regionalization proposed in the Global Atlas of the Region of Murcia (Romero & Alonso, 2007). This was done on the basis of both a geographical and a functional point of view. In this regard, the participating centers are distributed across the majority of the comarcas. However, in accordance with a criterion of territorial extension, there is a concentration of centers in a selected number of comarcas.

Accordingly, the sample comprised 40 educational institutions. The largest proportion of the sample, at 75%, corresponded to Primary and Infant Education Centers (CEIP). Approximately 20 % of the sample comprised secondary education centers (IES), while the remaining 5 % was made up of adult education centers (CEA), grouped rural centers (CRA), and infant education schools (EEI). In terms of ownership, the majority of the centers (92%) are public educational institutions, while the remaining 8 % are charter schools.

Instrument and Procedures

The interview was the primary method employed to gather data for this study. The interview script was structured around four key areas: (1) the origin, design and development of actions and activities; (2) the participating agents; (3) the evaluation of actions and challenges and (4) future lines of development in education at the center. This article presents the findings from the first block of the interview, which addressed the actions carried out at educational centers in relation to the SDGs. The aim was to collate data regarding the activities conducted within the educational centers and the subject matter addressed, in addition to the provenance of these activities. Accordingly, the categories of analysis considered in this article align with the aforementioned three: actions conducted at the centers, the source of these actions and the subjects addressed – in compliance with the SDGs. The instrument was validated using the method of individual aggregates, the criterion of expert judgment. Selecting the experts, the criteria set forth by Brill et al. (2006) and García & Fernández (2008) were followed, namely, extensive knowledge and professional experience with the object of study and availability to participate in the procedure. In particular, five experts were selected and asked to assess the relevance, clarity and coherence of each of the questions. Based on the contributions, suggestions and guidelines provided by the experts, a final interview script was drafted.

Following contact with the selected centers, a schedule was established for the interviews. The interviews were conducted with 40 school principals or, where appropriate, with the teacher delegated by them because of their greater involvement in the development of SDG projects at the school. The interviews were recorded with the explicit consent of the informants and transcribed verbatim for later analysis.

Data Analysis

The data set has been subjected to inductive analysis using the technique of content analysis based on grounded theory because it is deemed particularly suitable for the analysis of how individuals interpret their reality (Alarcón et al., 2017). In order to conduct this type of analysis, it is essential to consider the process of systematization in coding (San Martín, 2014). Consequently, the initial stage involved an open coding approach to identify the various underlying concepts. This was followed by a second axial coding stage, which aimed to determine the relationships between these concepts. Finally, a selective coding stage was employed to analyze the data holistically.

Research Results

The results are presented below, based on the information provided by key informants at the schools, according to the categories of analysis previously outlined. To present the results and preserve the identity of the centers, the interviews of each center have been listed from 1 to 40, indicating in the information fragments presented the interview to which the information corresponds.

To answer the first research question, it can be said that the actions developed by the centers are framed in plans or programs, so they are not isolated or specific actions. In this regard, the formulation of these plans or programs may be advanced in order to address institutional requirements. They are incorporated into the context of other educational programs proposed by the various Regional Government Departments, the State, or even Europe. Alternatively, the centers themselves may devise plans and programs that encompass these activities. This may be done at the initiative of teachers, in particular, or management teams and/or teaching staff shared by the whole center, in general. In this instance, the proposals are formulated in response to specific needs, interests and problems that are largely context-specific, as they are shaped by the particular circumstances of the centers in question.

In the quotations below, we can appreciate this double aspect of the origin of the proposals: proposals that emanate from an institutional impulse (European, national or regional) and those that arise from the schools themselves (management teams and teachers).

The promotion of these initiatives is primarily the responsibility of the management team, although the input of teaching staff is also invaluable, given that it is the teachers who are responsible for implementing the actions in question (E.12).

In some cases, the impetus for such initiatives originates from within our institution, whereas in other instances, external organizations play a pivotal role. For instance, the physiotherapy program is a collaborative effort between our institution and the Regional Ministry, necessitating the approval of both parties. We take pride in the seamless coordination between teachers, teams, and sections (E.13).

The projects are based on overarching themes, and from these, teachers propose activities related to their respective subjects. All members of the community contribute ideas and form friendships, collectively building the community (E.10).

To answer the second research question, Tables 1 and 2 present an analysis, which also relates the programs, projects and activities with the 17 SDGs (health and well-being, zero hunger, quality education, etc.).

The answer to the third research question emerges from the information in Tables 1 and 2, and the description of the activities developed within each project.

Table 1 provides an overview of the educational programs and plans within which the school actions and activities are situated. It is worth mentioning that all projects and programs shown in Table 1 respond to initiatives promoted by the European, national or regional administration.

