



## Research Article

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# Differentiated Methodological Strategies for Inclusive Education in Basic Education: Scoping Review

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## Abstract

*In response to SDG 4 which seeks quality education, differentiation as a pedagogical approach to broad contexts of students with and without learning problems, it is necessary for teachers to know the differentiated strategies that allow them to satisfy the educational needs of students. The main objective of this work was to provide a systematization of the scope of the literature on differentiated methodological strategies for inclusive education in basic education, according to the journals indexed in the database Scopus, Web of Science, and Eric, taking as its beginning the year 1999, the year of the internationalization of the term differentiation with the work of Tomlinson. The Prisma methodology was applied, selecting 78 investigations and 30 articles as the final sample. For the purposes of synthesis and analysis of the findings, 6 macro categories have been categorized: in the context of each country, in school study areas, in the classroom, differentiated strategies, over-age and effective strategies, and disability. In conclusion, it was found that in various scenarios, attention to diversity through differentiated strategies benefits learning.*

**Keywords:** *Differentiated strategies; differentiation; differentiated instruction; inclusive education*

## 1. Introduction

The Salamanca Declaration and the Framework for Action on Special Educational Needs suggested that curricula be adapted to the needs of children, leading education systems to look for ways to promote the inclusion of students of all abilities and backgrounds. In inclusive schools (UNESCO, 1994; Maia Ferreira et al., 2020). In 2008, the United Nations ratified the Convention on the Rights of Persons with Disabilities (CRPD), reaffirming the right to inclusive education. Inclusive practice

refers to teaching practice in inclusive classrooms and is relevant because it is constituted within the SDG 4 proposal that seeks quality education, addressing diversity and educational inclusion, to overcome the educational barriers that hinder such quality education, understanding that each student has different ways and means of learning (Prediger & Buró, 2021), that is, they have different individual educational needs (UNESCO, 2015). Differentiation is a flexible pedagogical approach to teaching; it seeks to meet the needs of diverse students in heterogeneous classrooms (Graham et al., 2021; Tomlinson & MINEDUC-CPEIP, 2021).

While inclusion is based on the premise that all students with and without disabilities are entitled to equal opportunities to study, inclusive educational practices oppose standardized teaching practices and seek quality education focused on educational needs and individual characteristics (Arnaiz Sanchez, 1996; Booth & Ainscow, 2000; Brussino, 2021). Differentiation is a broader approach insofar as it serves as a framework for inclusive practice, by proactively planning learning experiences, recognizing the value of diversity by considering each student as unique to enrich education (M. B. Peterson-Ahmad et al., 2018; Onyishi & Sefotho, 2020; Tomlinson & MINEDUC-CPEIP, 2021), involves students with learning difficulties and diverse learning (Ford, 2013) by maximizing their capacity and making a difference by identifying and addressing the individual needs of students rather than treating the class as a whole (Tomlinson & MINEDUC-CPEIP, 2021). The advantage of differentiated teaching is that it offers learning opportunities to all students in an inclusive classroom (Ford, 2013; Padmadewi et al., 2017).

Directing our gaze toward differentiation is to encompass a broader context, which involves respecting the educational needs of each student, that is, attending to diversity diversity (Doubet & Hockett, 2015; Tomlinson, 2000a) not only students with disabilities, as classrooms are heterogeneous. The strategies that apply to this diversity of students are differentiated strategies (Tomlinson & Vitale, 2005).

The strategies to attend differentiated classrooms are the planned actions that allow to meet the needs of each student in a proactive manner, having the teacher readjust his teaching to maximize the learning of the diversity of the students, can be differentiated general strategies such as teaching communication skills, studying, giving clear and precise instructions as work in stations and projects (Tomlinson & Vitale, 2005; Roiha & Polso, 2021a), using flexible groupings, linked more to differentiation rather than fixed groupings that are not as Tomlinson explains in his most recent work (Tomlinson, 2017; Graham et al., 2021).

