Innovation in Portuguese schools: what is the grammar of its conceptualization?

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Massification of schooling ensured all students access to education. Until now, the industrial school model was ideal, however, due to the coexistence of cultural and socioeconomic differences, it has become ineffective. Consequently, problems of school failure, dropout and hidden school dropout related to the school mission emerged. Thus, the solution reached, after several relatively unsuccessful "top-down" reforms, is the emergence of a "bottom-up" change which allows schools to reconstruct while adapting to changes in society and addressing the needs of each student. Given this, there is a need to alter the grammar of schooling which remains rooted in time and has become an obstacle to students' learning. In 2018, innovation began to be seen as a possible pathway toward constructing a more personalized education through the implementation of innovation plans in schools. Accordingly, we created and applied an analysis matrix to 66 of the 88 innovation plans pertaining to the 2022/2023 school year, with the aim of answering the following questions: what problems or difficulties have been diagnosed in the design and development of the innovation projects? What variables are used to solve the diagnosed problems? Do the areas and dimensions utilized entail effective innovation in organizational and pedagogical practices capable of improving educational processes and outcomes? Findings indicate that, considering the reference table, a greater investment by schools is needed for a desired profound change in the grammar of schooling. It is noted that, given the identified problems, mainly focusing on school failure, there is a clear emphasis by most plans on changes in teachers' professional development and evaluation strategies. Nevertheless, it seems clear that the macro-level dimensions were the most neglected, with a significant number of plans lacking information regarding the school organization and management, the school environment and top leadership. Therefore, these data suggest that at the micro-level, which refers to educational action in the classroom, all dimensions were very evidently considered by most plans, ignoring organizational dimensions that have the potential to change the working models of teachers and students.

KEYWORDS

grammar of schooling, innovation plans, school innovation, problems, school improvement

1 Introduction

The concept of "Grammar of schooling" emerged through Tyack and Tobin (1994) and refers to the way schools organize and structure themselves in terms of space, student grouping, segmentation of knowledge, time, and teaching, learning and assessment practices.

By analyzing the pedagogical innovation plans of Portuguese schools, a certain standardization in the organization of educational responses is generally observed. This leads authors like Alves (2002) and organizations like UNESCO (2022) to the conclusion that schools operate under the premise that children of the same age must learn the same things in the same space and at the same pace. In this chain of thought, Alves (2002), poses the question: "Is the goal of schools to make all children the same?" (p. 114).

Tyack and Tobin (1994) state that this standardization is so deeply rooted that changing it has become difficult to achieve. However, they emphasize that it is the people who build the institutions, and they can be the key to change "if public discourse about education becomes a searching inquiry resulting in a commitment to a new sense of the common good" (Tyack and Tobin, 1994, p. 479).

1.1 Equal education for everyone: what are the consequences?

According to Franco (1991) and Mogarro and Pintassilgo (2003), the democratization of schooling promoted by the Educational System Law of Basis (Lei de Bases do Sistema Educativo) (LBSE, Law No. 46/86, of October 14th), allowed for the first time access to education for all students, irrespective of their cultural, social, and economic backgrounds. Consequently, "School no longer was attended only by the elites and was forced to take in children and adolescents, who were exposed to distinct socialization models" (Franco, 1991, p. 47). Despite this, the industrial-type school model uniformly retained the fundamental traits of the conceptual and theoretical framework of schools of the past (Nóvoa and Alvim, 2022). This means an immutable grouping of students into classrooms, grades, and classes, a predominantly expository methodology, a single curriculum subdivided by subjects, promoting the idea that everyone must learn in the same way (Alves, 2021; Barroso, 1995; Formosinho, 1987). This situation leads to problems of injustice, rejection, and educational failure. "To educate is not to manufacture adults according to a given model, but to allow each and every person to unlock what enables them to be themselves" (Azevedo, 2011, p. 129).

Concerning this, consecutive governments have made efforts to address these situations through the creation and implementation of Measures to Promote Educational Success (e.g., Priority Intervention Educational Territories Programme (Programa Territórios Educativos de Intervenção Prioritária), Pedagogical Innovation Pilot-Project (Projeto-Piloto de Inovação Pedagógica), School Success Promotion National Programme (Programa Nacional de Promoção do Sucesso Escolar). In the case of school dropout, for example, there have been very significant improvements, with the percentage of students aged 18 to 24 who do not complete secondary school dropping from 18.9% to 8% in the last decade (Pordata, 2024). However, despite this improvement, there are still issues of equality and equity (Alves, 2023), seemingly because pedagogical practices remain almost unchanged. Indeed, "very little has changed in the method of teaching and learning" (Raposo and Alves, 2013, p. 28). Globalization and rapid technological advances continue to change the world, leading educational systems to become increasingly disconnected from the realities and needs of global societies. In this sense, educational models need to adapt to equip children and adolescents with the necessary skills, thereby creating a more inclusive, cohesive, and productive world (Paniagua and Instance, 2018).

The focus needs to be on "preparing young people for rapid change and for the complexity of a post-modern and post-industrial world" (Hargreaves, 2003, p. 41) and thus provide and support students in developing different kinds of skills reported in Students' Profile by the end of Compulsory Schooling (Martins et al., 2017). "If the school does not move, if it does not change, if it does not adapt and, including, does not anticipate the demands of new times, it will lose its meaning" (Guerra, 2018, p. 22).

1.2 School innovation

The need for school and pedagogical innovation implies challenging "each and everyone to think about school, teaching and learning processes in a contextualized, creative, competent, and collaborative way" (Palmeirão and Alves, 2018) thus generating a modern school education model (Alves, 2023; Fullan, 2007; Jesus and Azevedo, 2021) and, from it, constructing educational practices in an "internalized, active, and well-founded" way (Cabral and Alves, 2018, p. 11). With this focus, "we need to know about the causes and dynamics of how change occurs" (Fullan, 2007, p. 107), particularly regarding the domains of pedagogical innovation.

Innovation in the school context assumes a plural conceptualization, as there is no unanimous definition in the scientific community (e.g., Sebarroja, 2001; Hubberman, 1973; Kampylis et al., 2012; Vicent-Lancrin et al., 2019). We agree with Labaree (2021) when he states that change becomes easier when it fulfills the social mission of safeguarding values and providing equal opportunities for success while simultaneously meeting the real needs of the people involved.

In Portugal, in 2017, Order No. 3721 of May 3rd, paved the way for programs and projects of pedagogical innovation as a possible means to develop quality education for everyone. The goal was to create a Learning Innovation National Programme (Programa Nacional para a Inovação na Aprendizagem) (2016/2017) through the creation of Pedagogical Innovation Pilot-Projects (Projetos-Piloto de Inovação Pedagógicas) (PPIP's). The invited schools benefited from support given by the General Education Directorate (Direção Geral da Educação) (DGE). The PPIP's, created and implemented as a pedagogical experiment for three school years, showed, according to Order No. 181/2019 of June 11th (Portaria n° 181/2019 de 11 de junho), that schools, in interaction with the Educational Administration, sought to test innovative solutions to promote school success.

Following the publication of Decree-Law No. 55/2018 of July 6th, Portuguese schools had the opportunity to challenge themselves and manage up to 25% of the base curriculum matrices through the application of innovation plans. Later, in 2021, Order No. 306/2021 of December 17th (Portaria n° 306/2021 de 17 de dezembro), amended Order No. 181/2019 of June 11th

(Portaria n° 181/2019 de 11 de junho), to define the terms and conditions under which schools could develop pedagogical innovation plans.