Table 1

Programs and Plans to Address the SDGs Driven by the Administration

INSTITUTIONAL EDUCATION PROGRAMS AND PLANS	SDGs
Health Education at School https://programaseducativos.es/programa-educacion-salud/ Objectives: (a) to promote the acquisition and maintenance of healthy lifestyles in the educational community, encouraging outdoor activities; (b) to promote the comprehensive development of students in all areas of personal, professional and social life and (c) to promote the transformation of schools into Health Promoting Schools. Activities: healthy breakfasts; school sports; talks; active breaks; responsible consumption; noise outside; healthy suitcase, etc.	SDG 3 Health and Well-being
Fruit, Vegetables and Milk Consumption Program at Schools https://programaseducativos.es/programa/consumo-de-frutas-y-hortalizas/ Objective: to raise awareness among students of the benefits of fruit, vegetables and milk consumption and their essential nature for good health. Activities: healthy lunches; fruit day, etc.	SDG 3 Health and Well-being
The Yellow Cable https://programaseducativos.es/programa-cable-amarillo/ Objective: to promote logical and mathematical reasoning through the use of robotics to improve students' Digital, Mathematical and Science and Technology competence and to establish spaces for exchange, dissemination of experiences and good practices in educational innovation among students, teachers and educational centers. Activities: working with the Doc robot; sequencing vignettes to order a story; initiation to unplugged robotics with printable cards and robots, etc.	SDG 4 Quality Education

See next page for continuation of table

Continuation of Table 1

INSTITUTIONAL EDUCATION PROGRAMS AND PLANS	SDGs
Ecological School Gardens https://programaseducativos.es/programa-huertos-ecologicos/ Objective: to enable students to experience their natural and rural environment, to understand the relationships and dependencies we have with it, to put into practice attitudes and habits of environmental care and responsibility. Activities: implementation of an ecological vegetable garden; tree planting; Mar Menor Day, experience exchange days, etc.	SDG 2 Hunger 0 SDG 11 Sustainable Cities and Communities SDG 12 Responsible Consumption and Production SDG 13 Climate Action
Composting https://www.miteco.gob.es/gl/calidad-y-evaluacion-ambiental/temas/prevencion-y-gestion-residuos/actuaciones/proyectos_piloto_compostaje_domestico.html Objective: to transform biodegradable organic waste into compost for the plants and trees of the school. It is carried out with a specific machine that, after introducing the recycled organic waste, converts it into ecological compost. Activities: vegetable garden and composting.	SDG 13 Climate Action SDG 15 Life on Land
e-Twinning https://programaseducativos.es/programa-etwinning/ Objective: to promote and facilitate contact, exchange of ideas and collaborative work between teachers and students in the countries participating in this program through ICT. Activities: eTwinning provides a platform for educational teams (teachers, management teams, library staff, etc.) from schools in participating European countries to communicate, collaborate, develop projects, share and be part of the European educational community.	SDG 4 Quality Education SDG 17 Partnerships to Achieve the Goals
Regional Plan for the Improvement of School Coexistence https://servicios.educarm.es/liferay/convivencia.pdf Objectives: to improve the climate of school coexistence by involving the whole of society; conflict prevention in school contexts, participation of society for school coexistence and the implementation of action measures adapted to the social context and its needs. Activities: promoting the figure of the student-tutor; informing and training in the positive use of ICT and social networks; carrying out awareness campaigns on topics related to school coexistence; workshops to provide tools for conflict management in different situations, etc.	SDG 4 Quality Education SDG 16 Peace, Justice and Strong Institutions

See next page for continuation of table

Continuation of Table 1

INSTITUTIONAL EDUCATION PROGRAMS AND PLANS	SDGs
PROA+ Program (2021–2023) https://www.educacionyfp.gob.es/mc/sgctie/cooperacion-territorial/programas-cooperacion/proa/proa-21-23.html Objectives: to improve school success and guarantee the permanence of students in publicly funded schools where there is a high percentage of young people in a clearly vulnerable socio-educational situation. Activities: family training; immigrant student reception plans; absenteeism plans; individualized tutoring; reinforcement activities; activities related to the school library to improve reading comprehension or teacher reception plans; shared teaching; actions related to diversity; cooperative learning, etc.	SDG 4 Quality Education SDG 10 Reduced Inequalities
Let's Get Back Closer Plan. Socio-Emotional Support Plan https://www.carm.es/web/pagina?IDCONTENIDO=53233&ID-TIPO=11&RASTRO=c148\$m51293,70152 Objectives: to plan actions that contribute to emotional balance by facilitating the permanence of students in the classroom, as a fundamental means for the development of good learning. Activities: welcoming students; expressing emotions; practicing sports and feeling happy, etc.	SDG 3 Health and Well-being SDG 4 Quality Education
Clean Air Program https://servicios.educarm.es/templates/portal/ficheros/websDinamicas/45/Conv%20nuevas%20adscipc%202021-22%20CI260679%2010-09-21.pdf Objectives: to create safe and healthy environments and encourage outdoor and nature-based activities, as well as the formation of collaborative networks between participating schools for the exchange of ideas and capacity building in school environmental health. Activities: forming the “Environmental Guardians”, using the playgrounds as a place for the development of some classes; developing badges, etc.	SDG 3 Health and Well-being SDG 4 Quality Education SDG 17 Partnerships to Achieve the Goals
Active Schools Program https://programaseducativos.es/programa/escuelas-activas/ Objective: to develop a healthy diet to reduce childhood overweight and obesity at school and to achieve, individually, at least 10,000 steps, which is approximately equivalent to the 60 minutes of Moderate to Vigorous Physical Activity (MVPA) recommended by the World Health Organization (WHO) as the minimum activity necessary to lead a healthy life. Activities: healthy breakfasts; physical activities such as walks, marathons, etc.	SDG 3 Health and Well-being

