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Organizational preparedness domains and indicators of educational organizations for students with disabilities in pandemic times: A scoping review

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Background: The impact of the COVID-19 pandemic on educational systems has caused a profound shift in the organization and delivery of education worldwide. The effects of the pandemic crisis on educational systems proved to be detrimental for students with disabilities, highlighting not only the looming social and educational inequalities but also the huge gap in organizational preparedness for education, including identifying the main areas (domains) of preparedness that guide the process of organizational preparedness and the sub-themes (indicators) per domain that help educational organizations to evaluate their level of preparedness and to identify potential gaps and set priorities for preparedness planning.

Methods: Scoping review with thematic analysis was performed on literature published from 2010 to 2022. Six scientific databases (PsycInfo, Web of Science, Eric, Scopus, Proquest, JSTOR) and one academic search engine (Google Scholar) were examined in order to identify publications (peer-reviewed and preprint) in English. The search strategy and robust eligibility criteria were defined by the authors, who also performed screening of the papers, eligibility decisions, and key data extractions. A thematic analysis was applied to define the organizational preparedness domains and indicators per domain, informed by a system thinking approach for educational organizations. Conflicts were collaboratively resolved after each step. All members of the research team were involved in the data synthesis.

Results: From 1,564 publications identified, 216 were included in the final analysis. Six domains and 14 indicators were identified.

Conclusion: The organizational preparedness in educational organizations in pandemic crisis times needs to be prioritized in the educational policy agenda, drawing special attention on students with disabilities. The identified preparedness domains and indicators may guide the policy dialogue and inform accordingly a system thinking change approach in education and disability.

1. Introduction

The impact of the COVID-19 pandemic on educational systems has caused a profound shift in the organization and delivery of education worldwide. All involved stakeholders, namely, students, parents, teachers, administration, decision, and policymakers, were confronted abruptly with an unprecedented reality without being prepared or organized beforehand. Regrettably, the repercussions of the pandemic crisis on educational systems[1] proved to be detrimental for students with disabilities (SwDs),[2] highlighting not only the underpinning social and educational inequalities but also the huge gap in the organizational preparedness of education.

The outbreak of COVID-19[3] (World Health Organization (WHO), 2022) has had unprecedented, serious effects on global healthcare systems with chain reactions on every aspect of human life, including socioeconomic and education (Armitage and Nellums, 2020). In fact, upon the WHO declaration of COVID-19 as a global pandemic (World Health Organization (WHO), 2020), countries around the world locked down to minimize the disease's spread potential and applied unparalleled draconian measures, including school closures affecting more than 1.5 billion learners and 630 million primary and secondary school teachers all over the world (UNESCO, 2022). UNESCO (2022) has highlighted that disparities and inequalities have been exacerbated due to COVID-19 pandemic, underscoring the imperative of "collective responsibility to support the most vulnerable and disadvantaged" (p. iii). Furthermore, education opportunities are being affected by the presence of barriers to "quality education" for all learners (UNESCO, 2020). Different countries introduced various policies, ranging from complete closure in Germany and Italy to targeted closure in the United Kingdom (Nicola et al., 2020). Overall, more than 100 countries imposed a nationwide closure of educational facilities at all levels of the educational system.

These closures have had widespread socioeconomic implications. Within the pandemic aftereffects' context, socially disadvantaged populations, such as people with disabilities, have experienced an exacerbation of existing social inequalities (Ahmad et al., 2020; Dorn et al., 2020; Shadmi et al., 2020; The Lancet, 2020). In particular, the SwDs have been disproportionally affected by the lockdown-related measures; for example, they have been forced rather than by own choice to interrupt or to have no access to quality education and to experience the disruption of community support networks, whereas the induced socioeconomic fragility of their informal caregivers bounced on them as well (Karagianni, 2020b; E.S.A.meA. – Observatory of Disability Issues, 2021).

In Greece, SwDs and their families were extremely affected at an educational, social, and economic level. In particular, 7.8% of the Greek students with disability and/or special education needs attending state preschool, primary, and secondary education settings; that is, 105,970 students and their families (Kassianos, 2018; Rellas, 2020) suffered from the pandemic implications. The majority of the SwDs are educated in mainstreaming and fewer students are educated in segregated educational environments (E.S.A.meA. – Observatory of Disability Issues [Ε.Σ.Α.μεΑ. – Παρατηρητήριο Θεμάτων Αναπηρίας], 2019). However, in both cases, there was no preparation or measures taken to support the SwDs and their families at homeschooling (E.S.A.meA. – Observatory of Disability Issues, 2021). The schools' closure by the Ministry of Education was criticized by the SwDs' parents, disabled advocacy groups, and the staff in special and general education on the grounds of the absence of any inclusion perspective on the officially adopted online/distance learning policy and practices (Mantzikos and Lappa, 2020). Furthermore, no measures were taken on educational and therapeutic personnel attendance, individualized support, and adaptive educational resources (Rellas, 2020). These challenges, in conjunction with the poverty issues, experienced quite often by SwDs and their families (Karagianni, 2017) resulted in deepening social exclusion (Karagianni, 2020a) and compromising their right and potential to actively participate in inclusive, sustainable, and resilient school communities. Albeit the policy responses are undertaken to address the implications of the COVID-19 pandemic, the organizational preparedness and response planning of educational organizations[4] has been found poor and non-disability inclusive (efsyn.gr, 2020).

In terms of policy and strategic planning, the pandemic preparedness and response has been acknowledged to be a starting point for urgent reforms in established systems (Guterres, 2021). The WHO described pandemic preparedness as "a continuous process of planning, exercising, revising and translating into action national and sub-national pandemic preparedness and response plans" (World Health Organization (WHO), 2011). The policy and decision makers are aligned with this approach and argue over the need for a system thinking change approach guided by organizational pandemic preparedness plans. Although first-hand attention was drawn to reinforcing the health systems to be better prepared and equipped to absorb the pandemic effects, policy and education underlined the need to address urgently the pandemic preparedness gap in educational organizations as being a keystone in society and having suffered heavily by COVID-19 pandemic (Greek Ministry of Health/National Public Health Council [Εθνικό Συμβούλιο Δημοσίας Υγείας, Υπουργείο Υγείας], 2020; Papazoglou, 2020).

1.1. Theoretical considerations

The following theoretical framework and operational definitions of the current search have been taken into consideration to maintain comprehensiveness, consistency, and accuracy in the research efforts to harvest a wide coverage of available literature on organizational preparedness domains and indicators per domain for educational organizations in pandemic contexts.

1.2. Disability and person with disability

Disability is a concept, explored and analyzed by the social sciences, and it is defined as a condition that concerns the society as a whole as a

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1 Schools for SwDs=addressed to the schools (mainstream – special) meeting the principles (requirements) of access, accessibility and participation, and quality education.

2 In this article, we choose to use the phrase "person with a disability" in accordance with the request of the Greek disability movement (E.S.A.meA. – Observatory of Disability Issues, 2022).

3 The disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

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4 In this study, the terms "educational organizations" and "schools" (mainstream and special ones) are used interchangeably. The study does not refer to any other educational organizations (e.g., universities departments, government departments, education charities).

social issue (Oliver, 1996; Zoniou-Sideri, 2018). "Disability is instead seen as a social issue: (the problem of) disability is firmly positioned in terms of barriers in the social world, not 'problems' within the individual." The idea is that disability "should be understood as a sociological concept, rather than as a biological difficulty" (Mallett and Runswick-Cole, 2014:5). The present study adopts this social approach to disability, according to which people with disabilities are in essence disabled by the society, since the latter fails to address their needs and infringes on their rights (Oliver, 1990; Swain and French, 2000). According to Oliver's (1996) social model of disability, disability is defined as anything that may potentially create barriers to people with disabilities. Some of these barriers involve institutional discriminations, inaccessible public buildings, unsuitable means of transportation, separation in educational settings, and unreachable working conditions. In addition, people with disabilities "have traditionally been marginalized in research and treated in an inferior manner" (Fitzgerald, 2009; p. 148). This article tries to give voice to the marginalized in research and make "a positive difference" in the lives of people with disabilities (Goodley, 2010, 2011).

According to World Health Organization (WHO) (2022, Disability-Overview), "A person's environment has a huge effect on the experience and extent of disability. Inaccessible environments create barriers that often hinder the full and effective participation of persons with disabilities in society on an equal basis with others. Progress on improving social participation can be made by addressing these barriers and facilitating persons with disabilities in their day to day lives."

In the present article, the term "people with disabilities" is adopted, connoting primarily respect for persons and their personality and then for their disability (Swain et al., 2003; Oliver and Barnes, 2012a). "'People with disabilities' is referred to as people's first language and is preferred because it is thought to stress the person (or 'personhood') before disability" (Mallett and Runswick-Cole, 2014:4). The term "people with disabilities" is used to stress that people with disabilities are predominantly people, while their disability is one of their characteristics (Gabel, 2001). Besides the World Health Organization (WHO) (2022), the Greek Disability Movement through their representative body (The Constitution of Greece [Σύνταγμα της Ελλάδος], 2001; E.S.A.meA. – Observatory of Disability Issues [Ε.Σ.Α.μεΑ. – Παρατηρητήριο Θεμάτων Αναπηρίας], 2022) in the Greek state and society adopted the term "people with disabilities."

1.3. Organizational preparedness

The "preparedness" is used by scholarship as a conceptual piece of a greater theoretical, multilayered picture, which may entail crises, disasters, emergencies, contingencies, and how to prepare and respond to these (Perry and Quarantelli, 2005; Staupe-Delgado and Kruke, 2017). The term can be understood as an umbrella term covering concrete tasks and activities, which plays a key role within several crisis-related topics (e.g., crisis management, emergency management, societal safety, societal resilience, and disaster risk management) and is used interchangeably with a number of synonyms (e.g., readiness and contingency planning; Staupe-Delgado and Kruke, 2017). It is beyond the scope of this study to contemplate the conceptual variations and nuances of the preparedness concept; as such, the authors align with the minimal (active, continuous, anticipatory) and maximal (social, planned, not structured, enabling) attributes of the preparedness (Staupe-Delgado and Kruke, 2017) including the main aspects of the three competing definitions of preparedness (UNISDR, 2009; Haddow

et al., 2014; National Population and Family Planning Board (BKKBN), Statistics Indonesia (BPS), Ministry of Health (Kemenkes), and ICF, 2018).