The organizing principle of this normative change is to incentivize each school to define (in addition to the previous 25%) the percentage of the base curriculum matrices' schedule workload, aiming to outline strategies that enable the promotion of quality learning and student success, which can be directed to a single school institution, a single class, a single grade level, a single school year, a single educational level, or an educational and formative offer.

Cabral and Alves (2018), based on the premise that the school is a complex organization that intertwines different dimensions, and of which are dependent on results and processes, present an integrated model for promoting school success (MIPSE) that encompasses 17 dimensions deemed predominant in innovation processes, including leadership, educational policies, monitoring dynamics, among 14 others, organized into three levels. At the macro level, school culture and professional entities; at the meso level, the organization of student and teacher time and space, student grouping, teacher allocation to student groups, teacher professional development, and learning networks; and at the micro level, collaborative teaching work models, curriculum management, pedagogical work models, teaching strategies, and learning evaluation strategies. Analyzing innovations on a global scale, the study by Lomba et al. (2022) confirms the heuristic value of this analytical matrix.

Furthermore, in 2018, the Organization for Economic Co-operation and Development (OECD) inscribed and recognized a new vision for creating positive learning environments. Paniagua and Instance (2018) refer to six clusters of innovative pedagogies, focused on teaching and learning practices commonly accepted by students as more effective for learning: (1) Blended Learning; (2) Gamification; (3) Computational Thinking; (4) Experiential Learning; (5) Embodied Learning; and (6) Multiliteracies and Discussion-Based Teaching.

Years later, in 2023, the National Council of Education (Conselho Nacional de Educação) (CNE, 2023), put forward a proposal for a Pedagogical Innovation Referential (Referencial de Inovação Pedagógica) (RIP), emphasizing the promotion of quality education for all, focusing on the student and their learning. Accordingly, RIP highlights the ideals of education, systematically articulates the main perspectives of pedagogies at national and international levels, contemplates the relationship with contexts, integrates with educational policies and the Educational Project (Projeto Educativo), factors influencing innovation processes, favorable conditions for innovation, and values the monitoring and evaluation of innovation for sustainability.

From the proposals of Cabral and Alves (2018), Paniagua and Instance (2018), and CNE (2023), we understand the proximity to the concept of innovation emphasized by Labaree (2021), which enables a more intelligible change and fulfills the social mission of ensuring values and real equal opportunities for success for everyone. Additionally, these proposals admit a change in the grammar of schooling, particularly regarding flexible curriculum management, since they consider collaboration, participation, and cooperation among the educational community, placing the student at the center of learning. Given that the Paniagua and Instance (2018) proposal is centered primarily around teaching pedagogies, we compared the other two (see Table 1) to identify similarities and differences and thus create a matrix that can be presented here to clarify the focus of change and innovation expressed across the plans.

We immediately understand that the observed purposes differ. While MIPSE looks to synthesize the different dimensions that can favor innovation, RIP aims to serve as a guide for innovation processes implemented by schools. In this regard, the former is organized into three levels of action—macro, meso, and micro, from the most comprehensive to the one occuring in the classroom context; and the latter into three parts—social sense, local and systemic orientation, and focus on the student and learning. Likewise, it is also observed that MIPSE places a greater emphasis on the role of leadership and autonomizes the organizational dimension, highlighting that the curriculum does not operate in an organizational vacuum, as it depends on the methods of management and school organization, such as timings, student grouping, space, teacher allocation to student groups, creation of learning networks, and teacher professional development, aspects also referenced by UNESCO (2022). Thus, considering the two proposals, and aiming toward constructing a simplified matrix, we favored the integrated model of Cabral and Alves (2018) as we intend to assess how schools think and plan innovation and where they want to intervene and/or transform their practices, especially since it encompasses all dimensions envisioned by the UNESCO (2022).

2 Materials and methods

The need for "a new social contract for education" (UNESCO, 2022) challenges us to understand how schools promote and implement pedagogical innovation. According to the list published on 14th July 2022, by the General Management of the School Administration (Direção Geral da Administração Escolar) (DGAE, 2022), there are a total of 813 School Groupings and Non-Grouped Public Schools. Since autonomy and innovation cannot be imposed, the Ministry of Education proposed a challenge on curricular, pedagogical and organizational innovation, which 88 schools accepted. Each of the 88 schools that presented an innovation plan (IP) decided to define a set of measures addressing the identified problems based on available resources and school context. The purpose is to identify, characterize, and understand the type of pedagogical innovations promoted in various Portuguese schools. With this aim in mind, we formulated three questions: (1) What problems/difficulties are diagnosed in the designing and development of innovation projects? (2) What variables are used to solve the diagnosed problems? (3) Do the areas and dimensions utilized entail effective innovation in organizational and pedagogical practices capable of improving educational processes and outcomes?

To achieve this, we chose to conduct naturalistic research, as the object of study arises from "existing and identifiable concrete situations by the researcher" (Afonso, 2005, p. 34), within the interpretative paradigm, because, as Coutinho (2016) states, it seeks to understand reality from the perspective of the subjects. The methodology used is predominantly qualitative, concentrating on

TABLE 1 Comparison between the dimensions of pedagogical innovation presented in the framework provided by ENEC with the integrated model proposed by Cabral and Alves (2018).