Inclusive strategies must meet certain requirements, such as being personalized, since differentiation provides a degree of individualization within heterogeneous groups of students, without going to the extreme of separation, seeking autonomous development and cooperative learning work (Pujolàs Maset, 2002; Graham et al., 2021), achieving learning through group work of individual students, rather than performing different tasks at separate levels (Riordan & Convery, 2022). The strategies that contribute to improving inclusive classroom management are: cooperative learning, dialogic learning, service and community learning, regulation and self-regulation of learning, to promote social and comprehensive participation (Moliner Garcia et al., 2017; Orozco & Moraña, 2020; Pujolàs, 2015).

In the TAI (Team Assisted Individualization) each student works in a personalized way on a common learning task, helping each other to achieve the objective and mentoring between peers, in which a student tutor guides his peers, should the teacher choose them, guide them. content, and evaluation, among others (Pujolàs Maset, 2001). Dialogic learning strategies promote discussion and dialogue among students to build knowledge and develop social skills. Community service and learning strategies connect learning with the community and service through projects and activities that address real problems. Regulation and self-regulation learning strategies help students develop skills to regulate their own learning, such as planning and organization.

On the other hand, strategies to promote social participation encourage students to participate actively in the social and cultural life of school and community, comprehensive strategies are approaches that combine different strategies to promote educational inclusion, adapting them to the

individual needs of each student and the particularities of the classroom (Pujolàs Maset, 2001, 2002; Moliner Garcia et al., 2017; Orozco & Moraña, 2020).

In reference to differentiated strategies, a configurative review article on differentiation in education has been found in the Scopus database, based on exploration and analysis of the available literature to better understand the definition in the current educational field. The authors hope to contribute to a pedagogical approach that adapts to the educational policies of Education for All (EFA) and Inclusive Education (IE), (Eikeland & Ohna, 2022). A review of the literature on differentiated instruction was placed in the Scopus database, whose purpose is to provide a taxonomy of differentiated instruction at the secondary level with heterogeneous classrooms. This research lasted 8 months from March to November 2018, performing a detailed review of 123 sources in English and German as national educational reports from several countries, such as Austria, Germany, and the United States, excluding the practice of grouping between classes and in another language (Pozas & Schneider, 2019).

A systematic review and narrative synthesis article was placed in Scopus to analyze and examine differentiation and individualization in inclusive education in order to improve understanding of practices, approaches, and results of differentiation and individualization in the context of inclusive education, with 17 final articles, between 2008 and 2018, working with WoS, ProQuest Education Database and JSTOR databases (Lindner & Schwab, 2020). Similarly, in the WoS database, a systematic review and thematic analysis were identified to determine how differentiated instruction by Australian teachers was carried out, from 2010 to 2019 (Gibbs & McKay, 2021). A systematic review article and meta-analysis aimed at examining the most recent evidence on the effects of differentiation practices in primary education and how they can improve the performance in language and mathematics of students with different levels of skill. In addition, it seeks to analyze how these practices have been implemented in different studies and explore the theoretical objectives behind differentiation. The SSCI (Social Sciences Citation Index) Eric and PsycINFO database were used and references cited in this database were also searched with 21 final articles (Deunk et al., 2018).

Within the area of differentiation, taking into account that this is not only specific to the field of disability, but also to the attention of diversity in school (Pozas & Schneider, 2019; Lindner & Schwab, 2020), with students who require educational attention according to their individual characteristics, it is concluded that despite the search carried out, systematic reviews leave a gap with respect to differentiated methodological strategies. At the basic level, only a systematic review and narrative synthesis from 2020 has been found, which gathers information from 2008 to 2018 that refer to five areas of educational inclusion (Lindner & Schwab, 2020).

In this context, the objective of this scoping review was to provide an overview of research on differentiated methodological strategies for inclusive education in basic education, through the identification of articles per year and database, identification of methodological characteristics, analysis, and synthesis according to the macro and micro categories of the studies.