The organizational preparedness conceptual framework employed by this study allies with the Staupe-Delgado and Kruke's (2017) approach. It can be minimally described as measures that are of an active, continuous, and anticipatory nature and refer to population protection to devise ways and structural tools and monitor devices to address the problem beforehand; to include vulnerability assessments, capacity assessments, training, and networking; and to develop operational capabilities and facilitate effective response (Staupe-Delgado and Kruke, 2017). It may be also stated that it refers to the ability of decision-makers, stakeholders, educational organizations, professional response organizations, communities, and individuals in education and disability to be prepared proactively and respond effectively to the impact of likely, imminent, or current pandemic crises.

1.4. System thinking change framework

The current scoping review recognizes the complexity and manifold aspects of the endeavor to bring about change in educational organizations, both mainstream and special, in terms of organizational preparedness in pandemic crisis times. The authors argue that effective organizational preparedness in pandemic crisis times entails a collective behavioral change in the form of systems redesign, taking into close account the organizational preparedness for change of the educational system and the need to develop relevant and feasible preparedness plans to guide the pursued change.

To this end, this study draws on the system thinking change framework, which is considered appropriate to theorize and implement effectively complex organizational changes (Herscovitch and Meyer, 2002). In the system thinking change approach, the three main elements of the systems thinking change framework (clear purpose, system's constituent parts, and interconnections) are interconnected and interact with each other to produce a multilevel and multifaceted construct to bring about change at both the organizational and system thinking levels (Aronson, 1996; Herscovitch and Meyer, 2002; Arnold and Wade, 2015). In the explored case of revising the educational organizations' preparedness in the pandemic context, with a focus on the SwDs' psychosocial and educational needs, the yielded research findings (organizational preparedness domains and indicators) are linked to the three main features of the system under change (Figure 1). The identified organizational preparedness domains and indicators are interconnected and interact within the system. They may also inform a new, multifaceted, and multilevel construct proper to respond to the specific needs for systems thinking a change of educational organizations in pandemic times.

Acknowledging the urgent need to support policy and decision-makers in their efforts to be properly prepared for the next crisis, the contours of this study are delineated by the lack of organizational preparedness of educational organizations for SwDs in pandemic times. In particular, this study focuses on exploring the gap in educational organizations' preparedness in the pandemic context, with a special focus on the SwDs' psychosocial and educational needs (Figure 2).

The aim of this study is to explore, map, and synthesize the organizational preparedness domains and indicators per domain proper to inform the organizational preparedness plans of educational organizations in pandemic times, with a special focus on SwDs. The ultimate aim of the research is to inform the construction of an organizational preparedness digital tool for educational organizations,

FIGURE 1
System thinking changes the framework of this study.

FIGURE 2
Research focus of this study.
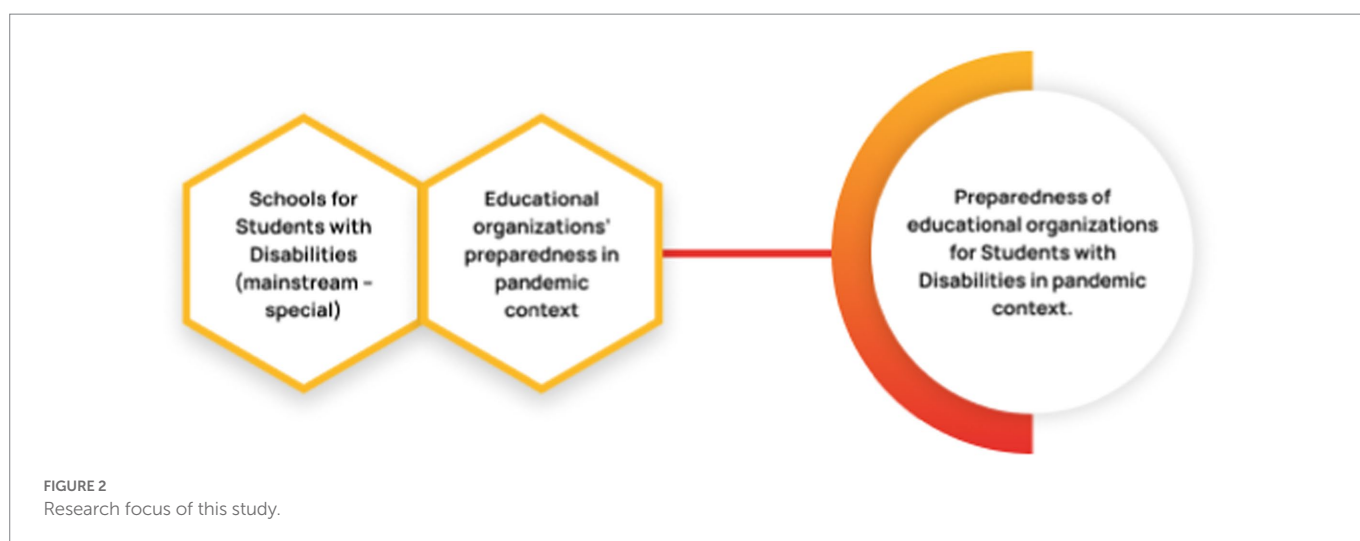
with a special focus on the SwDs, and thus to contribute to the policy dialogue on organizational preparedness of educational organizations, both mainstream and special, in the pandemic crisis contexts.

2. Materials and methods

2.1. Design

Using a multi-method approach to validate the findings (Guba and Lincoln, 1994), a scoping review and a thematic analysis method were used. Given the exploratory nature of the research question, the authors contend that a scoping review serves best the aims of this study inquiry, providing a comprehensive reviewing and synthesizing of the existing

literature (Arksey and O'Malley, 2005; Davis et al., 2009; Egan et al., 2017). The thematic analysis (Verma and Mallick, 1999; Guest et al., 2012; Braun and Clarke, 2021) was employed to identify the patterns, code, analyze, and synthesize the search findings into the organizational preparedness domains and indicators per domain for educational organizations in times of pandemic crisis.

The scoping review was deemed as the most appropriate method for this research since it is a type of knowledge synthesis following a systematic approach to map evidence on a topic and identify main concepts, theories, sources, and knowledge gaps (Tricco et al., 2016, 2018). The scoping review is a literature mapping process allowing the researchers to examine the "landscape" of the published literature based on the formulated research question (Hanneke et al., 2017). In addition, considering that scoping reviews are useful to explore the extent of the

literature and to answer broader questions, the authors conducted this scoping review based on the PRISMA Extension for Scoping Reviews to guide reliably the report for this specific type of knowledge synthesis (Tricco et al., 2018). The adopted checklist of the preferred reporting items for systematic reviews extension for scoping reviews (PRISMA-ScR) is provided in Appendix 1.

The approach for the scoping review is underpinned by Arksey and O'Malley's (2005) five-stage framework (Figure 3), which adopts a rigorous process of transparency, enabling replication of the search strategy and increasing the reliability of the study findings. The five stages of Arksey and O'Malley's (2005) framework employed in this review literature are as follows: (1) identifying the initial research question, (2) identifying relevant studies, (3) study selection, (4) charting the data, and (5) collating, summarizing, and reporting the results.

The recommendations of Levac et al. (2010) on the continual refinement of the framework stages have been taken into consideration to enhance the methodological rigor with which the researchers undertook and reported the scoping study. For example, in the first stage, the research team worked thoroughly to clarify the concept, target population, and outcomes to narrow down the focus of the study. Furthermore, the research team agreed upon the expected result of the scoping review at this stage (e.g., a list of organizational preparedness domains and indicators per domain for educational organizations – both mainstream and special – in crisis times) to maintain clarity of the study goal. A scoping review is not a linear process. As described later, the research team took several iterations to outline the search strategy, define the search terms, and identify the expected outcomes prior to conducting the search (Arksey and O'Malley, 2005). The search terms for the selected databases (see Table 1) were refined over several meetings and by all research members prior to data extraction. The optional sixth stage of the adopted f'amework, referring to stakeholders' involvement with the aim to provide insights beyond those in the published literature, was considered part of the process and, as such, it has been retained for this review (Daudt et al., 2013). The researchers went through each stage of the review process independently. Conflicts were collaboratively resolved after each step.

2.2. Stage 1: Identify The initial research question

In scoping reviews, it is crucial to identify the research question in the first place, since it guides the overall rationale of the study design, conduct, and report of the research. Thus, after initial exploration of the literature and gaining familiarity with the body of knowledge on the examined phenomenon, the authors developed the following research question to lead this scoping review:

RQ: What are the domains and indicators per domain related to organizational preparedness of educational organizations in pandemic crisis times, with a special focus on SwDs?

2.3. Stage 2: Identify relevant studies

2.3.1. Search strategy

To address comprehensively the formulated research question stated earlier (Stage 1), the authors reviewed preliminary publication titles to refine the search context. Thereafter, they decided upon the key search terms, search strategy, databases to search, and eligibility criteria of the identified published literature.

2.3.2. Search terms

In being as comprehensive as possible in the identification of primary evidence of the practicalities of time and funding constraints (Kenny et al., 2013), several systematic reviews on preparedness in educational organizations in crisis times were screened beforehand to identify key search words used (Weiner et al., 2008; World Health Organization (WHO), 2011; Javed and Niazi, 2015; Staupe-Delgado and Kruke, 2017; Patel et al., 2020; Begičević Ređep, 2021; Carrión-Martínez et al., 2021; Ceballos et al., 2021; ElSaheli-Elhage, 2021; Giannouli et al., 2021; Guterres, 2021; Keskin et al., 2021; Khanal et al., 2021; Kundu and Bej, 2021; Montanari et al., 2021; Ng et al., 2021). These keywords were pooled, systematized, and added to the key search terms of the current research. Thus, the syntax used in the databases was composed of three main areas, namely, organizational preparedness, educational organizations, and disability/SwDs.