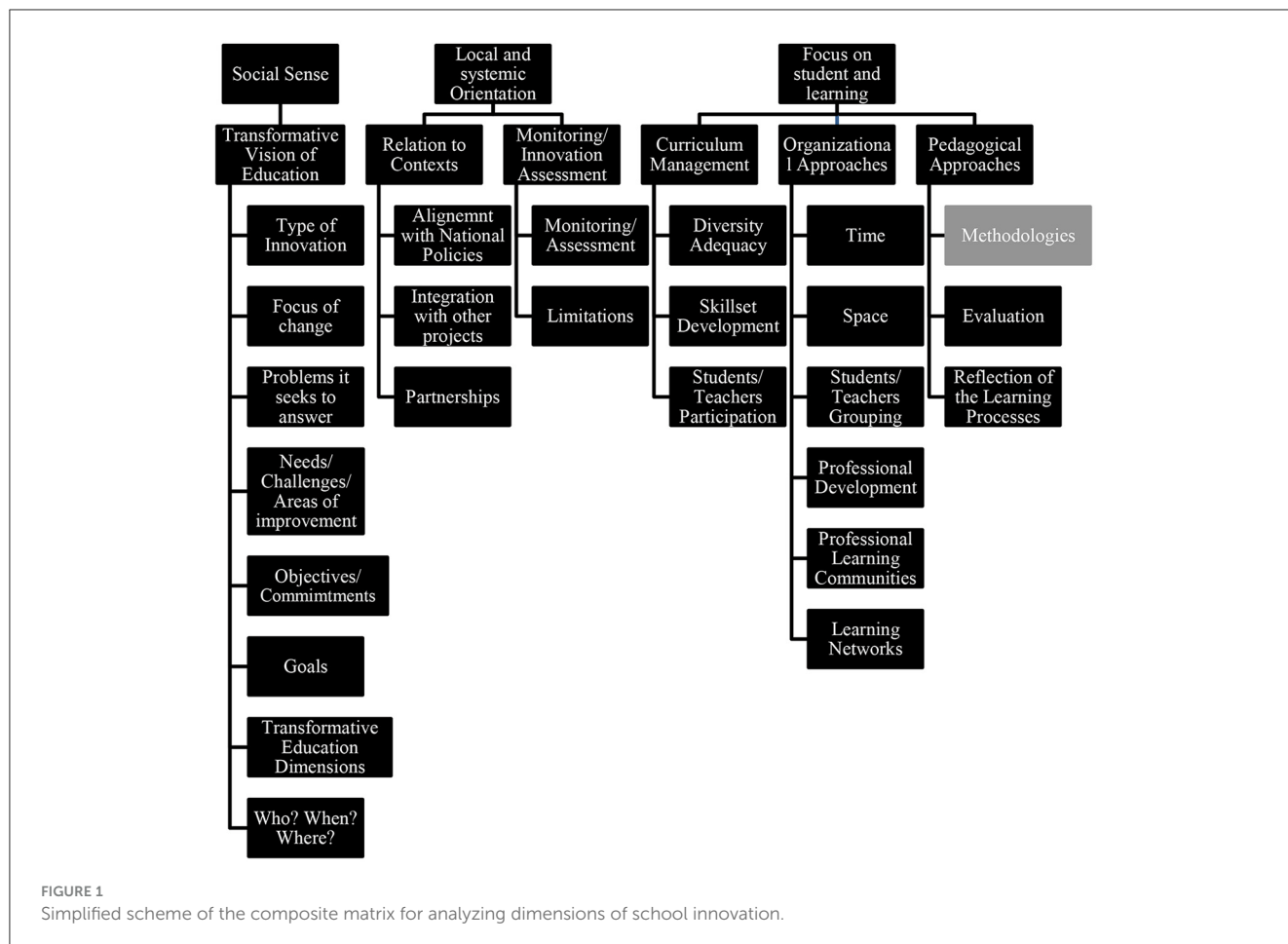| Dimensions considered in pedagogical innovation processes	Pedagogical innovation framework (CNE, 2023)	Integrated model (Cabral and Alves, 2018)
Educational policies	✓ Alignment with national policies, specifying them	✓ Emphasizes the importance of its orienting, broad and autonomy promoting character
Leaderships	✓ Shared leadership; vital role in the adoption and mobilization of innovation processes	✓ Transformational leadership with the focus on learning; vital in the mobilization of others in favor of common objectives
School culture	✓ Coordination and understanding of school culture	✓ Learning-oriented
School environment	✗	✓ Environment congruence and value
Students' time	✓ Rigidity of instructional time conditions teachers' work	✓ Personalized to address students' differences and needs
Teachers' time	✓ Absence of time for collaborative work conditions their work	✓ Creation of time for a more used, productive and meaningful collaborative work
Room organization	✓ Diversified for different learning opportunities	✓ Diversified for different learning opportunities
Students' grouping	✗	✓ Flexible within the same class and between distinct classes; adjacent classrooms
Allocation of teachers to students' groupings	✗	✓ Model in educational teams
Teachers' professional development	✓ Reflective; communities of practice	✓ Develops and is born from the same context (professional learning communities)
Learning networks	✓ Boost expansion and sustainability of innovation; partnerships' integration	✓ Fosters collaboration, shared vision, and research for improving teaching
Teachers' work models	✓ Collaborative, reflective and interdisciplinary	✓ Collaborative and coordinated
Curriculum management	✓ Coordinated, flexible	✓ Integrated, flexible
Pedagogical work model	✓ Student at the core of learning; suitable for the characteristics and needs of the students; diversity of methods and resources;	✓ Student at the core of learning; suitable for the characteristics and needs of the students
Learning strategies	✓ Enhance the authenticity and relevance of learning	✓ Provide coherence and meaning to learning
Learning evaluation strategies	✓ Evaluation of, for, and as learning	✓ Emphasis on assessment serving learning
Assessment and monitoring dynamics	✓ Participation of the different parties involved; various data collection instruments	✓ Participation of the different parties involved; various data collection instruments; valuing data interpretation; simple and understandable language

Source: Author's own work.

discovering social and individual meanings from the perspective of the subjects being investigated (Coutinho, 2016). As a data collection technique, we used archival research, resorting to the websites of each of the schools that had an IP available on their online pages for the 2022/2023 school year. In total, we identified 88 schools, from which we collected 66 innovation plans, as these were available in open access.

2.1 Data collection and analysis

The document analysis of each IP began with an initial reading and the creation of a composite matrix in Excel, inspired by the three dimensions proposed by the CNE (2023)— social sense; local and systemic orientation; and focus on student and learning— along with the 17 elements that make up the MIPSE, and the six clusters of Paniagua and Instance (2018) (see simplified diagram in Figure 1). From the constructed analysis matrix, we selected the dimension related to Social Sense, including the considered

subcategories, analyzed using NVivo Software. The data collected and analyzed comply with the ethical code of the SPCE (2020) and the Universidade Católica Portuguesa (2021) and meet the quality criteria outlined by Afonso (2014): the information is reliable, because it was adequately collected from the innovation plans; is valid, because they are pertinent and relevant to the questions we intend to answer; and representative, concerning the total number of plans.

To identify the focus of change in schools, a simplified matrix was elaborated (see Figure 2) organized in three levels of action within the organizational field presented in MIPSE (Cabral and Alves, 2018). Each dimension included at different levels of action was analyzed using a reading code: no Information (NI) when the plan does not include any data on the dimension under study; Absent (A) for cases where information is mentioned without evidence of any change, for example, one of the groupings recognizes as one of its strengths having a "school environment with a collaborative spirit" (IP14) and not something seeking change; Not Evident (NE) when the change is not specified or

FIGURE 1
Simplified scheme of the composite matrix for analyzing dimensions of school innovation.