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Continuation of Table 1

INSTITUTIONAL EDUCATION PROGRAMS AND PLANS	SDGs
ARCE Program (Groupings and Networks of Educational Centers) https://sede.educacion.gob.es/publiventa/programa-arce-guia-para-la-participacion/ensenanza/14876 Objective: to establish channels of collaboration to form groupings and networks of educational centers or institutions from different autonomous communities, through the development of a common project, with the aim of sharing experiences, maintaining and generalizing innovation initiatives, which facilitate improvements in educational practice. Activities: meetings and exchange with students; establishing a framework for debate and joint reflection; developing and disseminating materials, etc.	SDG 4 Quality Education SDG 17 Partnerships to Achieve the Goals
Educating for Justice Project https://sede.carm.es/web/pagina?IDCONTENIDO=1187&ID-TIPO=240&RASTRO=c\$m40288 Objective: to offer schools another preventive tool that promotes the meaning of the value of justice in a state governed by the rule of law. Activities: training parents in conflict mediation activities.	SDG 4 Quality Education SDG 16 Peace, Justice and Strong Institutions

Table 2 shows the activities and projects linked to the SDGs that the centers carry out on their own initiative, originating in the center itself and not linked to broader projects or plans – as mentioned in Table 1.

Table 2

Programs and Plans to Address the SDGs Driven by the Schools and Teachers Themselves

EDUCATIONAL PROGRAMS, PLANS AND ACTIVITIES FROM SCHOOLS	SDGs
Think Globally, Act Locally Project Objective: to raise students' awareness of their contribution to achieving the goals of the 2030 Agenda through actions that serve as an example to other citizens in their environment. Activities: exhibitions, solidarity races, theatre plays, proposal to the City Council for streets to be named after women, etc.	SDG 3 Health and Well-being SDG 4 Quality Education SDG 5 Education for Equality

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Continuation of Table 2

EDUCATIONAL PROGRAMS, PLANS AND ACTIVITIES FROM SCHOOLS	SDGs
Sustainable Village Project https://villasostenible.com/ Objective: to develop a strategic communication and awareness-raising plan, scheduled and aimed at the entire population, from children to adults, to raise awareness of the importance of applying sustainable habits that are in line with respect for the environment on a daily basis. Activities: ecopatrols, workshop of recycling and waste, planting of a sustainable forest, etc.	SDG 13 Climate Action SDG 11 Sustainable Cities and Communities
Zero Waste Recreation Project https://teachersforfuturespain.org/que-hacemos/recre-os-residuo-cero/ Objective: to reduce the consumption of plastics and other environmentally polluting elements, to raise awareness among students about each of the materials, their life and possible reuse or not. Activities: bring a cloth bag or a lunchbox instead of aluminium foil for sandwiches.	SDG 13 Climate Action
Zero Noise Project https://www.escuelajuanxxiii.com/index.php?option=com_content&view=article&id=556:el-ceip-juan-xxiii-pone-en-marcha-el-proyecto-escuela-sin-ruidoq&catid=15:example-category Objective: to provide an educational response to the problem of noise pollution suffered by the center, which is the cause of serious disruptions in the teaching-learning process and serious hearing problems that can sometimes lead to serious pathologies in students and teachers. Activities: encourage students and their families to use public transport for journeys to raise awareness of noise pollution and improve air quality.	SDG 13 Climate Action

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Continuation of Table 2

EDUCATIONAL PROGRAMS, PLANS AND ACTIVITIES FROM SCHOOLS	SDGs
Mares Project (Maximum Educational Performance) https://sites.google.com/murciaeduca.es/sanjeenlaonda/radio/mares/proyecto-mares-eso Objective: to carry out integrative educational actions among the school students, in which students with high abilities, immigrant students, as well as students with low social resources and/or learning difficulties participate, through alternative educational methodologies. Activities: World Water Day, International Environment Day, interviews with experts to find out about the problems of the "Mar Menor", raising awareness of solar panels, etc.	SDG 4 Quality Education SDG 10 Reduced Inequalities SDG 13 Climate Action
Environmental Inspectors Project "What are we Breathing? Is the Air Around us Clean?" https://sanjemares.wordpress.com/2018/05/13/inspectores-ambientales-proyecto-de-innovacion-educativa/ Objective: to analyze and collect information about air pollution in the area around the school and its effects on health, as well as to acquire knowledge about the environment. Activities: use of problem-based learning to work on real-world situations in the classroom, such as analyzing pollution levels and their effects, etc.	SDG 13 Climate Action SDG 15 Life on Land SDG 3 Health and Well-being
Project Sing: An Emotion, a Song https://www.facebook.com/Creatumusicaconemocion/?locale=es_ES Objective: to promote school coexistence through emotions so that students acquire tools that allow them to be freer and combat bullying through poetry and music. Activities: recording a disc.	SDG 4 Quality Education SDG 16 Peace, Justice and Strong Institutions
Environment Project Objective: to conserve some avian species by making nesting boxes and reforesting green spaces. Activities: planting in the environment, making and distributing nesting boxes for the conservation of some species.	SDG 13 Climate Action SDG 15 Life on Land