2.3.3. Eligibility criteria

To aptly address the research question and capture comprehensively the published literature, peer-reviewed, and preprint were included should the following criteria were explicitly addressed: (a) the COVID-19 disease or pandemic or crisis times, (b) educational organizations, (c) organizational preparedness at all levels (e.g., national, regional, local, and community) and in relation to any involved stakeholder (e.g., policy, practice, and research), and (d) SwDs and their families/caretakers/teachers.

The theoretical and operational definitions of the explored concepts (e.g., SwDs and organizational preparedness; see the "Theoretical considerations" section) were applied to support the reviewers in their eligibility decisions. Only English-language articles published from 2010 to 2021 were considered. Although the focus of current research is on the lack of organizational preparedness in educational organizations surfaced by the COVID-19 pandemic, the time frame of the research was stretched from 2010 through the end of 2021 to secure that all crisis-relevant published literature was included. No geographic restrictions were applied. Searches for titles, abstracts, and keywords were carried out using the search terms included in Table 1.

2.3.4. Information sources and search

The searches were run from 4 April 2022 until 31 May 2022. A total of six databases for the scientific, peer-reviewed literature were used to retrieve relevant studies: Scopus, ERIC, Web of Science,

FIGURE 3
Arksey and O'Malley's (2005) five-stage framework.

TABLE 1 Search terms for the selected databases.

Scientific databases/ Academic search engine	Search strategies/syntax
PsycInfo	– preparedness "AND" & "OR" educational organizations
	– preparedness "AND" & "OR" educational systems
Web of Science[a]	– preparedness "AND" & "OR" educational organizations
	– preparedness "AND" & "OR" educational systems
Eric	– preparedness "AND" & "OR" educational organizations
	– preparedness "AND" & "OR" educational systems
Scopus	– preparedness "AND" & "OR" educational organizations
	– preparedness "AND" & "OR" educational systems
Proquest[a]	– preparedness "AND" & "OR" educational organizations
	– preparedness "AND" & "OR" educational systems
JSTOR	– preparedness "AND" & "OR" educational organizations
	– preparedness "AND" & "OR" educational systems
Google Scholar[a]	– preparedness "AND" & "OR" educational organizations
	– preparedness "AND" & "OR" educational systems

[a]Additional criteria were applied to the results above 200 articles. Due to the large amount of data, phrases or words that are relevant to disab* were included.

PsychInfo, ProQuest, and JSTOR. The academic search engine Google Scholar was also explored to identify studies meeting the eligibility criteria. In addition, a snowballing search process of the reference lists of identified articles was undertaken to consider any other primary sources. To yield timely results, the researchers decided to exclude the grey literature and to funnel down the review coverage to the peer-reviewed literature. Mapping out initially unchartered waters, and in alignment with the selected method of scoping review, the research team reached iterative decisions on a common and acceptable basis when reported and justified accordingly (Colquhoun et al., 2014; Peters et al., 2020).

2.4. Stage 3: Study selection

2.4.1. Selection process

Two independent reviewers (SK, LT) conducted a pilot screening with over 85% agreements overseen by the leading review author (AV). All articles (abstracts, titles, and full-text) were screened by SK and LT. Discrepancies were settled through consensus or the leading author's input.

2.4.2. Articles selection

The search yielded initially large categories of articles. The researchers followed a three-part study selection process. First, the screened titles were reviewed based on the defined eligibility criteria. Second, the abstracts identified by the first part of the selection process were evaluated against the selection criteria. Third, when necessary, the full-text papers were explored for available evidence to better inform the review.

The filtering methods included the date range, English language, and a search string to further narrow the results to review articles. Using the key search descriptors, 1,564 articles were identified. After removing the duplicates, this initial research resulted in 1,112 articles. A significant number of these did not meet the eligibility criteria. A review of the abstracts revealed large numbers of articles that were duplicates and/or irrelevant. Following the second screening, 274 articles were identified, of which 58 articles were excluded on account of "no addressing the organizational preparedness in education, no relation to the education of SwDs." The third screening approved 216 articles to be included in the pool of eligible articles. The full-text version of the articles was obtained on the grounds of abstraction of the available evidence, which was not clearly mentioned in the paper's abstract, and of identifying relevant literature from a review of the reference lists of each article. The process of article selection followed the Preferred Reporting of Items for Systematic Reviews and MetaAnalyses (PRISMA) statement (Moher et al., 2009). Figure 4 illustrates the process of article selection.

2.5. Stage 4: Data charting

The fourth stage of Arksey and O'Malley's (2005) scoping review framework is the charting of selected articles. The data abstraction list was piloted on a random sample of 5 included articles and modified accordingly based on feedback from the researchers (T.P., A.F., A.T., F.P.). Data were extracted by the researchers using a standardized checklist (PRISMA Transparent Reporting of Systematic Reviews and Meta-Analyses, 2022), and they were double-checked and corrected, when necessary. As an additional data-cleaning step, feedback from the leading researcher was asked and the necessary adaptations were made. Based on the preliminary data abstraction pilot, *a priori* categories of data were developed and guided the selection and charting of the included studies, such as author, year, study type (e.g., research paper), aims, study focus, context, and relevant outcome data (e.g., preparedness policy).

2.6. Stage 5: Synthesis (collating, summarizing, and reporting the results)

The fifth and final stage of Arksey and O'Malley's (2005) scoping review framework summarizes and reports findings. A summative description of the amount and range of the related, identified literature, including publication type and source, study focus, context, and relevant outcome data, is provided later. The included studies that address the identified organizational preparedness domains and indicators per domain in the pandemic context are also described. Subsequently, a qualitative thematic analysis (Braun and Clarke, 2006) is performed from the content extracted from the eligible studies on the organizational preparedness domains and

FIGURE 4
PRISMA flow diagram of the scoping review with thematic analysis.
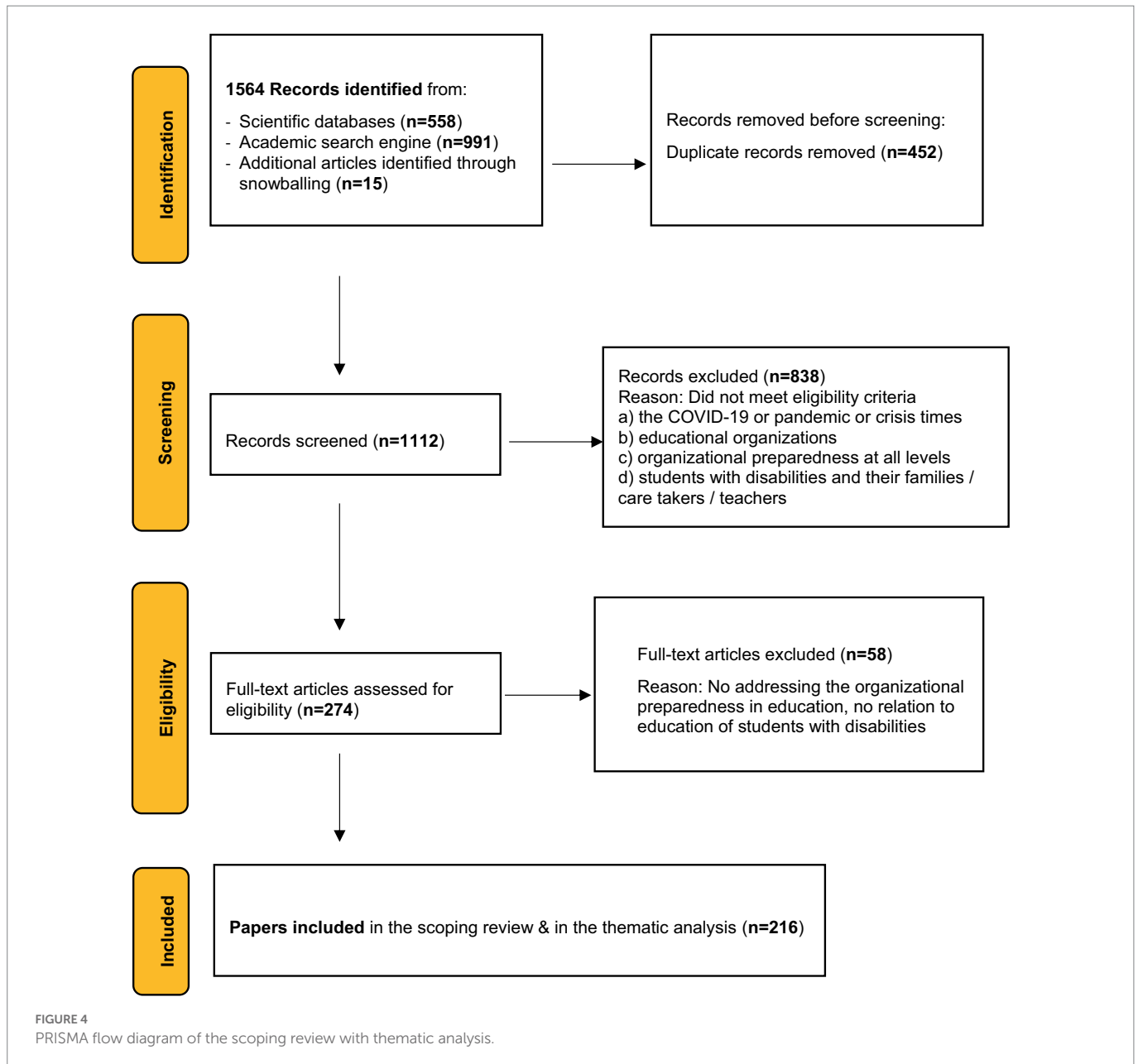
indicators per domain in educational organizations in the pandemic context.