superficial; Evident (E) when a change is implemented over a certain period and involves some teachers and students; and Very Evident (VE) when it reflects a significant change. Therefore, the values presented in this matrix corresponded to the highest values on the scale, for example, in the case of school culture, the frequencies are 0 in A, 43 in NE, 17 in E, and 4 in VE, so the highest value is Not Evident.
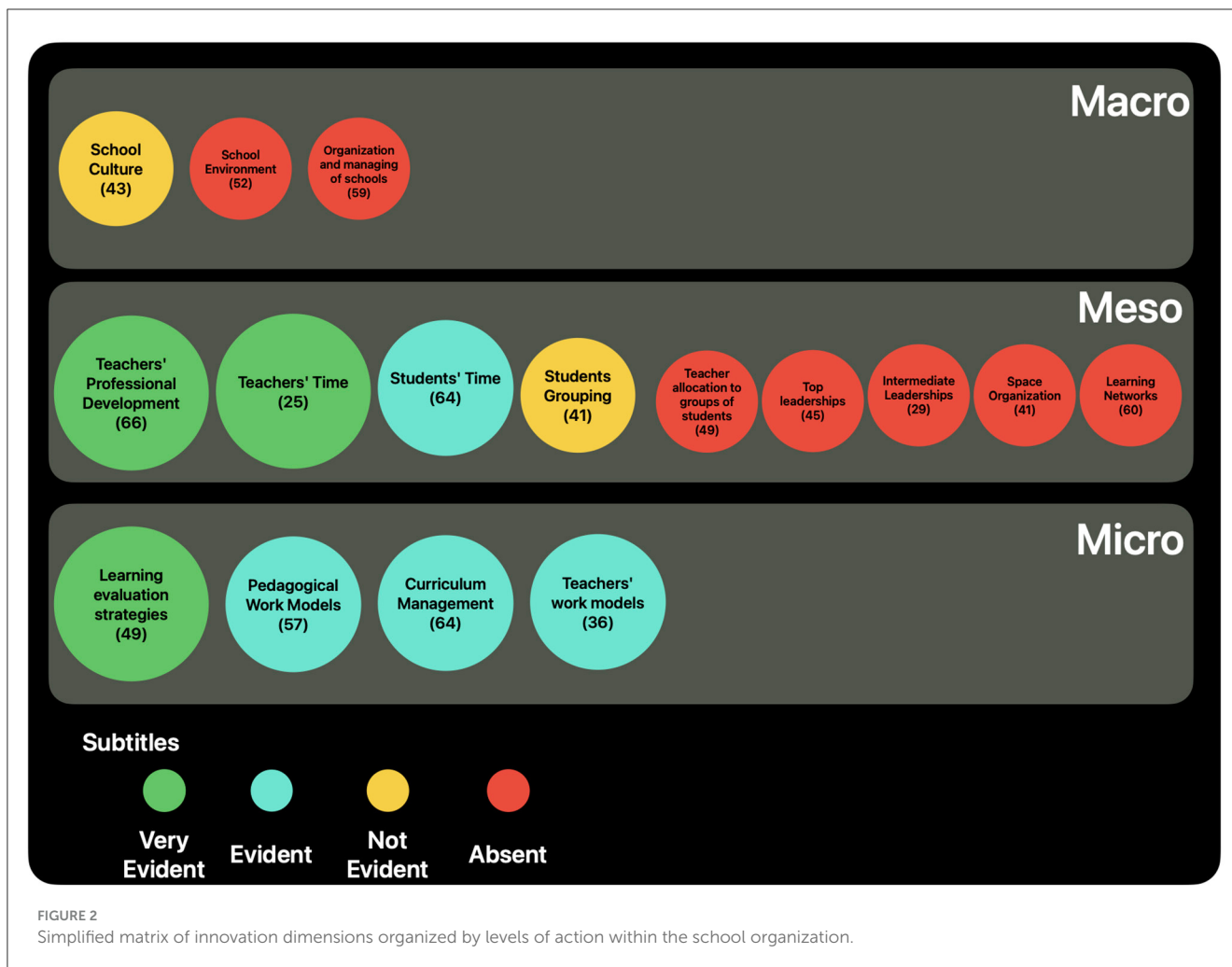
3 Results

Pedagogical innovation plans provide an opportunity for schools to address identified problems and improve educational action through the management of more than 25% of the base curricular matrices. Understanding what schools aim to achieve and how they propose accomplishing it involves answering each of the stated questions. Therefore, we structured the results into seven points: (1) Characterization, which will include information about the location of the innovation plans, the target population, and the duration of the respective plans; (2) Predominant Pedagogical Innovation; (3) Focus of change; (4) Identified problems; (5) Challenges/needs/areas of improvement; (6) Objectives and commitments; and (7) Goals and transformative dimensions.

3.1 Characterization

The analyzed innovation plans were developed and implemented by schools located in 16 of the 18 districts of Portugal. The majority of the innovation plans are found in schools located in the regions of Lisbon ($N = 16$) and Santarém ($N = 11$), with the remaining plans distributed across the remaining 14 districts (see Figure 3).

The innovation plans are intended mainly for primary and middle school education—5th and 6th grade (ages 10 to 12) cited in 46; 1st to 4th grade (ages 5/6 to 10) cited in 41; and 7th to 9th grade (ages 12 to 14) cited in 38. In smaller sample numbers, secondary education is mentioned in 19, preschool in 14, vocational education in 12, and finally, a set of 8 plans targeting a specific group of 6th/7th/8th/9th grade students for an Alternative Curricular Path (Percurso Curricular Alternativo) or Differentiated Path (Percurso Diferenciado) for 8th and 9th grade students or directed at an 8th-grade class.

In terms of duration, it varies between 1 and 5 years, with most plans designed for 3 school years ($N = 21$) and 4 school years ($N = 18$). The remainder spans 2 years ($N = 12$), 1 year ($N = 10$), 5 years ($N = 2$), another plan with measures presenting different validity periods, and one last plan with timeframe varying according to the different educational stages.

FIGURE 2
Simplified matrix of innovation dimensions organized by levels of action within the school organization.

3.2 Types of innovation

In this area, the predominant approach is incremental innovation ($N = 66$), mainly focusing (see Table 2) on the adoption of new methodologies such as project-based learning ($N = 64$) and embedded learning ($N = 29$), changes to the curriculum matrix structure through the aggregation of subjects and redistribution of the workload ($N = 64$), the implementation of pedagogical partnerships ($N = 56$), the employment of a new school calendar ($N = 28$), the reorganization of space to favor different student work methods ($N = 22$), the creation of classes ($N = 17$), and the splitting of classes for certain subjects/times ($N = 3$).

Far fewer disruptive innovations ($N = 11$) are reported, such as the creation of common times ($N = 11$) for classes of different grades ($N = 4$), classes of the same grade ($N = 6$), and classes of different educational stages ($N = 1$) during specific periods of the school calendar or for specific subjects; the creation of flexible classes through the temporary grouping of students by learning groups ($N = 2$), encompassing all students up to the 9th grade in one grouping and only 7th to 9th grade students in another; the implementation of non-disciplinary schedules divided into times for group work, individual work, project work, class assemblies, tutoring, and physical education by a grouping that

includes 5th to 9th grade classes ($N = 1$); changing the physical space of all classrooms throughout the grouping ($N = 1$); and the creation of large classrooms capable of accommodating three classes simultaneously, with approximately 72 vocational students ($N = 1$). Respectively, the creation of flexible classes involving students up to the 9th grade as well as adopting the non-disciplinary schedule and the changes to the space are measures that cover a significant number of students, proving themselves to be extensive. Conversely, the remaining measures are focused on more restricted groups, suggesting that there is relatively little change in the grammar of schooling.

3.3 Focus of change

To analyse the changing focus of schools, we used (see Figure 2) the scale: No Information (NI); Absent (A); Not Evident (NE); Evident (E) and Very Evident (VE) to identify the most significant of these indicators in each dimension.