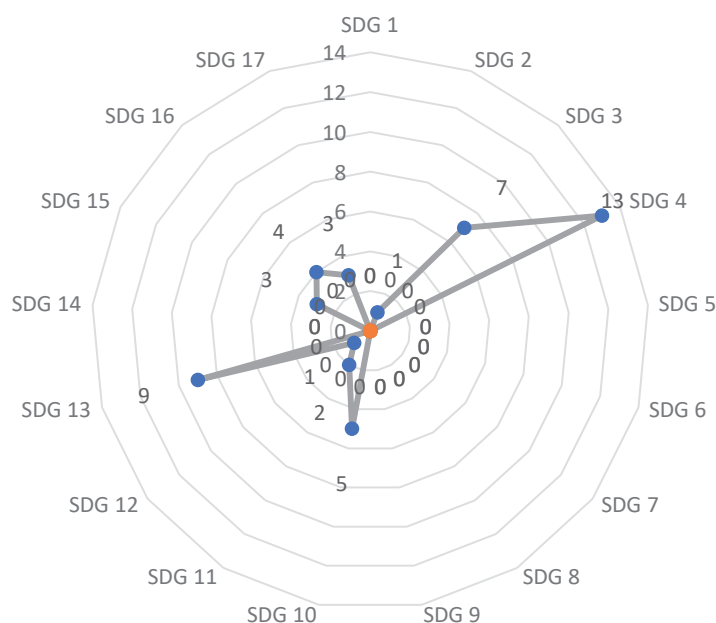
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Continuation of Table 2

EDUCATIONAL PROGRAMS, PLANS AND ACTIVITIES FROM SCHOOLS	SDGs
Recycling Project Objective: to encourage students of all ages to acquire the habit of selective separation of domestic waste, understanding this action as a necessity in the face of current environmental problems. Activities: raising awareness and promoting the use of recycling bins; developing and placing individual recycling bins at school.	DG 13 Climate Action
School Diary Objective: to work on different democratic values equality, freedom, justice and solidarity. Activities: working on different values each month, music list related to the values for each month.	SDG 4 Quality Education SDG 10 Reduced Inequalities SDG 16 Peace, Justice and Strong Institutions SDG 5 Gender Equality
Peer Mentoring Objective: to prevent bullying and to work on the issue of racism and xenophobia. Activities: upper year students help new students to integrate and adapt.	SDG 4 Quality Education SDG 10 Reduced Inequalities
Rain Project Objective: to work on gender equality and promote a change in values in order to eradicate situations of inequality and discrimination based on gender. Activities: women in history; learning to say nice things to each other and to love each other very much; careers in equality; non-sexist toy campaigns.	SDG 5 Gender Equality SDG 10 Reduced Inequalities

As can be seen in Tables 1 and 2, there are many and varied programs and activities developed by the centers to work on the SDGs.

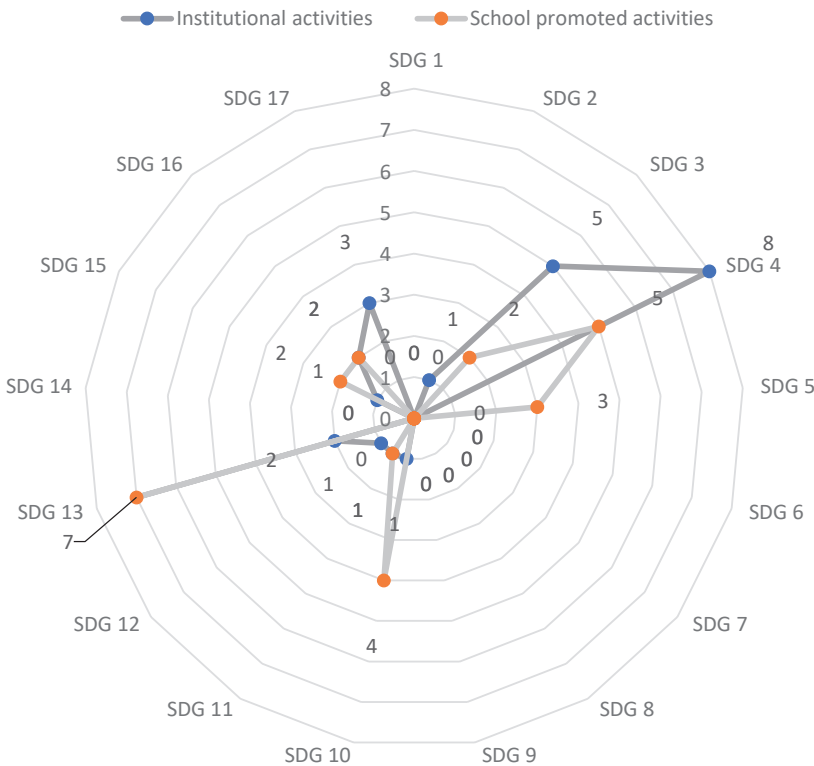
Figures below represent in a more graphic and visual way which themes of the 17 SDGs are the ones that are worked on the most/the least at the centers.