The main results are reported in the form of new, aggregative themes that highlight the emerging knowledge and new configurations of this knowledge following contrasting to the raw findings. On the further side of coding, the analytical approach includes interpretation, obtaining overarching themes, and seeking for coexisting patterns in the data on both semantically present and latent basis. The researchers developed the initial thematic categories and synthesis and iteratively reviewed the themes in line with the extracted data and their own interpretative lens. The diversity of educational and professional backgrounds of the research authors has been considered as enriching this iteration and contributing in achieving a more refined, transdisciplinary synthesis of the findings. Furthermore, the system thinking change theoretical framework was used to provide an integrated, consistent structure for the understanding and analysis of

the research findings and unpack the complexity of the endeavor of organizational preparedness for educational organizations (Iezzoni and Long-Bellil, 2012; Bickenbach, 2014; Tardi and Njelesani, 2015; Rios et al., 2016; Claes et al., 2017; Shogren et al., 2017; Armitage and Nellums, 2020).

3. Results

The current scoping review identified 6 organizational preparedness domains and a total of fourteen indicators allocated across the identified domains (see Appendix 2). The main findings of the 6 domains are illustrated in Figure 5.

Scoping review findings: Six domains and 14 indicators for educational organizations' preparedness in the pandemic context, with a focus on the SwDs' needs.

FIGURE 5
System thinking change framework of this study.
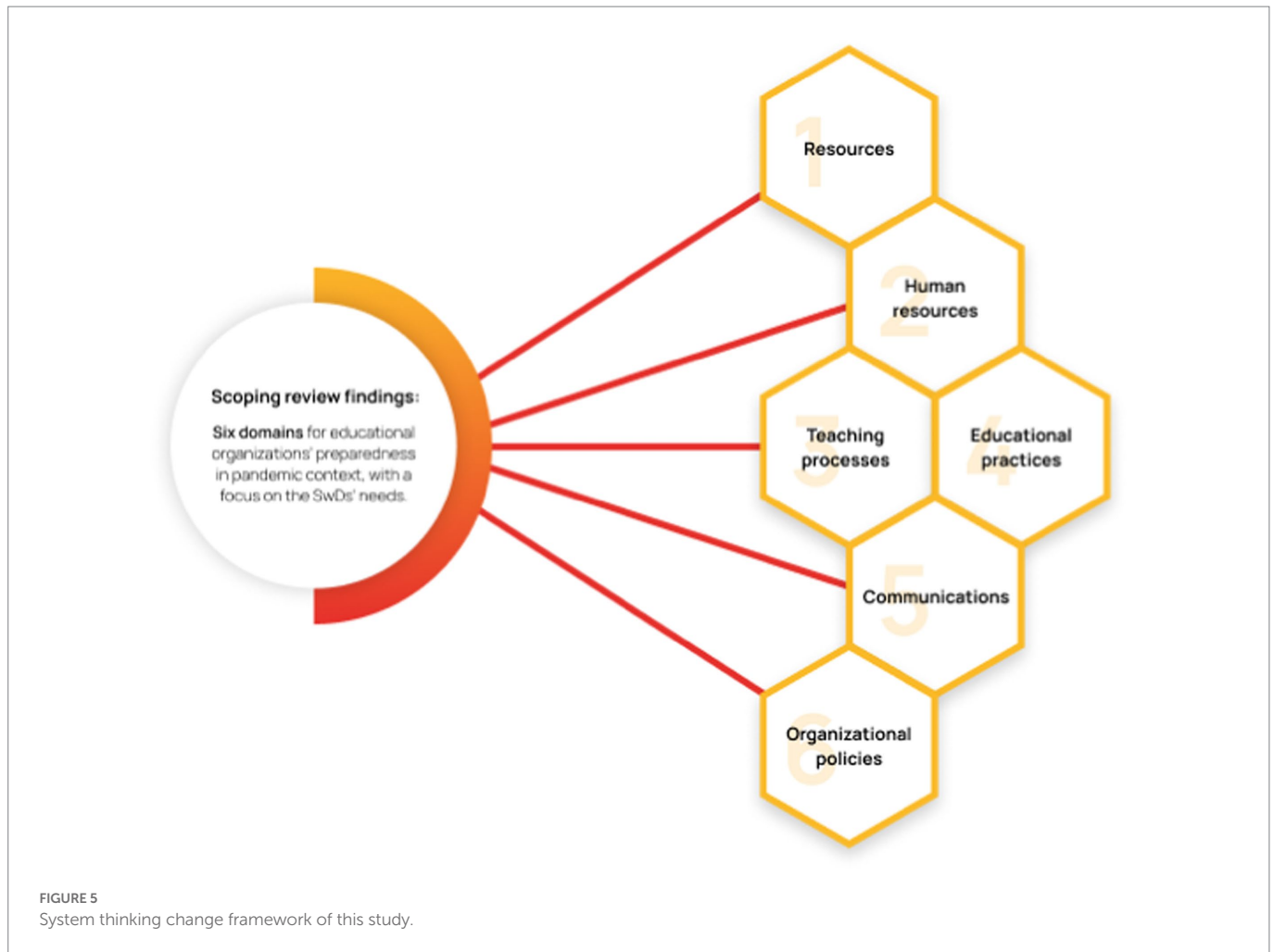
3.1. Resources (e.g., equipment, technological infrastructure, logistics, contingency funding, availability of resources, and buildings)

Two indicators were identified under the domain of resources: (1) ICT resources/equipment and (2) finance (Table 2).

3.1.1. ICT resources/Equipment

The ICT (Information and Communication Technology) resources, the first identified indicator, was found to be informed by the following core subject matters:

- *Capacity at the educational organization level to support SwDs and their families with ICT resources, assistive technologies, and equipment*
- *Availability at the educational organization level to offer access to and use of ICT resources*
- *Availability of ICT resources suitable for SwDs and their families at a local level*

Digital technologies have a critical role in the education system globally. For years, digital technologies have been transforming teaching from primary to tertiary education amounting to a "journey" of digital transformation that "needs a staged approach with a clear roadmap,

data, and facts" (Moos et al., 2020, p. 104). In particular, for 2020, five trends have been attributed to digital transformation in education, including the "internet of Things," the financial struggle schools are dealing with, the customizing students' learning experiences, and the assuring access to and security in using digital technologies (Newman, 2019).

Digital technologies can enable learning for students with different learning types by providing resources such as learning management systems, modeling tools, or gamification making education accessible to less privileged students (Begicevic Redep et al., 2021). On the contrary, digital technologies pose a variety of societal challenges related to the development of new approaches and ways of establishing contemporary infrastructure (Begicevic Redep et al., 2021). Exemplified by the lack of access to online and mobile technologies for all, the issue of inequality (Begičević Rеđеp, 2021) deriving from factors such as gender, origin, age, disability, and class still challenges society.

For instance, Bokayev et al. (2021) found the challenge the government of Kazakhstan experienced with the transition to online learning due to weak internet infrastructure, lack of communication between the stakeholders, and biased statistical information (Ng et al., 2021; Page et al., 2021). A number of studies identified "low levels of preparedness in relation to teaching remotely in general, teaching SwDs in particular, and using technology tools" (ElSaheli-Elhage, 2021). Students from disadvantaged backgrounds, rural areas, and large families need to be at the center of policy changes because they are

TABLE 2 Domain of resources.

Domains	Indicators	Core subjects per indicator
3.1. Resources	3.1.1. ICT resources/Equipment	*Capacity at the educational organization level in terms of supporting SwDs and their families with ICT resources and assistive technologies and equipment*
		Availability at the educational organization level in terms of offering access to and use of ICT resources
		Availability of ICT resources suitable for SwDs and their families at a local level
	3.1.2. Finance	*Economic challenges*
		Financial resources

TABLE 3 Domain of human resources.

Domains	Indicators	Core subjects per indicator
3.2. Human resources	3.2.1 Digital teaching competences	*Digital competence for emergency online teaching*
		Digital competence for online teaching
		Digital skills for teachers
	3.2.2. CPD in using new ICT	*Training in using new ICT for online teaching*
		Training in online instructional design
		Teachers' capacity building in digital skills for online teaching
		Whole-of-organization and whole-of-society management approach
		Organizational leadership at the educational organization level
		Organizational leadership at the educational administration level

considered as the most vulnerable to enact those measures (Page et al., 2021).

To counterbalance the inequality (among other challenges) between the future participants, educational institutions have been advised to plan and implement contemporary teaching content and methods including digital technologies in both teaching and non-teaching processes (Moos et al., 2020).

ICT resources can be challenging when students' inclusion is considered due to limited access to ICT and thus to information and learning practices. The above inequity referred as "digital divide" in literature has been the core interest of studies conducted in the US among other countries, since the mid-1990s. Schools with their educational programs have a crucial role in mitigating the digital divide by understanding the needs and capabilities of their communities (Keskin et al., 2021; Sofianidis et al., 2021).

One of the biggest challenges for contemporary technology is the development of ICT for all. Disabled people and their struggle with equal access and usability of digital technologies are widely discussed in the literature. Although international organizations working on disability have been passionate advocates for addressing discrimination and social exclusivity related to access and use of ICT, the ICT challenges in education remain untapped (Tsermidou and Zoniou-Sideri, 2012).

3.1.2. Finance

The finance, the second identified indicator, was found to be informed by the following core subject matters:

- *Economic challenges*
- *Financial resources*

It has been clearly established by literature that educational organizations have been heavily impacted by the current pandemic at several levels (Page et al., 2021; Tokatly Latzer et al., 2021). Among others, students' families from low socioeconomic backgrounds have been struggling financially to support students' remote schooling due to a lack of devices such as a computer and/or of internet connection (Jameson et al., 2021). The financial cost deriving from homeschooling and the use of the internet during the COVID-19 pandemic has been reported as one of the major barriers to making education inaccessible to many students (Jameson et al., 2021; Shuvalova et al., 2021).