This analysis revealed a concern with the professional development of teachers through training actions designed to prepare them for the measures described in the innovation plans ($VE = 66$). Likewise, acknowledgment of formative over summative
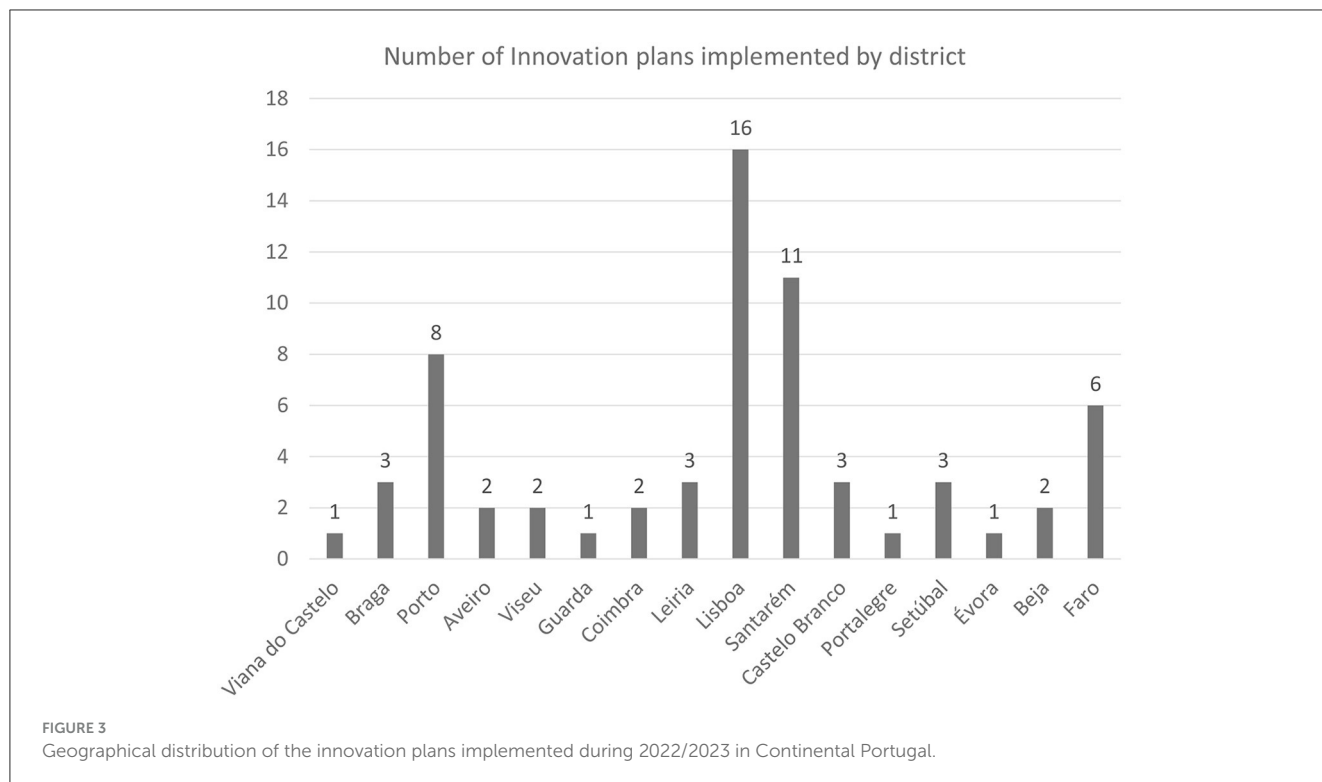
FIGURE 3
Geographical distribution of the innovation plans implemented during 2022/2023 in Continental Portugal.

TABLE 2 Innovations of the incremental type defined in the adoption of innovation plans.

Innovations of the incremental type		N
Methodologies	Project Based Learning	64
	Incorporated learning focused on the development of socio-emotional or artistic skills	29
Change to the curricular matrix	Aggregation of subjects and redistribution of workload	64
Implementation of pedagogical partnerships		56
Appointing a new school calendar	Semiannual	27
	In 4 terms	1
Space reorganization	Adjacent rooms	3
	Utilization of already existing rooms	11
	Creating/Modernization of rooms	7
Class creation	For implementation of the Alternative Curricular Pathway	12
	Temporary grouping of students for reinforcing learning	2
	Fixed grouping of students for reinforcing learning	2
	PIEF	1
Segmentation of classes in certain subjects/schedules		3

assessment ($VE = 49$) and the creation of common times defined in the teachers' time ($VE = 25$) are essential.

In the domain of teacher training, 66 innovation plans reference training actions focusing predominantly on training in pedagogical evaluation ($N = 53$), digital literacy and capacity building ($N = 41$), curricular autonomy and flexibility ($N = 32$), active methodologies ($N = 31$), inclusion ($N = 29$), collaborative teaching practices ($N = 25$), and project work ($N = 17$).

Regarding assessment, the majority of plans ($VE = 49$) recognize the existence of a predominantly selective and classificatory assessment practice and highlight the need for adopting a formative assessment, i.e., "Valuing continuous and formative assessment as a strategy to support teaching and learning" (IP40), prioritizing learning over simple grading (IP58), and thus, placing the "focus on evaluating learning rather than on learning evaluations" (IP75).

The creation of common times between teachers included in the schedule is valued in 25 plans, illustrating the importance of having "common times in the schedules allowing room for meetings of teachers lecturing classes of the same grade (...) of the pedagogical team for collaborative work, reflection and planning, interdisciplinary and pedagogical articulation, either in person or online" (IP09). It is vital to consider "educational teams with common times for collaborative work to assess the impact on learning and reorient strategies" (IP10), and thus, "ensure in the weekly schedules, that teachers have available time for managing collaborative work" (IP14).

A set of dimensions are identified in the plans, though not as broadly and significantly as changes in (1) student time, where most plans ($E = 64$) employ occasional changes to the curriculum matrix, altering times for some subjects in the students' schedules, in contrast to the others ($N = 2$) that risk taking a more profound change by creating a schedule without subjects for the students and changes to the start and end of the school day and longer breaks; (2) the curriculum ($E = 64$) through aggregating some subjects; (3) teaching practices using active methodologies ($E = 57$), which focus mainly on specific curricular units; (4) teachers' collaborative work models ($E = 36$) and (5) student grouping, with occasional organization into groups of the same class ($NE = 43$) or of different classes, educational stages, and years ($N = 11$).

On the other hand, there is a notable absence of dimensions considered by Cabral and Alves (2018) as relevant in the innovation processes, with a significant number of plans not considering the creation of networks between schools ($A = 60$); teacher allocation to groups of students ($A = 49$), models of organization and management of schools ($A = 59$); school environment ($A = 52$); top leadership ($A = 45$); space organization ($A = 41$) and intermediate leadership ($A = 29$).

3.4 Problems[1]

The problems identified in the innovation plans are mostly associated with academic failure ($N = 49$), difficulties in the flexible management of the curriculum ($N = 23$), and weaknesses in parental involvement and family context ($N = 22$).

Regarding academic failure, some plans ($N = 46$) relate failure to difficulties in skill acquisition, as shown in Table 3, mainly mentioning weaknesses pertaining to reading and writing ($N = 20$), calculation ($N = 7$), problem-solving ($N = 7$), mathematical reasoning ($N = 6$), and communication skills ($N = 6$), "Problems with oral and written communication" (IP14), "great difficulties in the domains of Writing, Reading, Oral Communication, Logical Reasoning, and Arithmetic calculation" (IP58), "Difficulties in comprehension as well as oral and written expression, mathematical reasoning, and problem-solving" (IP75). Additionally, a subset of plans associates failure with low academic results ($N = 20$) "with significant gaps compared to the expected results for their age group" (IP04), "school results below the

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1 The diversity of terminology used by each school created the need to associate certain notions and/or concepts; in this case, we grouped problems, weaknesses, constraints, and difficulties.

TABLE 3 Problems identified by schools associated with school failure.

Problems			N
School failure associated	To difficulties in the acquisition of competencies	Of weaknesses in writing and reading levels	20
		Of calculation	7
		Of resolution of problems	7
		Of mathematical reasoning	6
		Of communication skills	6
	To low academic scores		20
	To the number OS retentions		10
	To the risk of school dropout		19

national average" (IP47), "Discrepancy between the school's results and the expected results" (IP10); the number of retentions ($N = 10$), "high number of retentions" (IP07), "repeated retentions" (IP46, IP63) and the risk of school dropout ($N = 19$), as expressed in IP46, IP49, IP56; IP67.