Figure 1*Diagram of the Distribution of Activities by SDG*

It can be observed that the plans and projects developed in accordance with the 2030 Agenda incorporate a vast array of activities, with nearly all SDGs encompassing initiatives within educational institutions through various forms of engagement. In terms of SDGs that are most worked on, the result is the following: the activities proposed at schools fall under SDG 4 (13 projects are carried out in conjunction with activities related to Quality Education), SDG 13 (9 projects implement activities related to Climate Action). Next, SDG 3 (7 projects are carried out in conjunction with activities related to Health and Well-being) and SDG 10 (5 projects are carried out in conjunction with activities related to Reducing Inequalities).

However, there is a differentiation in the SDG themes that are addressed in the projects promoted at the educational administration level, with respect to the themes promoted by the educational centers themselves. Figure 2 illustrates the extent to which actions originating in institutional plans and programs are linked to SDGs 3 and 4 (Health and Well-being and Quality Education), and the greater focus on SDGs 13 and 4 (Climate Action and Quality Education) among activities generated at the proposal of the centers themselves in response to their particular circumstances. In particular, seven projects are concerned with climate action, five with quality education, four with reducing inequalities, and three with education for equality.

Figure 2
Diagram of Activities According to the SDG and the Institutional Level From Which They Emerge



By way of illustration, below is a more detailed explanation of the SDGs that are more strongly represented in the centers, accompanied by examples of the activities and projects to which they are linked, and text quotes from respondents about them.

Goal 4: Ensure inclusive, equitable and quality education and promote lifelong learning opportunities for all

This goal is concerned with the provision of inclusive, equitable and quality education for all, as well as the promotion of lifelong learning opportunities for all people throughout their lives. The following points illustrate the significance of this SDG for the regional administration:

- Driver of human development: education is a key catalyst for human development and social progress. It provides people with the skills, knowledge and capabilities needed to improve their lives, access decent employment opportunities and actively participate in society. Example –

“Yellow Wire” project.

- Reducing poverty and inequality: quality education is a crucial factor in breaking the cycle of poverty and inequality. It provides people with tools to empower themselves and improve their living conditions, as well as to reduce social and economic disparities in society: Example – “PROA+” program.
- Promoting peace and resilience: Education plays a crucial role in promoting intercultural understanding, tolerance and mutual respect, thus contributing to the building of peaceful and conflict-resistant societies: Examples – “Peer Mentoring” and “Regional Plan for the Improvement of School Coexistence”.
- Adapting to an ever-changing world: In a world characterized by rapid technological advances and economic and social change, lifelong learning is increasingly important. SDG 4 promotes education and training opportunities to enable people to adapt and thrive in a changing environment. Example – “School Tutoring or ARCE Program”.
- SDG 4 is essential for sustainable development and overall human well-being. Quality education accessible to all is essential for building more just, equitable and prosperous societies and for achieving the other SDGs at the global level.

Goal 13: Take urgent action to combat climate change and its effects

Goal 15: Ensure sustainable forest management, combat desertification, halt and reverse land degradation and halt biodiversity loss

Both SDGs are crucial because they focus on environmental protection and combating climate change, as well as protecting and restoring terrestrial and aquatic ecosystems. Below are the main reasons put forward by those interviewed why they are important and why schools are working on them:

Climate change mitigation: seeks to address climate change and its impacts, including reducing greenhouse gas emissions and implementing measures to limit global warming to manageable levels. Combating desertification and land degradation: Example – “Zero Waste Recreation Project”.

Collaborating, CESPA and ECOEMBES of the City Council come to give lectures and we go to the recycling centers, waste plants, in the fifth grade – the lectures and in the sixth grade – the excursion. (E.10).

Protection of vulnerable ecosystems: Climate change is endangering fragile ecosystems, such as coral reefs and glaciers. These SDGs seek to protect

these ecosystems and the vital services they provide to communities and the environment: Example – “Clean Air Program”.

Traditionally, school has been closed to the inside (...) there are times when things happen that are bad or harm us but that make us reinvent ourselves (...) outdoor spaces such as open-air classrooms (E.13).

Both goals are relevant because they address critical environmental challenges that threaten the sustainability of the planet and human well-being. Its compliance is essential to protect life on the earth and guarantee a sustainable future for present and future generations.

Goal 3: Ensure healthy lives and promote well-being for all at all ages.