3.2. Human resources (e.g., teachers, disability specialists, psychologists, and dedicated and/or trained human resources for crisis context)

Two indicators were identified under the domain of human resources: (1) digital competences and (2) continuous professional development in using new ICT (Table 3).

3.2.1. Digital teaching competences

The digital teaching competences, the first indicator of the second domain, was found to be informed by the following core matters:

- *Digital competence for emergency online teaching*
- *Digital competence for online teaching*
- *Digital skills for teachers*

Digital competence has been defined by Ferrari (2012:3) as "the set of knowledge, skills, attitudes that are required when using digital technologies and digital media to perform tasks." Punie and Redecker (2017) recommended the Digital Competence Framework for Educators (DigCompEdu), a framework including all digital skills that educators

need to develop to be digitally competent for online learning as well as their own training. The framework was supported for its facilitating role from early childhood to teachers' education assessing their current competence level and needs. Additionally, the framework has implications for policy implementation for teachers' training programs adopted regionally and nationally (Punie and Redecker, 2017). The DigCompEdu Framework suggests 22 basic digital competences encompassed in six main areas: professional engagement, digital resources, and their employment in teaching and learning, assessment, enacting inclusion by empowering students and promoting students' digital competence (Begičević Ređep, 2021).

Teachers' digital competence is needed for both emergency remote teaching and online learning, with an embedded distinction worth noting between those two modes of teaching. According to Begicevic Redep et al. (2021: 31), emergency remote teaching is a "temporary shift" in the mode of teaching due to unforeseen measures involving a fully remote instructional delivery until the emergency ends. Online learning, on the contrary, describes the mode of distance education "in which a course or program is intentionally designed in advance to be delivered fully online." In the case of online learning, educational institutions have planned beforehand their pedagogical strategies for student instruction, engagement, and assessment designed specifically for a virtual mode of teaching (Begičević Ређep, 2021). For both emergency remote teaching and online learning, educators need to be aware of their own digital teaching competences to be able to improve and integrate them in their teaching (Sosa Díaz, 2021).

3.2.2. Continuous Professional Development in using new ICT

The Continuous Professional Development (CPD) in using new ICT, the second indicator of the second domain, was found to be informed by the following core matters:

- *Training in using new ICT for online teaching*
- *Training in online instructional design*
- *Teachers' capacity building in digital skills for online teaching*

The literature highlighted that the "most important lesson" of any crisis is for educational organizations to have preparedness plans, "in advance action plans" in case of emergencies. According to data collected upon the transition to online learning due to the pandemic restrictions, teachers' continuous and systematic training in using new ICT and developing new digital skills to cope with new ways of teaching and learning should be included in preparedness plans against potential, future crisis (Schuelka, 2018; Giannouli et al., 2021; Marek et al., 2021; Ng et al., 2021; Poce et al., 2021). Data showed an increase in the workloads and stress involved in distance learning, a need for planning and adaptability, and, as discussed earlier, a call for long-term training in online distance instructional design (Alolaywi, 2021; Marek et al., 2021).

A study by Alea et al. (2020) in the Philippines explored teachers' opinions on their school's readiness levels as well as the challenges of online learning due to the COVID-19 pandemic. Teachers shared the importance of their training not only as a way of enhancing their qualifications but mainly for the technical skills acquired during the pandemic.

A maximized teachers' performance has been associated in the literature with the capacity building of a teacher. Capacity building is a process that describes the attempt on behalf of a teacher to improve their knowledge, skills, attitudes, and behaviors. This process can be facilitated by training and competency-based education improving teachers' performance overall. By improving teachers' capacity building, the school's organizational capabilities are also improved, whereas attaining educational goals becomes more efficient (Kim and Fienup, 2021).

3.3. Teaching process

Three indicators were identified under the domain of the teaching process: (1) student-centered learning, (2) curriculum and content, and (3) assessment (Table 4).

3.3.1. Student-centered learning

The student-centered learning, the first indicator of the third domain, was found to be informed by the following core matters:

- *Student-centered learning based on students' individual needs and pace*
- *Flexible learning*

TABLE 4 Domain of teaching process.

Domains	Indicators	Core subjects per indicator
3.3. Teaching processes	3.3.1 student-centered learning	*Student-centered learning based on students' individual needs and pace*
		Flexible learning
	3.3.2 Curriculum and content	*Re-invented curriculum*
		Flexible curriculum
		Participatory and democratized curriculum
		Digitally adapted curriculum
	3.3.3. Assessment	*Assessment processes and tools underpinned by the principles of inclusive education*
		Evaluation processes and tools underpinned by the principles of inclusive education
		Development of new assessment criteria for online learning
		Development of new assessment and evaluation tools for online learning
		Technical difficulties in assessment processes
		Context-related difficulties in assessment processes
		The educational challenges related to social challenges being an integral part of the organizational preparedness plans

In effective teaching practices, flexibility and student-centered learning based on students' individual needs and pace of learning have been foregrounded. Several educational organizations share their tools along with practical solutions with no extra cost to support an interactive, flexible learning environment for students. In contrast to the traditional mode of teaching, online teaching created opportunities for teachers to teach using a variety of contemporary and innovative resources (Schuelka, 2018; Khanal et al., 2021). An additional positive aspect of these practices is that teachers enhance their learning capabilities by collaborating and sharing knowledge and tools with other teachers, parents, and students (Doucet et al., 2020).

3.3.2. Curriculum and content

The curriculum and content, the second indicator of the third domain, was found to be informed by the following core matters:

- *Re-invented curriculum, namely, rethinking and adapting the content of learning*
- *Flexible curriculum that facilitates its adaptation to the cultural and social reality and educational needs of students*
- *Participatory and democratized curriculum, namely, curriculum with the democratic participation of students; a curriculum that can be differentiated*
- *Digitally adapted curriculum, namely, curriculum reform related to digital competence and online learning*

Curriculum informs a significant aspect of the teaching process and planning. Planning that supports an "action–reflection–action movement" can promote a fruitful teaching process, considering that pedagogical approaches ought to contextualize and elaborate on the knowledge and not just transmit it (Alvareli et al., 2018).

Curriculum reform responds to a call for its content to resemble contemporary life situations, thus becoming meaningful to students. According to the Eurydice brief report (2019), approximately half of the European countries have their education systems involved in curriculum reform with a major focus on digital competence. Curricula reforms need to be clearly oriented in including both digital competence and digital skills development in a more relevant and meaningful way for the students. Teaching of skills such as coding, safety, and computational thinking needs to also be included in the curriculum content (Begicevic Redep et al., 2021). Additionally, it is suggested for new curricula not to overwhelm students with excessive content rather than be flexible and adaptable to students' needs (Gonçalves Costa et al., 2021).

Furthermore, literature corroborates on flexible curricula with intentional teaching on the grounds of what students need to learn nowadays (Schuelka, 2018; Page et al., 2021). Adapting the curriculum according to students' needs aligns with a responsive, flexible, and often-specialized teaching approach and support to disabled students, thus enabling inclusion and the overall quality of teaching (Schuelka, 2018; Mohammed Ali, 2021).

3.3.3. Assessment

The assessment, the third indicator of the third domain, was found to be informed by the following core matters:

- *Assessment processes and tools underpinned by the principles of inclusive education*
- *Evaluation processes and tools underpinned by the principles of inclusive education*
- *Development of new assessment criteria for online learning*
- *Development of new assessment and evaluation tools for online learning*
- *Technical difficulties in assessment processes*
- *Context-related difficulties in assessment processes*

The literature highlighted the need for educational organizations to incorporate future assessment and evaluation processes and tools underpinned by the principles of inclusive education to overcome inequalities through reflective practices (Talidong and Toquero, 2021). Researchers addressed the need for tools to monitor and evaluate the progress of learning outcomes and to examine the assessment practices (Boscardin and Shepherd, 2020; Jameson et al., 2020; Talidong and Toquero, 2021). For example, homeschooling participants of a study in Turkey experienced challenges during the assessment due to weak internet connection and to decreased interaction between teachers and fellow students (Korkmaz and Toraman, 2020).

On the contrary, teachers have been reported as unable to make students' assessments or provide feedback to students due to limited knowledge on skills evaluation or skills teaching according to students' individual interests and capabilities (Korkmaz and Toraman, 2020). Some students were receiving support from their parents during homeschooling; thus, teachers could not assess the authenticity of students' work, or their learning progress based on the examinations (Shuvalova et al., 2021). Future research should address the gap by exploring students' grading, which as of now lacks previously developed effective criteria (Alolaywi, 2021).

3.4. Educational practices (teaching and learning practices to respond to students' diversified needs in crisis contexts)

Two indicators were identified under the domain of educational practices: (1) inclusive educational practices and (2) parents participation in the educational process (Table 5).

3.4.1. Innovative and inclusive educational practices

The innovative and inclusive educational practices, the first indicator of the fourth domain, was found to be informed by the following core matters:

- *Development and application of innovative educational practices using user-friendly tools* (e.g., simulations, online discussion forums, online homework or quizzes, and instant messaging) promoting the interactive, creative, and contemporary online learning
- *Innovative, flexible educational practices supporting the promotion of inclusive and accessible instruction*
- *Innovative practices contributing to the quality of flexibility in the learning process*
- *Innovative educational programs with questionable quality of learning* (lack of interactive content, lack of adequate interaction across the learning process)
- *Innovative educational practices suboptimal to enable students' academic performance*

TABLE 5 Domain of educational practices.