Schools indicate challenges in interdisciplinary coordination ($N = 23$), such as facing "Difficulties in reconciling cultural and artistic activities with programmatic content, from an interdisciplinary perspective" (IP2), because the "Curricular coordination work is still below the desired level (...) [there are] Difficulties in reconciling knowledge from different curricular areas" (IP9), due to "Insufficient interdisciplinary coordination" (IP12). The obstacles result from the compartmentalization of knowledge in various subjects" (IP80, IP85), the knowledge dispersion (IP69, IP70) and the "High number of subjects per year" (IP64). As a matter of fact, it is the "High number of subjects in Basic Education which leads to greater compartmentalization of knowledge (...) [because of a] comprehensive national curriculum and teachers' struggles in managing it (IP85), resulting in persistent teacher work based on individualism and a "teaching practice centered on the prescriptive curriculum and isolation of the classroom" (IP21). The "resistance to interdisciplinarity" (IP60) and the "Consecutive curricular changes" (IP14), hinder the "internal monitoring of curriculum and project/plan development, to evaluate the real effectiveness of the implemented measures and strategies" (IP62), as well as the existence of "Extensive and unengaging curriculum matrices" (IP72), where it is essential to consider curricular coordination as an indispensable means of the curriculum so that learning makes sense, remains relevant, and has an impact on the student (Alves and Roldão, 2018).

Challenges in parental involvement and family context includes issues such as a lack of monitoring and undervaluation of school by parents concerning their children's school path, indicating that "weakened family structures devalue school life and do not attribute importance to school as a pillar of success in the future lives of their children" (IP07). Furthermore, the "undermining of school education by families" (IP14), "lack of family support" (IP28; IP37; IP44, IP47), and the "absence of family environments that promote school success" (IP32), create complex teaching and learning situations. Elements associated with "low levels

of schooling" (IP21; IP67) and "notable weaknesses in family and socioeconomic contexts that condition school involvement, [compromise] in medium and long term the construction of a different life project for many students (…) based on the socioeconomic background of origin" (IP33; IP53; IP56, IP63). Indeed, "the socioeconomic context of many (...) students has dictated greater school failure" (IP66).

3.5 Challenges/needs/areas of improvement

Nineteen plans refer to challenges/needs, while one plan discusses areas of improvement, highlighting the promotion of educational success ($N = 11$), flexible and coordinated management of the curriculum ($N = 11$), the promotion of knowledge, skills, values, and abilities in students ($N = 10$), the diversification of assessment mechanisms with an emphasis on formative evaluation ($N = 9$), and the use of active methodologies ($N = 9$).

Regarding the promotion of educational success, the emphasis is on the need to improve student results as a priority focus. The aim is to enhance "School results and the quality of learning" (IP29, IP78). In other words, the aim is the "promotion of the quality of learning and the full success of all students" (IP54) through "a coordinated pedagogical practice" (IP35). Additionally, student wellbeing is referenced, aiming for the "Promotion of educational success and wellbeing" (IP01), as well as "increasing the quality of success" (IP20) and thereby considering the "Improvement of success indicators (quantity and quality)" (IP55).

For flexible curriculum management, there is an emphasis on the "readjustment of the curricular design" (IP14), prioritizing "Vertical and horizontal coordination" (IP29) and thus "greater effectiveness in interdisciplinary" (IP52). Furthermore, the "Strengthening of curricular coordination and transdisciplinary" (IP55, IP56, IP69) elevates "the individual potential of each branch of knowledge, in a coherent, sustainable, and coordinated interdisciplinary approach, starting from what is familiar to the distant" (IP76). The "Curricular development and pedagogical reinforcement" (IP01) allow equitable access to the curriculum and thus "ensure that everyone has access to the curriculum within an equity framework and achieves the competencies defined in the Students' Profile by the end of Compulsory Education (Perfil dos Alunos à Saída da Escolaridade Obrigatória) through projects and activities developed as an integral part of the curriculum" (IP65).

The promotion of knowledge, skills, values, and abilities in students, namely the "development of creativity, aesthetic and artistic sensitivity" (IP01), triggers "the creativity of students" (IP52, IP58, IP86) and the possibility of "Operationalizing and systematizing the performance of students in different areas of competencies of the students' profile" (IP35), both in the "domains of Citizenship and the integrative and coordinate management of the curriculum" (IP55) and in the way of "Empowering students and families for the exercise of citizenship" (IP73).

Regarding assessment, a set of plans ($N = 8$) addressed this topic as a challenge, alluding to formative assessment and its regulatory role in learning. The goal is to "Raise awareness of

various forms of evaluation, particularly formative evaluation [and the] monitoring between educational stages" (IP20), hence, it is important to "Implement the principles of Formative/Pedagogical Evaluation based on the assumptions and principles of the MAIA Project, promoting quality feedback as an assessment tool for learning" (IP35), and the "Need to implement a sustained formative assessment mechanism that prioritizes learning over simple grading" (IP52). The challenge is to "give more emphasis to the assessment process based on formative assessment" (IP86).

3.6 Objectives/commitments

Among the stated objectives/commitments, the focus is on promoting educational success and the quality of success ($N = 55$), with the implementation of student-centered active methodologies ($N = 45$) and the acquisition of knowledge, skills, values, and abilities ($N = 42$).

In promoting educational success and quality of success, there is an emphasis on meaningful learning for students. The aim is the "Development of teaching that is more suited to the needs of students and the acquisition of skills and competencies, enabling them to understand the world and act in society with direction and solidity" (IP06), including "Knowledge of local history and cultures to establish connections with the History of Portugal, giving substance to meaningful learning" (IP76). The goal is to "Empower students and families for the exercise of citizenship" (IP73), as envisaged by Martins et al. (2017) and thereby improve "Proficiency in reading and writing in basic education; Proficiency in calculation and mathematical reasoning in basic education; Level of scientific, artistic, and digital literacy" (IP59).

Regarding active methodologies, it is defined as an objective by the schools ($N = 45$) to implement meaningful, student-centered learning using practical and interactive methodologies designed to provide students with contextualized, meaningful, and lasting learning experiences; to implement more active, student-centered classroom dynamics" (IP01), with the aim to "Intensify pedagogical practices and active teaching methodologies that provide stimulating learning processes" (IP02) and thereby "Create educational contexts that enhance interdisciplinary confluence, implementation of active/interactive methodologies, and practical and experimental work" (IP20), i.e., "Provide motivating and meaningful pedagogical experiences to prevent early school dropout" (IP33).

Simultaneously, there is a focus on promoting the knowledge, skills, values, and competencies expressed in Martins et al. (2017), capable of "Responding to the challenge of operationalizing PASEO and Essential Learning (Aprendizagens Essenciais) (AE) (Aprendizagens Essenciais, 2018), equipping all students with the necessary skill set" (IP03) for developing active citizenship (IP14), "valuing the critical thinking of students and their participation in the daily life of school" (IP66).

3.7 Goals and transformative dimensions

Regarding the goals, the collected data (see Table 4) centers on improving results ($N = 50$), underlining the importance of

TABLE 4 Goals that most schools propose to achieve through the innovation plans.