This SDG focuses on ensuring healthy lives and promoting well-being for all people at all ages. This goal addresses a number of health challenges facing humanity and seeks to ensure that everyone has access to quality health services, including disease prevention, treatment and care. Interviewees point out some key reasons why this goal and related activities are important:

- Health, sport and nutrition as foundations for development: Health is a fundamental component of human well-being and a critical factor for sustainable development. Without good health, people face significant barriers to realizing their full potential and contributing to social and economic progress, as in the case of the “Health Education at School” activity. Physical activity and nutrition contribute to health and well-being. Schools develop activities that contribute to the development of habits that promote these pillars, such as healthy breakfasts, fruit and vegetable consumption, mini-Olympics, solidarity marches, etc.

(...) in this center the consumption of industrial biscuits is prohibited (E.9). There is a monthly fruit plan which encourages the consumption of fruit every day (E.9; E.13; E.12; E.25; E.21).

We promote walking activities, in our locality, in the town, coming to school by bike, the PE teacher is also involved in this project (E.1).

We favor and encourage healthy lunches, we have fruit day lunches two days a week, we started with one and now we have two, the other days can also bring fruit but on those days there is a campaign and it is compulsory (E.10).

- Disease prevention and treatment: the objective addresses the need to prevent and control communicable diseases, as well as non-communicable diseases such as cardiovascular diseases and diabetes. It also focuses on mental health, a crucial but often neglected aspect of human well-being, as in the case of the “Let’s Get Back Closer” activity, on hygiene and personal care through informative talks, given by nurses, physiotherapists, etc.

with the pandemic there are also many children who have suffered (...) “let’s get back closer” refers to working with the children on their emotions so that they can bring out everything they have inside them (E.13).

Talks given by two physiotherapists on the importance of adopting good posture, such as carrying a backpack properly, sitting with a straight back (E.12).

We collaborate with the health center in our area, with the school nurse (...) last year the school nurse came and did two workshops on oral health (E.13).

- Resilience to health emergencies: the COVID-19 pandemic has highlighted the importance of strengthening health systems and improving preparedness and response to health emergencies. This objective highlights the need to invest in resilient health infrastructure and strong health care systems, such as the ‘Nos Cuidamos’ (Care of Yourself) project which aims to work with students on the importance of taking care of our bodies linked to care for the environment.

This goal is therefore essential to ensure that all people have the opportunity to lead a healthy life. Its achievement not only improves people’s quality of life, but also contributes to the achievement of other sustainable development goals, including the eradication of poverty, hunger and inequality.

Goal 10: Reducing Enequalities

Goal 5: Gender Equality

Promoting equality means promoting the inclusion of all people in all areas of life, regardless of their age, sex, disability, race, origin, etc., with gender being one of the motivating elements of inequality, which, as a fundamental right, needs to be worked on in the educational sphere. Some of the reasons why these SDGs are important at schools are set out below:

- Contributes to the development of a society where men and women have the same opportunities and rights in all areas of life.

Another of the activities of this project consisted in making a proposal to the city council for the next streets to be named after women, given that most of them had male names (E.38).

- Contributes to the creation of an inclusive environment that contributes to eradicating situations of inequality in favour of a more caring society.

As policemen, especially in the playground they are interested in students who were alone in the playground at a disadvantage (E.9).

Goal 11: Make cities more inclusive, safe, resilient and sustainable

This SDG focuses on making cities and human settlements inclusive, safe, resilient and sustainable. Here are the key reasons why SDG 11 is relevant for teachers and schools:

- Promoting equality and inclusion: seeks to ensure that cities and human settlements are inclusive, meaning that all people, regardless of gender, age, ethnicity or economic status, have access to basic services, infrastructure and development opportunities.
- Building safe and resilient communities: the objective seeks to promote safety and resilience in urban environments, which involves measures to prevent and mitigate the risk of natural and human-induced disasters, as well as to improve the resilience of communities to crises and emergencies.
- Sustainable resource management: addresses the need to sustainably manage natural and environmental resources in urban settings, including access to clean water, clean air and green spaces. This is crucial to protect the environment and ensure the quality of life of urban dwellers.
- Reducing environmental impact and carbon footprint: aims to reduce the environmental impact of cities and promote sustainable consumption and production practices. This includes measures to reduce greenhouse gas emissions, improve energy efficiency and promote sustainable waste management. Examples – “Composting”, “Ecological School Gardens”, “Recycling Project”.

The following statements illustrate the ideas of the interviewees in this respect:

We have a patrol that is 'the paper patrol' that collects paper once every 15 days and goes down to the containers we have outside and throws it out (E.9).

Zero waste, because we do it through the tupper and circulars that are no longer delivered on paper and have been digitalized (E.25).

They collaborate, CESPA and ECOEMBES from the City Council come to give talks and we go to recycling centers, waste plants, in the fifth grade – the talks and in the sixth grade – the excursion (E.10).

SDG 11 is central to building more sustainable, inclusive and resilient cities and communities that are able to meet the challenges of urban growth and climate change. By focusing on improving the quality of life in urban environments, this goal contributes significantly to achieving sustainable development at the global level.