Domains	Indicators	Core subjects per indicator
3.4. Educational practices	3.4.1. Innovative and inclusive educational practices	Development and application of innovative educational practices using user-friendly tools
		Innovative, flexible educational practices supporting the promotion of inclusive and accessible instruction
		Innovative practices contributing to the quality of flexibility in the learning process
		Innovative educational programs with questionable quality of learning
		Innovative educational practices suboptimal to enable students' academic performance
		Innovative educational practices decreasing students' learning motivation and increasing teachers' level of stress
		Innovative educational practices resulting in a lack of interaction and an increased sense of loneliness
		Educational practices missing quality materials and user-friendly resources or regulatory documents to monitor the online learning
		Educational practices missing to let the students be aware of current crisis management
		A shift of teachers' role to facilitators rather than (sole) teachers
		Lack of digital literacy of involved parties in educational practices
	3.4.2 Parents' participation in educational practices	Provision of support and training to parents/carers in relation to online learning
		Additional support for specialized, online education
		Lack of pedagogical competences related to online learning
		Lack of appropriate digital skills
		Challenges with the provision or distribution of devices between the children

- *Innovative educational practices decreasing students' learning motivation and increasing teachers' level of stress*
- *Innovative educational practices resulting in a lack of interaction and an increased sense of loneliness*
- *Educational practices missing quality materials and user-friendly resources or regulatory documents to monitor the online learning*
- *Educational practices missing to let the students be aware of current crisis management*
- *The shift of teachers' role to facilitators rather than (sole) teachers*
- *Lack of digital literacy of involved parties in educational practices*

The educational programs were also affected by the transition of the education system into an emergency online teaching mode (Hill et al., 2020; Korkmaz and Toraman, 2020; Poletti, 2020; Montanari et al., 2021). Although this change has been considered a positive large-scale digital innovation, the sudden change was found to challenge the quality of learning with the teaching lacking interactive content suitable for digital platforms and online learning (Alhammadi, 2021; Green and Sheyapo, 2021; Pasani et al., 2021).

Scholarship has considered inclusive educational practices implemented in school settings along with their enablers and barriers. According to inclusive education theory, students ought to be at the center of education (Begičević Ređep, 2021; Tunney and Hanreddy, 2021). However, researchers reported a lack of awareness among students about crisis management. In addition, no crisis response team, management, or training to protect staff members and students in school settings was evidenced (Javed and Niazi, 2015). The education system showed a lack of readiness for the provision of equal access opportunities for all students during the pandemic and the transition to online learning jeopardizing social cohesion (Carrión-Martínez et al., 2021), whereas counterbalancing efforts included the use of advanced programs and ICT (Kozyreva and Nadtoka, 2020).

Contemporary educational practices have been investigated for their role in enabling students' academic performance as well as ways to support their sustainability. A review of educational practices adopted during the pandemic suggested a further analysis of teachers' employed methodologies and tools used in online teaching along with the challenges students encounter with that instructional mode (Eutsler et al., 2021).

During online teaching, students reported a lack of interaction and communication with an increased sense of loneliness. Although students attended classes, nonetheless teachers could not interact or assess whether the lesson's learning objectives were met, the opportunity to learn from interaction with classmates was missing (Christopoulos et al., 2021). The lack of quality materials and user-friendly resources or regulatory documents to monitor online learning was also reported. A significant decrease in students' learning motivation along with teachers' increased level of stress due to the transition to new technologies and communication practices which intensified their workload was also associated with the abrupt transition to digital learning (Khanal et al., 2021).

On the contrary, the authors identified innovative educational practices such as simulations, online discussion forums, online homework or quizzes, and instant messaging. However, not all practices or tools used during the distance learning period were considered helpful by the students. Students found beneficial and thus recommended the sustainability of practices such as PowerPoint presentations, printouts with the theory taught providing written explanations, instant messaging, as well as the use of videos (Al-Mamari et al., 2021; Das, 2021; Sofianidis et al., 2021).

It is in this regard that the COVID-19 pandemic affected positively the education system globally by advancing practices, tools, and modalities of teaching adding the quality of flexibility to the learning process. In contrast to traditional modalities of teaching, flexible learning has been supported for its role in promoting inclusive and accessible instruction (Cayetano and Autencio, 2021). Nevertheless, teachers reported the same expectations regarding the need for formal/face-to-face education (Korkmaz and Toraman,

2020). At the same time, teachers highlight the increased demands for online learning that promotes equal opportunities for all students (Kozleski, 2020).

3.4.2. Parents' participation in the educational process

The parents' participation in the educational process, the second indicator of the fourth domain, was found to be informed by the following core matters:

- *Provision of support and training to parents/care takers in relation to online learning*
- *Additional support for specialized, online education*
- *Lack of pedagogical competences related to online learning*
- *Lack of appropriate digital skills*
- *Challenges with the provision or distribution of devices between the children*

Studies conducted during remote teaching reported on how parents/care takers studied together with their children. Additionally, despite the barriers encountered during the pandemic, an opportunity was created, which fostered an unprecedented positive relationship between parents and teachers when parents were asked to support their children's homeschooling (Majoko and Dudu, 2022). However, data revealed challenges parents encountered during this process, identifying a need for the provision of support and training to parents/care takers (Melissa, 2021).

An in-depth analysis of remote teaching in Indonesia showed that teachers may focus on technology; nevertheless, students have difficulty in self-regulated learning, and thus parents become involved. However, parents do not comprehend that the nature of distance learning along with the activities students are asked to carried out at home. Some highly educated parents even study the materials provided to students to be able to answer their children's questions. Overall, parents are supportive of students' learning encouraging them to study at home and attend their lessons. The study concluded that students' self-regulated learning needs to be developed, whereas parents' understanding of distance learning ought to be increased for them to be able to monitor students'

progress during remote teaching (Christopoulos et al., 2021). Additionally, to further support homeschooling, parents require pedagogical competence and appropriate technical skills (Shuvalova et al., 2021). Parents may also need to cater to the needs of multiple children facing challenges with the provision or distribution of devices between the children (Shuvalova et al., 2021).

Parental support is deemed even more critical for the support of vulnerable students, such as "hard-to-reach" or educationally excluded students. For example, for disabled students, the barriers arising from the implementation of social distancing measures and school closure, along with other support services that may have impacted as well, challenged parents/carers who need to overcome them. According to UNESCO, the situation of parents of disabled students has been exacerbated during the epidemic (Shuvalova et al., 2021). For example, students with sensory or mobility disabilities often required a specialized education with additional support that parents were unable to offer at home, challenging their education (Pokhrel and Chhetri, 2021).

3.5. Communications

Two indicators were identified under the domain of communications: (1) collaboration and (2) networking (Table 6).

3.5.1. Collaboration

The collaboration, the first indicator of the fifth domain, was found to be informed by the following core matters:

- *Knowledge management sharing plans*
- *Effective, responsive, and innovative collaboration ways*
- *Collaboration at the school level*
- *Collaboration at the community level*
- *Collaboration at the organizational level*
- *Collaboration at the educational administration level*
- *Collaboration at the education staff organizational level*
- *Collaboration at the parents' association level*
- *Collaboration at the stakeholders' level*
- *Collaboration at the policy level*

TABLE 6 Domain of communications.

Domains	Indicators	Core subjects per indicator
3.5. Communications	3.5.1 Collaborations	*Knowledge management sharing plans*
		Effective, responsive, and innovative collaboration ways
		Collaboration at school level
		Collaboration at community level
		Collaboration at organizational level
		Collaboration at educational administration level
		Collaboration at education staff organizational level
		Collaboration at parents' association level
		Collaboration at stakeholders' level
		Collaboration at policy level
	3.5.2. Networking	*Continuous interconnection*
		Knowledge exchange
		Support

An inclusive school process can be promoted through knowledge management. Knowledge management refers to knowledge dissemination through the strategic sharing of practices and information between sectors (Gonçalves Costa et al., 2021). The ultimate aim of knowledge management is to maximize the contributions of the members of the school community with teachers and students sharing, constructing, and practicing knowledge (Zikargae, 2020). Furthermore, successful school management sharing, namely, the effective sharing of processes and/or technological tools within and outside the school community and society, complies with the required responsive pedagogical approaches and tools (Kundu and Bej, 2021).

There is ample evidence that supports the need for collaboration between the school community with its principals and teachers along with other stakeholders such as education staff organizations and institutions. After all, schools are educational organizations functioning as complex systems within the broader political, social, and economic realms (Jäppinen, 2014). Therefore, when addressing the needs of a complex school environment, leadership should be distributed among several stakeholders based on mutual collaboration to be responsive and innovative (Hempsall, 2014; Kezar and Holcombe, 2017; Boscardin and Shepherd, 2020).

3.5.2. Networking

The networking, the second indicator of the fifth domain, was found to be informed by the following core matters:

- *Continuous interconnection*
- *Knowledge exchange*
- *Support*

Evidence-based datum has repeatedly validated the significance of policy-making that facilitates uninhibited opportunities for networking and collaborating as regards to educational personnel. Networking and collaboration improve not only the continuous interconnection and knowledge exchange, but further enhance understanding, build security, and provide emotional support among each other (Hunter-Johnson et al., 2021). In this process, parents' association(s) can act as a community of advocates for disabled students' rights and their representation (by students themselves). As individual members of the association, parents depend on and support each other, whereas as a collectivity, the association can communicate the need for a positive and enabling environment for the students to flourish (Ärlemalm-Hagsér et al., 2021). In the education of SwDs, the parent's voices are often ignored (Oliver and Barnes, 2012b). The emancipatory paradigm in the Disability Studies field recommends a collective effort toward the democratization of education and students' empowerment (Hughes, 2004; Finkelstein, 2007).

3.6. Organizational preparedness polices

The following three indicators were identified under the domain of organizational preparedness policies: (1) organizational policies related to organizational preparedness, (2) inclusive school culture as a factor to disability-inclusive organizational preparedness, and (3) socio-educational challenges in the development of organizational preparedness plans (Table 7).