Goals	N	Planning
Improve scores (academic, social and personal) of students	50	
Keep/Improve success rate	25	"End of the year success rates (80% success)" (PI49) "Increase school success rate by 5%." (PI01)
Improve internal evaluation results	15	"Improve school results" (PI37) "5th to 9th grades assessment scores average higher than 3,5" (PI03)
Improve the rate of direct success paths	11	"Improve the rate of direct success paths between school students…" (PI64) "5th to 9th grades assessment scores average higher than 3,5" (PI56)
Increase approval/completion rates	10	"Keep or increase year transtition rates and school year completion rates." (PI32) "Increase transition and completion rates in primary and secondary education relative to national rates" (PI11)
Reduce disciplinary incidents	20	"Reduce by 25% the number of disciplinary actions" (PI07) "Reduction by 80% of the number of disciplinary incidents inside and outside of the classroom" (PI12)
Decrease absence	19	"Decrease absence by 3%;" (PI01) "Decrease absence rates…" (PI23)
Diminish school dropout rates	19	"Lean the early school dropout rate toward zero" (PI30) "Early school dropout rate: inferior to 7%;" (PI53)
Reduce retention rates	19	"Lean toward a zero-retention rate in non-terminal years of the educational stages between 5th-6th grades and 7th-9th grades" (PI52) "Decrease retention rate by 10%;" (PI56)
Dynamization and participation in projects/activities	18	"Engage 80% of students in activities developed by the School Grouping" (PI24) "Develop an interdisciplinary project each school term" (PI54)
Make families feel engaged and responsible	18	"Achieve a 70% participation rate in school meetings of which the parents are invited/summoned" (PI12) "Increase by 75% the participation rate of parents in initiatives provided by the School Grouping" (PI73)

maintaining/improving the success rate ($N = 25$), enhancing results of internal evaluation ($N = 15$), increasing direct success paths rate ($N = 11$), and boosting approval/completion rate ($N = 10$). Less evidently, goals include reducing disciplinary incidents ($N = 20$), absence ($N = 19$), school dropout rate ($N = 19$), retention rate ($N = 19$), boosting and dynamizing student and community participation in projects and activities ($N = 18$), and fostering family involvement ($N = 18$).

For transformative dimensions, the concepts of digital education ($N = 63$) and inclusive education ($N = 57$) predominate, while less frequently mentioned dimensions are Education for Lifelong Learning ($N = 7$), Education for Democratic Citizenship ($N = 26$), and Education for Sustainability ($N = 27$).

4 Discussion

Identifying, characterizing, and understanding how schools propose to innovate and the reasons that sustain this need is the object of study of this article. Therefore, we aim to answer.

4.1 What are the diagnosed problems/difficulties?

Schools reveal that the main problem they face is student failure, which Cortesão and Torres (2018) affirm results from not only grade repetition and school dropout but also from everything that reflects students' discomfort in schools, their inability to mobilize knowledge, and their lack of interest in pursuing education post-compulsory years. This reflects the school's failure

in fulfilling its mission. Roldão (2000) adds that failure stems from the inadequacy and immutability of school organization and functioning, while Azevedo (2011) describes it as the schools' inability to reconcile differences.

Teachers' struggle to make the curriculum flexible is presented as the second major problem that most schools face due to its extension, dispersion, and fragmentation across numerous subjects. Alves and Roldão (2018) stress that curriculum coordination is vital for engaging students in learning. Guerra (2001) recommends schools continuously review content, allowing teachers, who Roldão (2000) regards as the "main curriculum specialists" (p. 17), room to intervene. The third most pointed-out problem by schools concerns the fragilities in parental involvement and family contexts of many students. According to data analyzed by Cortesão and Torres (2018), students from families with higher education levels have much higher success rates compared to those from families with lower education levels, thus indicating a connection between family's valuation of school and student achievement.

Concerning goals/commitments, the promotion of educational success and flexible curriculum management stands out as two of the major problems identified by most schools. Following these, the acquisition of knowledge, skills, values, and competencies in students aligns with the concern to promote holistic student development, expressed in LBSE (1986), Martins et al. (2017), and Essential Learning (Aprendizagens Essenciais, 2018) approved in Order No. 6944-A/2018. Additionally, the adoption of predominantly formative assessment as a strategy to support learning (Fernandes, 2005) and active methodologies that shape the teaching-learning process "into a practice passionate about knowledge and understanding of reality" (Guerra, 2001, p. 151), also emerge.

4.2 What variables are invoked to solve the problems?

To answer this question, we developed a simplified matrix (see Figure 2) structured at three levels within the organizational field: the macro level, encompassing broader, transversal, and structural variables; the meso level, focusing on the management of human and material resources; and the micro level, focusing on educational action where teaching and learning processes develop. This map situates itself within a global framework including international and national references, although these are not addressed here. Similar to Militão's (n.d.) work, we aim to "analyze not only what the school 'should be' according to centrally elaborated norms but what it 'is' in re-elaboration and reinterpretation of these central orders (p. 13).

For the design of our analysis matrix, we resorted to MIPSE (Cabral and Alves, 2018), which presents dimensions potentially hindering or promoting innovation processes, reiterated in the UNESCO (2022). We added school organization and management at the macro level, due to its association with management autonomy, and it being a broad concept. We subdivided leadership into top and intermediate levels because they were analyzed independently and opted to include them at the meso level due to their direct relationship with resource management. Finally, we decided not to autonomize teaching strategies contrary to what is represented in MIPSE, since it was mentioned in the plans as something resulting from a change largely at the level of pedagogical work methods rather than as the main focus of change.

The simplified matrix (see Figure 2) indicates a focus on change in three dimensions that, according to Cabral and Alves, promote innovation processes: (1) professional development through the promotion of training actions aligning with teachers' needs, context and measures they propose to achieve, mainly about formative evaluations, digital training, curriculum flexibility, and active methodologies, corroborated by García (1999), which states that the most favorable training for school transformation should reference the context where teachers operate. This focus on teacher training reflects the need for fostering culture of learning in action contexts and reducing the fear of failure that teachers may feel when adapting to changes in their practice. Escudero and López-Yáñez (1992) support the idea that change, and training should go hand in hand, as improvement-oriented change should be "empowering, generating illusion and commitment, stimulating new learning and.... formative" (p. 57). In other words, it means training needs to be targeted so that change promotes learning to teachers and their practice; (2) creating common times between teachers to promote collaborative work, thus combating the individualism prevalent in most schools. This dimension aligns with Formosinho and Machado's (2009) ideas, stating the established transmissive model poses challenges to the organization itself, leading to the need of building a collaborative teacher work model; (3) adopting diversified learning evaluation strategies emphasizing the formative dimension, aligning with Fernandes' (2005) words, advocating the need to stop viewing assessment as a political solution to school problems. The criteria are to prioritize assessment that effectively helps "students learn" (Fernandes, 2005, p. 145) and promotes

learning improvement. Alves and Cabral (2021) corroborate this correlation between the evaluation and the school's mission, claiming "...if we think the core mission of the teacher is to make learning the best possible for all students, then evaluation must take on a training and eminently formative role." (p. 13).

Conversely, many schools did not consider it relevant to include in the innovation plans the creation of networks between different schools, changes in school organization and management models, school environment, top and intermediate leadership, and space organization. These dimensions, despite not being referenced in most cases studied, according to some authors, influence practice and student learning, such as school environment, which Brunet (1995) and Lima (2008) state is a critical factor in promoting school success and space organization that Zabalza (1998) says is important in creating an environment capable of responding to student's needs and enhanced learning. On the subject of networks between different schools, Guerra (2001) sees them as a good opportunity to share experiences that enable the identification of strategies striving toward change, and Bolivar (2003) sees them as a way to enhance professional learning through sharing, collaborating, and creating a sense of community. Regarding leadership, studies like those by Elmore (2000) and Fullan (2003) reveal that leadership is a predominant dimension in promoting school change and improvement, while Machado and Formosinho (2016) reinforce this idea stating, "The effectiveness of introducing an innovation in school depends on its top and intermediate leadership." Pedró (2018, p. 27.) ends by underlining that leadership is essential, not only in the organization of effective teachers' teams, and in the capacity to engage them in continuous motivation, but also in promoting a favorable environment toward innovation.