For example, all children come to school by bicycle. We have no bicycle parking and no bicycle lanes. We need the support of Murcia City Council. I think it is being done, but it is more in theory than in practice (E.25).

Goal 17: Revitalise the Global Partnership for Sustainable Development

It is crucial because it acts as an enabler for the achievement of the other 16 SDGs. It promotes cooperation to achieve the other SDGs, and recognizes that global challenges, such as climate change and poverty, require joint and collaborative efforts between governments, international organizations, the private sector, civil society and local communities. It therefore focuses on mobilizing financial, technological and human resources to support the implementation of the SDGs. This involves promoting public and private investment in key areas such as sustainable infrastructure, education, health and innovation (ARCE Project).

We are working on emotional intelligence through art in infants and for this we have formed a grouping of Ministry of Education centers with another more rural center in another autonomous community, in this case, in Velez Rubio, with which we are going to share experiences (E.40).

In addition, it seeks to strengthen developing countries' institutional and technical capacities to effectively implement and monitor the SDGs. This includes skills development, improving governance and promoting transparency and accountability. Example: "Sustainable Village Project".

We were called by the municipality to explain our activities in the framework of this project. The project includes various actions such as circular economy, mobility or resource efficiency. (E.38).

It encourages the creation of public-private and multi-factor partnerships to drive innovation, share knowledge and resources, and address common challenges. These partnerships can amplify the impact of sustainable development initiatives and generate more holistic and collaborative solutions. Example: “Think Globally, Act Locally Project”.

We made an exhibition with giant panels inviting other schools and people from the City Council to explain the SDGs. We call it Commitment, Solidarity and Actions, and we seek to improve the environment through local actions (E. 38).

It is pertinent to highlight the importance that the institutions and the centers themselves give to actions that promote attitudes and values of care and protection of the environment among students, taking into account that these actions are linked to a very precious existing asset in the context, in which the study is carried out, which is the case of the “Mar Menor”. Another important issue is that in practically all the centers, there is coordination with the entities participating and/or collaborating in the activities proposed and developed with external entities and institutions. As example, we highlight the links established with some of them, such as: Greenpeace, Oxfam, Columbares, Secretariado Gitano, associations, health centers and town councils.

To conclude the analysis of the data collected, two significant aspects are highlighted below: On the one hand, the clear link between the projects and activities developed by the centers and the sustainable development goals is explained in this section. Although not all 17 sustainable development goals are worked on in the centers, there is a lot of activity around some of them, such as SDG3, SDG4, SDG5, SDG10, SDG11, SDG13 and SDG15. On the other hand, the interviewees also highlight the alignment between the SDGs and the curricular knowledge (content of the official curriculum) included in the official curriculum. The following testimonies are evidence of this:

It is true that Nature Science or Social Science books contain many activities on caring for the planet, water (the importance of turning off the tap when we take a shower, brush our teeth...), energy (turning off the lights if we are not using them is good...). And many other aspects that are included as curricular content (E.12).

In my subject, in literature, we work on all values, respect for nature, equality (...) and even values that have not been respected throughout human history (E.14).

Discussion

The findings reveal, first and foremost, that schools are engaging in a wide range of activities and projects that are directly related to many of the themes encompassed by the 17 SDGs. The high level of educational activity surrounding the SDGs at schools supports the view already expressed by various authors, who concur that schools are privileged spaces for promoting the values and goals represented by the SDGs (Hernández Castilla et al., 2020; Medina, 2020; Salinas, 2021). Anđić and Mažar (2023) indicate that there is greater development in case of greater involvement of teachers in sustainability goals. This is largely due to the alignment of these goals with the curriculum at all educational stages (Salinas, 2021). The data presented also highlight the link between the SDGs and the content and competencies within the curriculum (Garcia & Moreno, 2021), which facilitates students' acquisition of knowledge, attitudes, values, and practices aimed at improving coexistence, caring for and protecting the environment, promoting social justice, and valuing diversity. As referenced in the relevant literature (de Marcos & Sanahuja, 2021; Goller & Rieckmann, 2022; Mayr & Volmer, 2024), the inclusion of the SDGs in education promotes civic behaviours among young people. Curriculum inclusion, as noted by Goller & Rieckmann (2022) is one of the most effective measures for working with the SDGs. This is reflected in the data presented in this study, firstly, through the implementation of self-care practices, such as maintaining a healthy diet (healthy breakfast) and engaging in physical exercise (Health Education Program). Secondly, though not in any particular order, this is evidenced by addressing common themes related to social and community well-being ("Environment Project", "Recycling Project", "Regional Plan for the Improvement of School Coexistence", among others).