3.6.1. Organizational policies related to organizational preparedness

The organizational policies related to organizational preparedness, the first indicator of the sixth domain, was found to be informed by the following core matters:

- *Organizational readiness for crisis management*
- *Organizational readiness for crisis preparedness*
- *Organizational responsiveness to crisis management*
- *Monitoring and reviewing the organizational responsiveness*
- *Technology awareness and technology management*
- *Whole-of-organization and whole-of-society management approach*
- *Organizational leadership at the educational organization level*
- *Organizational leadership at the educational administration level*

The recent pandemic acted as a test for several governments and their readiness for crisis management proving insufficient the official policies in place. Although often the failure of a policy, implementation is attributed to local factors; in the case of the pandemic, the "interested citizenry" along with the "committed teachers" materialized the need for further policies inspired by "best practices" implemented globally (Goldschmidt, 2020). Ceballos et al. (2021) highlighted the role of school leaders and their level of readiness to change potential as well as real risks and their strategic responses to these changes along with leadership (personal and professional) qualities such as their emotional stability at a time of intensive social change.

On the contrary, in higher education, according to Kozyreva and Nadtoka (2020), although the sense of disaster awareness is maximized, higher education institutions still lack response strategies or programs crucial for disaster preparedness and disaster risk reduction (DRR). In addition to that, in some cases, policy instruments are not developed according to realistic expectations. The problems that arise from a crisis can be predicted, nevertheless, when policies disregard reality and fail to present to the invested public the expected outcomes, people cannot be satisfied (Zhang et al., 2020). It is suggested that policy development should ensure people comprehend the concept of micro-readiness in advance, not just afterward (Kundu and Bej, 2021).

Particularly for the transition to e-learning during the COVID-19 pandemic, which was driven and inspired by universities as a mode of teaching, the success criteria reported were increased technology awareness (such as the e-learning platforms) from teachers and students, support from management, and technology management (Harrison and Barber, 2021).

3.6.2. Inclusive school culture as a factor to disability inclusive organizational preparedness

The inclusive school culture as a factor to disability-inclusive organizational preparedness, the second indicator of the sixth domain, was found to be informed by the following core matters:

- *Inclusive culture at the educational organization level*
- *Inclusive culture at the educational organization's leadership level*
- *Inclusive culture at the stakeholders' level*
- *Inclusive school culture as an enabler or barrier to inclusive school practices*

An important indicator that emerged from the current scoping review was the role of the organizational inclusive culture. The school community with all stakeholders involved in the decision-making of a

TABLE 7 Domain of organizational preparedness policies.

Domains	Indicators	Core subjects per indicator
3.6. Organizational policies related to organizational preparedness	3.6.1 Organizational policies related to organizational preparedness	*Organizational readiness for crisis management*
		Organizational readiness for crisis preparedness
		Organizational responsiveness to crisis management
		Monitoring and reviewing the organizational responsiveness
		Technology awareness and technology management
		Whole-of-organization and whole-of-society management approach
		Organizational leadership at the educational organization level
		Organizational leadership at the educational administration level
	3.6.2 Inclusive school culture as a factor to disability-inclusive organizational preparedness	*inclusive culture at the educational organization level*
		inclusive culture at the educational organization's leadership level
		inclusive culture at the stakeholders' level
		Inclusive school culture as an enabler or barrier to inclusive school practices
	3.6.3 Socio-educational challenges in the development of organizational preparedness plans	*Aggravation of academic performance due to exacerbation of preexisting social challenges, in particular for vulnerable, disadvantaged, and marginalized students*
		The educational challenges related to social challenges being an integral part of the organizational preparedness plans

school needs not only to collaborate but also to share a common vision of an inclusive school culture, inform accordingly practices, and manage effectively conflicts. The role of school culture in enabling or hindering inclusive practices has been evidenced in prior research (Vlachou, 2006; Bristol, 2015).

Shulekina et al. (2021) presented some of the characteristics attributed to an organizational inclusive culture featured in the European context of an educational setting in the Russian Federation. Teachers' and leaders' use of language in each school setting revealed the assumptions underpinning each inclusive school culture informed by societal and cultural norms reflected in policies. Teachers "language-in-use" (Abawi and Oliver, 2013) provided researchers with "clues as to how educational rhetoric and policy were translated into practice" (Conway and Abawi, 2013). Researchers supported the need for each school to ensure provision of inclusive learning opportunities to everyone. However, a question arises regarding the differences and commonalities between countries regarding the leadership practices that need to develop and sustain an inclusive school culture for all students.

3.6.3. Socio-educational challenges in the development of organizational preparedness plans

The social challenges, the third indicator of the sixth domain, was found to be informed by the following core matters:

- *Aggravation of academic performance due to exacerbation of preexisting social challenges, in particular, for vulnerable, disadvantaged, and marginalized students*
- *The educational challenges related to social challenges being an integral part of the organizational preparedness plans*

As per the findings of the explored literature, online teaching challenged students' performance; yet, the most critical factors affecting online learning and academic performance derived from social, technical, assessment, and communication challenges (Khanal et al., 2021). For example, the study on factors influencing the online learning systems of UAE Business students during the COVID-19 pandemic showed that e-assessment and social challenges played a critical role but remain untapped (Shishakly and Sabah, 2021). According to the findings of the abovementioned study, the pre-pandemic most vulnerable students (such as disabled students, students from low socioeconomic backgrounds, students with English as an additional language) were evidenced to struggle in their academic performance even more after the school closure. Their academic performance was worsened during the pandemic due to a lack of access to mental health services, nutrition, academic materials, and resources and targeted interventions through online learning (Masonbrink and Hurley, 2020; Stenhoff et al., 2020).

Overall, research has reported a lack of preparedness identifying how prior preexistent social challenges were aggravated when schools transitioned to online learning due to the pandemic with disadvantaged and marginalized students calling for further individualized instruction, support, and intervention programs (DeMatthews et al., 2021). The need to commit to the continuous change taking into account the pandemic-related social challenges was made clear as a key driver of organizational preparedness policies.

4. Discussion

Addressing the unprecedented implications of the current pandemic on education and disability, this scoping review explored the gap in educational organizations' preparedness and, in particular, the unmet psychosocial and educational needs of SwDs. The scoping review identified six organizational preparedness domains and 14 indicators that can be applied in the development of a comprehensive organizational preparedness digital tool for educational modalities, addressing the needs of SwDs. It may also support the organizational preparedness plans elaborated by decision and policymakers in their effort to get educational organizations properly prepared to respond to a future crisis.

Taking into consideration, the fundamental shift required to be taken in educational organizations' preparedness, the identified six domains (resources, human resources, teaching processes, educational

practices, communications, and organizational policies related to organizational preparedness) and the 14 indicators were informed by the system thinking change framework. As such, the harvested research items serve a common clear purpose ("educational organizations' preparedness in pandemic context"), they reflect the system's constituent parts (educational organizations, disability, community, policy), and last but not least, they are highly interconnected and intertwined.

In particular, the first domain, referring to the provision of resources (namely, equipment, technological infrastructure, logistics, emergency funding, resource availability, and buildings), demonstrates that resources play a critical role in the efficacy of educational modalities' initiatives with a focus on the psychosocial and educational needs of SwDs in pandemic contexts. Ainscow (2020a,b) highlighted that poor and low resources were associated with poor response services to the needs of SwDs during the period of pandemic (Feely, 2020; Ainscow, 2020a,b).

Especially, the ICT-related initiatives are considered to have the utmost impact among other resource components since they are enabling both the use of innovative educational resources and the renewal of learning methods. On top of that, the properly embedded ICT may foster the interactive, fruitful collaboration of students and personnel and trigger up-to-date technological knowledge. However, the accessibility to ICT by all students has not been properly addressed yet (United Nations Educational, Scientific and Cultural Organization, Institute for Information Technologies in Education (UNESCO IITE) and the European Agency for Development in Special Needs Education, 2011). People with disabilities have been deprived, and still are, of full, unconditional access to and equal use of digital technologies, a barrier that has been widely discussed in recent literature reviews. Although the global disability community advocates the development and use of new ICT resources for equal and quality education, the current research found that the SwDs' pandemic-related psychosocial and educational needs remained untapped and that they have to be included in the preparedness plans of educational organizations.

An additional barrier that stakeholders need to address in effective policymaking as regards to SwDs' access to resources is the interconnection of SwDs' financial status and their disability. It has been acknowledged in the literature that poverty and disability are closely associated with limited participation in the educational process (Armstrong and Spandagou, 2009; Armstrong, 2012; Karagianni, 2017). Unfortunately, "Poverty and disability are an inseparable pair" (E.S.A.meA. – Observatory of Disability Issues [Ε.Σ.Α.μεΑ. – Παρατηρητήριο Θεμάτων Αναπηρίας], 2020). People with disabilities represent the most financially deprived and excluded group as regards the uninhibited access across educational modalities (Karagianni, 2017).

Educational personnel have been recognized for their profound impact on the organizational preparedness of educational entities during the pandemic crisis. The role of the educational personnel, including teachers, educational administration personnel, disability specialists, therapeutic personnel, and school psychologists has been critically decisive in counterbalancing the pandemic-related challenges in the delivery of teaching. The highlighted critical role of the educational personnel in pandemic times is aligned with the published literature stating that they can combat exclusionary perceptions and practices, hence promoting equal opportunities, enacting inclusion and social justice overall (Baglieri and Knopf, 2004; Avramidis and Kalyva, 2007; Haller and Novita, 2021). Therefore, it is evident in this study that educational personnel played a key role in addressing the educational exclusion of SwDs in the distance learning process. Clearly, the research

findings are aligned with published inclusive education literature. Baglieri and Knopf (2004) argued that educators can combat exclusionary perceptions and practices by means of promoting equal opportunities and social justice. Avramidis and Kalyva (2007) in their research offered a three-fold explanation for enacting/promoting inclusion of SwDs in education: support of educators, provision of professional development, and educational materials. Additionally, the literature reaffirms the significance of educators' commitment to fostering diversity so that teaching can benefit all students (Upadhyay and Albrecht, 2011).