These absences highlight that what the innovation plans address is much more oriented toward action rather than the management of broader and more transversal resources and variables. As a matter of fact, this projection for educational action cannot be neglected. As Nóvoa and Alvim (2022) states, "The school must never deviate from its primary purpose: to ensure that students learn to think." (p. 18). However, looking only inside the classrooms is not enough. According to the new social contract proposed by UNESCO (2022), it is necessary to create cooperation environments and be careful in training students to be prepared and be able to adapt to the world, to reimagine and redesign "architectures, spaces, schedules, class timelines, and student groupings" (p. 150) allowing them to obtain the skills to work together, build collaboration cultures guiding school management and administration, creating learning networks, and ensuring for everyone the defense and promotion of human rights.

4.3 Do the most adopted variables prefigure an effective improvement of processes and expected results?

The analysis of each IP shows an improvement in three variables—teachers' professional development, valuing formative assessment and creating common times for collaborative teacher

work—considered in MIPSE (Cabral and Alves, 2018) and reiterated by UNESCO (2022). Within this context, teachers are found to be a major factor in educational quality and the authors of their own professional development, leading to situations of "…recognition, preparation, support, resources, autonomy…" (UNESCO, 2022, p. 20) and providing effective, relevant, and equitable learning. UNESCO (2022) states that collaboration is integral to teacher's work and formative evaluation must be appreciated, as there is a volume of learning that cannot be easily quantified, needing to "be meaningful for the students' growth and learning" (p. 59).

Several innovation plans describe specific changes in students' instructional time, curriculum, teaching practices, and student grouping, also included in Cabral and Alves (2018) model and referenced by UNESCO (2022). According to UNESCO (2022), curricula should "emphasize ecological, intercultural, and interdisciplinary learning that supports students in accessing and producing knowledge" (p. 14), using cooperative and solidarity pedagogies that promote meaningful and relevant learning for students. Alves and Cabral (2021) share the same idea, asserting that the curriculum should be contextualized, make sense and arise the will to learn more "… we must build, practice and make learning a curriculum that is a project fit in a territory, that questions students, and sprouts the will to search, work and learn." (p. 6).

For this reason, Courtney and Mann (2020), Alves and Cabral (2021), UNESCO (2022), and Mehta (2022) also reinforce the need to rethink spaces, times, and student groupings so that the school's mission can be fulfilled.

Additionally, it is evident that almost half of the innovation plans ($N = 32$) involve most students. There are plans directed at all students ($N = 13$); others ($N = 7$) exclude preschool/secondary/vocational education/a class/PIEF; a smaller subset of plans includes only primary school, middle school and secondary education ($N = 3$), and other small subset encompasses the 1st to 9th grade or 1st to 6th grade and preschool or secondary education ($N = 9$).

The analyzed IPs reveal a significant number of schools demonstrating awareness of critical factors of the traditional grammar and an effort by nearly 50% of the IPs to be tailored for a considerable number of students, potentially paving the way for effective improvement of processes and outcomes.

5 Conclusion

As stated by Nóvoa (2024), humanity created a remarkable schooling model. Nonetheless, according to the same author, this model requires a metamorphosis to fulfill its promise of a democratic and inclusive school. This analysis aligns with UNESCO (2022), which, throughout its recent report, supports the need for a new social contract for education capable of fighting student disinterest and school dropout, mostly resulting from the inadequacies of the schooling model.

Long ago, Tyack and Tobin (1994) alerted for the need of a mandatory change in the grammar of schooling, highlighting that despite difficulty, people can initiate change if they are able to recognize direction and purpose.

Additionally, Bolívar (2012) notes that educational changes, should not devolve into "…a mere rhetoric or a sort of cosmetic make-up…" (p. 10) and instead must evolve from within schools to restructure work modes, organization and roles.

Innovation plans, object of analysis in this study, act as instruments that are supposed to trigger a change born from the context talked about by Bolívar (2012), responding not solely to people believing in doing something different (Alves and Moreira, 2012), but also considering school reality as a "Place of life with its own culture" (Thurler, 2001).

Content analysis allowed, however, to verify that change is residual (see Figure 2), i.e., covering only some areas of innovation, particularly pertaining to teachers' professional development, learning evaluation strategies and teachers' time. Oppositely, a less attended set of dimensions were identified, such as top and middle leaderships, organizational modes and school management, school environment, space organization, learning networks creation and allocation of teachers to a flexible group of students, which can limit the effect of students' learning. Nonetheless, regarding guidelines for action, these dimensions should not be undervalued since they are interdependent and could influence student learning.

Several studies, including those by Fullan (2003), Hubbard and Datnow (2020) and Machado and Formosinho (2016), deem leadership a pivotal factor in promoting change. Leadership possesses the capability to mobilize others toward collaborative efforts (Alves, 1999) and foster a culture of teamwork and reflection, promoting a positive environment which converts dialog to learning (Guerra, 2001). The study developed by Silva (2020) about the innovation project adopted by a grouping, refers that leadership is what moves and brings about school reinvention, being crucial "…a leadership with work capacity, bearer of a permanent dissatisfaction with the resolve to do better, capable of encouraging, stimulating and valuing all educational community." Additionally, Fullan and Hargreaves (2012, p. 45) consider teachers' collaborative work a key factor in the diagnosis of students' necessities and the adaptation of given responses. UNESCO (2022) also highlights this necessity, advocating transforming education into a collaborative profession, while also emphasizing the importance of a flexible management regarding time, space and student groupings, because as mentioned "…we need a big public effort to redesign times and spaces of schools as a way to protect and transform them." Bolívar (2003, p. 149) and Guerra (2001) also address the creation of networks between schools as a strategy that enables the sharing of experiences between schools and mutual learning to improve contexts.

Ultimately, educational improvement extends beyond the context of the classroom. According to Bolívar and Segovia (2024), it includes the growth of schools' autonomy and the institutional self-evaluation that enables involved parties to identify problems, needs, necessary changes and organizational processes which transform schools into places of learning, reflection and collaboration aimed at improving everyone's practices, at improving the institutional self-evaluation and at improving shared leadership. Fullan and Hargreaves (2012) further affirm that successful systems embrace a well-defined and coherent direction, articulated strategies and politics and are ingrained in a culture of improvement.

According to UNESCO (2022), designing new educational systems can be achieved in a large scale through "…millions of individual acts and with combined courage, leadership, resistance, creativity and care." (p. 153) giving rise to hope in assembling better schools and a more refined and higher quality education.

The innovation underlining these plans is not comprehensive across various innovation areas, therefore its effects may not have a major impact in personalizing learning and renovating professional practices. Nevertheless, schools' attempts to improve can be pivotal in refining students' learning experiences. As Pedró (2018) states, "Only when there is a sufficient amount of evidence available regarding the different lines of educational innovation will it be possible to begin to collectively outline what and how the experience of going to school in the twenty first century should be today." (p. 95). It will be crucial, in the next study, to observe whether these guidelines for action will face favorable conditions for its realization and establish themselves as driving forces for innovation and educational change.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethical approval was not required for the study involving humans in accordance with the local legislation and institutional requirements. Written informed consent to participate in this study was not required from the participants or the participants' legal guardians/next of kin in accordance with the national legislation and the institutional requirements.

Author contributions

NM: Writing – original draft, Writing – review & editing. CP: Writing – original draft, Writing – review & editing. JM: Writing – original draft, Writing – review & editing.

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