The second question that guided this research was to understand the origin, the seed, and the motivation behind the emergence of the projects and activities related to the SDGs being implemented in educational centers. In this regard, the results demonstrate that activities and projects related to the SDGs predominantly stem from two sources: external and internal. The external source corresponds to the impetus provided by educational authorities (whether European, national, or regional) for certain projects linked to the SDGs, while the internal source relates to initiatives or activities driven by the interests of the educational centers themselves or their teaching staff. This dual path of project incentivization aligns with the findings of Goren and Yemini (2017) and Diese et al. (2019), who argue that both educational policymakers and teachers

are increasingly oriented towards incorporating the SDGs into school curricula and practices (Dieste et al., 2019; Gavinolla et al., 2022; Goren & Yemini, 2017). This is visible in previous research, such as that conducted by Gavinolla et al. (2022) who indicate the benefit of implementing work with SDGs through active methodologies. It is also noteworthy that the range of SDGs covered by projects derived from the administration is greater than those originating in the centers themselves. The administration promotes work on SDG2–SDG4, SDG10–SDG13, and SDG15–SDG17. The educational centers promote work on SDG3–SDG5, SDG10, SDG11, SDG13, SDG15, and SDG16. In addition, it can be seen that the SDGs with the greatest impetus from the administration are SDG4 and SDG3. The quality education goal (SDG4) is the one that has the greatest joint impulse among the projects promoted by the administration and the educational centers.

Finally, the answer to the third research question is that the seven SDGs most commonly addressed in schools (from both the administration and from the centers) in descending order from most to least developed are as follows: SDG4 (Quality Education), SDG13 (Climate Action), SDG3 (Good Health and Well-being), SDG10 (Reduced Inequalities), SDG16 (Peace, Justice and Strong Institutions), SDG15 (Life on Land), SDG11 (Sustainable Cities and Communities). The remaining SDGs are underrepresented compared to those mentioned or not addressed (SDG1 (No Poverty), SDG6 (Clean Water and Sanitation), SDG7 (Affordable and Clean Energy) SDG8 (Decent Work and Economic Life) and SDG9 (Industry, Innovation and Infrastructure). Regarding methodologies, the description of the activities and projects shows that methodologies are employed that empower and engage students in their own learning process. These are experiential learning practices linked to the local context of each school, their immediate reality, and they contribute to improving both the students' own lives and those of their surrounding environment. Additionally, connections and engagement with the community are strengthened through workshops, interviews, and collaborations with associations and social entities. This approach aligns with the guidance provided by other authors, who suggest that addressing the SDGs requires the use of active and experiential methodologies (Biesta, 2016; Briede et al., 2024; Coma et al., 2023; Salinas, 2021; Saraiva et al., 2024), as well as strong connections with the community. Therefore, an active role for students is essential, as Saraiva et al. (2024) point out. In addition, it engages students with real problems in their environment and puts them in contact with the work done around the problems studied.

Conclusions and Implications

This research highlights the crucial role that educational institutions play in addressing the SDGs and their contribution to preparing young people to live in a

better society and become agents of change. Through the extensive activities that schools are undertaking in relation to the SDGs, it is evident that progress is being made to reduce the risk highlighted in the 2020 Sustainable Development Goals Report, which revealed that the world was not making adequate progress toward achieving the global goals by 2030 (United Nations, 2020). As demonstrated in the study, schools are engaging in many actions and projects aligned with the SDGs. However, in light of the data analyzed, it is apparent that not all 17 goals are receiving the same level of attention, nor are they being addressed with the same intensity. Many are being relegated to the background or are not being addressed at all. Similarly, the initiatives driven by governmental authorities tend to focus on SDG3 (Good Health and Well-being) and SDG4 (Quality Education). In contrast, proposals originating within the schools themselves tend to emphasize mainly SDG13 (Climate Action) and SDG4 (Quality Education). Schools, as spaces of social transformation, and teachers, as key agents, face the challenge of continuing to reflect on and seek pathways that advance the achievement of the 2030 Agenda goals. They must expand their work within schools to more comprehensively address the 17 goals and contribute to creating a more sustainable, just, equitable, and inclusive society. Although the official curriculum across all educational stages is aligned with the SDGs (Salinas, 2021), educational institutions in general, and teachers in particular, must always bear in mind the framework of the 17 goals to incorporate them into their educational practice and foster social and civic competence in their students whenever the opportunity arises.

Regarding the methodologies employed for working with the SDGs, it is evident that through various projects and activities, a competency-based and participatory approach is utilized. Students are actively involved and are playing a leading role in transforming their environment by engaging in activities related to raising awareness and promoting lifestyle changes, such as adopting healthy habits, caring for and improving the environment, and respecting diversity. An experiential, participatory, active, and transformative learning methodology is applied, with collaboration and involvement not only from students but also from the school community and networks that connect local and global issues.

This research makes a significant contribution to the growing body of educational research committed to finding solutions for the SDGs, as called for by many researchers and as an example of the application of sustainability mainstreaming in the learning outcomes of programs (Hernández Castilla & Opazo, 2020; Jekabsone & Ratniece, 2023; Mentón et al., 2020). The results of this paper help highlight the work being done at schools regarding the SDGs and sheds light on the way forward. In doing so, it enables a better understanding of the current state of affairs and the development of a roadmap for future educational policies, programs, and practices focused on the SDGs.

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