As regards the third and fourth domains, the educational practices (student-centered learning, curriculum and content, assessment) and teaching processes (inclusive educational practices, parents' participation in the educational processes), respectively, the current review found that they both have been equally compelling domains across different educational organizations' preparedness modalities. The educational practices and the teaching processes constitute structural integral pillars in education overall (Thomas et al., 1998; Slee, 2010; Zoniou-Sideri, 2012). The stated domains are in a continuous interrelation; hence, it is mandatory to be investigated under the same interpretational and methodological framework. In particular, the inclusive dimension of the adopted educational practices during pandemic times has been found to be suboptimal and is often associated with the preexisting inclusive school culture. For example, the inclusive school culture embedded in educational practices signifies value-related aspects, the importance for the SwDs pupils to feel welcomed and recognized, enjoy respect, and feel unique (Zoniou-Sideri, 2012). Furthermore, it has been reported that the adopted educational practices suffer from the lack of an adequate flexible and student-centered learning approach based on students' individual needs. As such, recent studies underlined that any future policy-making has to incorporate flexibility, student-centered learning based on students' individual needs, and the pace of learning as distinct constituent components respecting the balance dynamics among these components. In addition, Dellasoudas (2005) reports that the application of inclusive principles and the foundation of innovative practices in the curriculum design results in effect in the adaptation of the curriculum according to students' needs. Such an initiative not only aligns with a responsive, flexible, and often-specialized teaching approach, but it further supports SwDs' overall acceptance of their differences, their overall inclusion within the continually evolving educational process, as well as the overall quality of their teaching.

Communication, the fifth domain, has been found to be of major importance in the educational process. Communication has a pivotal operational function within the complexity of any educational organization. Schools are complex intertwined organizations that operate simultaneously at multiple levels of the decision-making process as regards inward and outward policymaking, financing human resources, mentoring initiatives, research and innovation, lobbying with political parties, connectivity, and interchange with large-scale societal or small-scale communal entities (Jäppinen, 2014). Hempsall (2014) and Kezar and Holcombe (2017) have verified that advancing the efficacy of communication channels coupled with broad-minded and enlightened leadership, particularly one that cultivates collaboration and conflict resolution results in the educational systems' overall wellbeing. This study allies with the aforementioned approach and argues for a 2-fold strategy implementation.

The first strategic pillar is the advancement of the collaboration between the two key school stakeholders: the teachers and the parents. Both agents should be treated not as passive recipients of externally

imposed communication guidelines and initiatives but rather as actively involved participants in the decision-making process for all issues concerning the educational process, content knowledge, and accessibility for all involved partners, regardless of their social, political, physical, mental, or other backgrounds, aiming at securing the overall wellbeing of students (Yilmaz and Yeganeh, 2021).

The second strategic pillar, networking, is associated with the facilitation of an unhindered sharing and knowledge construction mentality and culture within every educational organization. Communication has been described as an integral part of effective knowledge sharing and interconnectedness among the constituent parts of any educational system (e.g., students, teachers, families, community, disability experts, educational administrators, and policymakers). Consistent, systematic, and timely communication within the education and disability stakeholders' network has been considered a requirement for proper, comprehensive, and efficient collaboration, which may ensure the effective response to the psychosocial and educational needs of all pupils, particularly relevant and mandatory for the SwDs population during the pandemic challenges. Crisis contexts, such as the recent pandemic crisis, call for increasing alertness and involvement of all main stakeholders in the educational process so as to further advance and improve the process efficacy in addressing both the short- and long-term emerging needs of all student populations, particularly the SwDs. The establishment of an advanced and condensed network collaboration aimed at fostering proper and adequate access to inclusive education emerges as a key challenge, which is especially relevant at present times.

The study findings are aligned with published literature on the fundamental role of collaboration of all stakeholders in promoting inclusive education (Barton, 2003; Vlachou and Zoniou-Sideri, 2009; Slee, 2010). The important role and complex demands carried by the SwDs' families have also been discussed extensively. The lack of organizational preparedness reflected on parents/caretakers of SwDs pupils, who have been called upon to undertake multiple and disproportionate roles without prior education, deprived of the provision of any kind of support, is further hindered by insufficiencies inherent in various educational modalities or deprived of the lack of a comprehensive, consistent through time, primarily unanimous, and decisive overall policy-making.

The importance of the sixth domain, the organizational preparedness policies and the respective three indicators, has been highlighted in the findings of the study. The organizational policies and the inclusive culture reaffirm the complexity inherent in the formulation, decision-making, and its respective implementation. Furthermore, perplexed intertwined communications among the four key systemic stakeholders and, in particular, the political supervising agents of the educational modalities, the teaching personnel, the parental associations, and the students were identified/reported by this study. Policies concerning organizational preparedness particularly issuing policies within crisis contexts appear to exert far more pressure and complexity since they require all involved parties to arrive at an optimum consensus, a challenging, and frequently dangerous endeavor.

Being prepared in the pandemic context requires that a whole-of-society and a whole-of-system approach must be applied having ensured a broadened consensus among all involved parties. Organizational preparedness entails flexibility, openness, and readiness to change. Effective preparedness policies require an innovative, creative, flexible, open-minded planning mentality and inclusive culture with a clear preparedness aim. The preparedness aim for educational organizations should be to proactively prepare to respond effectively and inclusively

in crisis contexts. Preparedness planning and issuing of relevant policies considering all complex interconnectedness and interactions is a dynamic and adaptive process that regularly demands all involved stakeholders to collaborate and negotiate. The current review confirms evidence-based research results as regards the organizational preparedness policies' priority concerning the SwDs target group that requires additional attention as it often happens, especially, in crisis contexts to be prioritized second as far as their psychosocial and educational needs are concerned. The psychosocial needs of SwDs have been overlooked, whereas the rising parents/caretakers' concerns have been ignored conveniently. Although the educational organizations may tailor their strategies based upon preexisting system capacity and resources to recover from the pandemic aftereffects, it is important to get properly prepared for the next crisis by actively committing to quality education for all students, by doubling down on fundamentals of inclusive educational excellence and by capitalizing on adaptive educational technology.

Considering the profound spillovers of the pandemic to educational organizations, a radical systemic change needs to be considered for developing effective organizational preparedness policies and plans. Researchers acknowledge the importance of each identified organizational preparedness domain and indicator. Undoubtedly, all identified domains and indicators play a critical role in informing preparedness plans for educational organizations in pandemic crisis times. Their interconnectedness and interactions have to be considered as a dynamic and adaptive process informed regularly by all involved stakeholders. UNESCO (2016) foregrounds that decision-making on educational processes requires collaboration between all involved stakeholders, further supported by the findings of this study. The physical restrictions imposed by the current pandemic forced all of us to take a quick but fresh eye on educational technology and its potential. However, the human factor is irreplaceable and has to be embedded properly in the educational process. In the case of SwDs, additional attention has to be given to serve properly their psychosocial and educational needs and those of their families/caretakers.

The identified domains and indicators may support the educational organizations in their efforts to assess organizational preparedness and to determine and monitor their organizational response to the next pandemic crisis COVID-19 caused a global learning crisis. The unparalleled impact of the pandemic on student learning and wellbeing and on educational systems increased learning inequalities within and beyond the educational systems. It widened the gap in access to inclusive education; in other cases, it increased the preexisting lack of inclusive school culture. The psychosocial needs of SwDs have been overlooked, whereas the rising parents/care takers' concerns have been bypassed conveniently. Although the educational organizations may tailor their strategies based upon preexisting system capacity and resources to recover from the pandemic aftereffects, it is important to get properly prepared for the next crisis by actively committing to quality education for all students, doubling down on fundamentals of inclusive educational excellence, and capitalizing on adaptive educational technology.

Being prepared means being ready for change. The pandemic is only part of the story, whereas the socioeconomic implications are pivotal and the knock-on effects are much more far-reaching and long-lasting. Being prepared in the pandemic context means that a whole-of-society and a whole-of-system approach must be considered. It also means that we need to think creatively and plan to turn this pandemic into an opportunity for redressing social flaws and achieve systemic and inclusive change.

5. Limitations

Scoping review challenges have been identified dually as strengths and challenges, such as the broad scope, flexibility, quality of the included studies, the inclusion of grey literature posing questions on established boundaries to the study scope, the iterative process, and the feasibility in terms of potential requirements for increased time and resources (O'Brien et al., 2016). However, the authors reckoned that the strengths outbalanced the potential challenges for this study; the breadth and novelty of the research topic in terms of collecting and collating data from several fields within an evolving, pressing, and unprecedented context were considered very important factors to determine the broader possible boundaries of this research. Although the research navigated through unchartered waters to reach new frontiers in research and practice in special education, the adopted method was considered to provide robust results in benchmarking the organizational preparedness in educational organizations.

In addition, this review is limited to mapping and coding the preparedness domains and indicators for educational organizations. The research has not addressed the effectiveness of curricula, professional development, or other educational interventions within the pandemic crisis context. Although these are very important and related topics to this study, they are beyond the scope of this review.

Furthermore, this study explored only articles written in English, which may have elicited only in applicable studies not being included in this scoping review. In addition, although the authors attempted to identify connections and build on findings among various fields, the acquired knowledge may be considered less cumulative than might be optimal. For instance, the theoretical approaches selected for this scoping review were deemed appropriate; still, scholars in other disciplines may have used different theoretical frameworks.

The organizational preparedness for change is molded/determined by contextual factors (e.g., organizational resources, structure and culture, existing policies, and procedures and past experiences) and informational assessment (e.g., situational factors, resource perceptions, and task demands); in turn, those factors create a receptive context in terms of the content and the organizational context of the change and ultimately influence the change valence (Pettigrew, 1992; Weiner et al., 2009). Furthermore, the organizational preparedness for change is greatly influenced by the organizational members' change commitment and change efficacy to implement the organizational change to put it simply, and the concept "organizational readiness" indicates the state of being both willing and able to pursue the courses of action required to implement change (Weiner et al., 2008, 2009).

Data availability statement

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

Author contributions

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/feduc.2022.1029163/full#supplementary-material

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