## 2. Methods

In the present study, the scoping review was used to obtain a global understanding of primary studies through the phases provided by Arksey & O'Malley (2005) and Grant & Booth (2009), such as developing the research question, determining inclusion and exclusion criteria, search strategy, selection of studies, and Extraction/classifying relevant studies.

### 2.1 Research questions

For the present scope review, the following research question was asked: What is known from the literature regarding differentiated methodological strategies for inclusive education in basic education in the database of Scopus, Web of Science and Eric?

## 2.2 Inclusion and exclusion criteria

An automatic search was performed in the databases of the category under study, according to the inclusion and exclusion criteria.

The inclusion criteria were: a) Type of publication: articles; b) Period of publication: 1999; c) Open access; d) Language: English Portuguese, Spanish; e) Country/Region: globally; f) No duplicate articles; g) The title and summary include the descriptor; h) Full-text articles; i) Original empirical studies with experimental or quasiexperimental, preexperimental or nonexperimental designs or qualitative designs; j) Studies in basic education.

The exclusion criteria were: a) Type of publication: Conference proceedings, books, or chapters of books or other publications; b) Period of publication < 1999; c) Restricted access; d) Nonsocial thematic area; e) Repeated articles; f) Not included in the title or summary, the descriptor; g) Articles in full version not recovered; h) Literature and theoretical review studies; i) Studies carried out at higher level.

## 2.3 Search strategy

The systematic search strategy for peer-reviewed articles was carried out from May to June 2023. The selected studies correspond to journals indexed in the database of Scopus, Web of Science, and Eric, using the Boolean operators AND, OR as connectors of combined descriptors in English, these were: (differentiat\* and instruct\* or teach\*) and (strategies) and (school OR primary education OR secondary education schools) and (differentiat\* and instruct\* or teach\*) and (strategies inclus\*) and (school OR primary education OR secondary education OR secondary schools). Inclusion and exclusion criteria and peer work were applied to avoid bias.

## 2.4 Study selection

After analyzing the preliminary results presented in Table 1 and applying previously established filters and limits, a total of 78 articles were identified. From this amount, those in which the keyword was not found in the title or summary were excluded, as well as those that were not available in full and focused on the higher level. As a result of this process, 30 articles were finally obtained and selected for review.

## 2.5 Extraction/classifying relevant studies

A matrix of data in Excel was used to organize the information extracted from the Scopus, Wos, and Eric databases, such as author, year, journal title, objective, approach, design, instruments, relevant results, DOI/URL, and country.

## 3. Results

To ensure a complete search of the purpose of the research, which is to specify what is known from the literature regarding differentiated methodological strategies used in inclusive practices in basic education, electronic databases have been used taking into account related primary articles. To research categories, in addition to placing the research in the cited references. The database Scopus, Wos, and Eric has been used, using the combinations of keywords detailed in Table 1, in English and Portuguese, to find the information presented in the indicated quantities.

Table 1. Preliminary search results in databases according to search strings

Search string	Total			
	Scopus	Wos	Eric	
( differentiate * and instruct * or teach *) and (strategies) and ( school OR primary education OR secondary education OR secondary schools)	393	-	-	393
(differentiate * and instruct* or teach*) and (strategies include *) and ( school OR primary education OR secondary education OR secondary schools)		3. 4	25	59
<b>TOTAL</b>	393	3. 4	25	452

During the identification stage, 452 articles related to the study categories have been located. At this stage, those researches with restricted access, coming from books or book chapters or other types of publications, those whose thematic areas do not correspond to the study, were eliminated. field of social sciences, those in which the investigated categories do not appear in the title or summary, or as keywords. In the selection stage, made up of 78 articles, those investigations that, after reading the title and summary, were outside the purpose of the research, which is to identify differentiated methodological strategies, or inclusive practice strategies, were filtered for exclusion. It should be noted that during the exclusion stage, articles in full version that could not be recovered, and those studies carried out at a higher level were excluded. Additionally, an Excel database was used to list the selected articles with the different keywords, removing duplicate articles. In the inclusion stage, once the eligibility criteria were applied, 30 articles were found as a final sample.

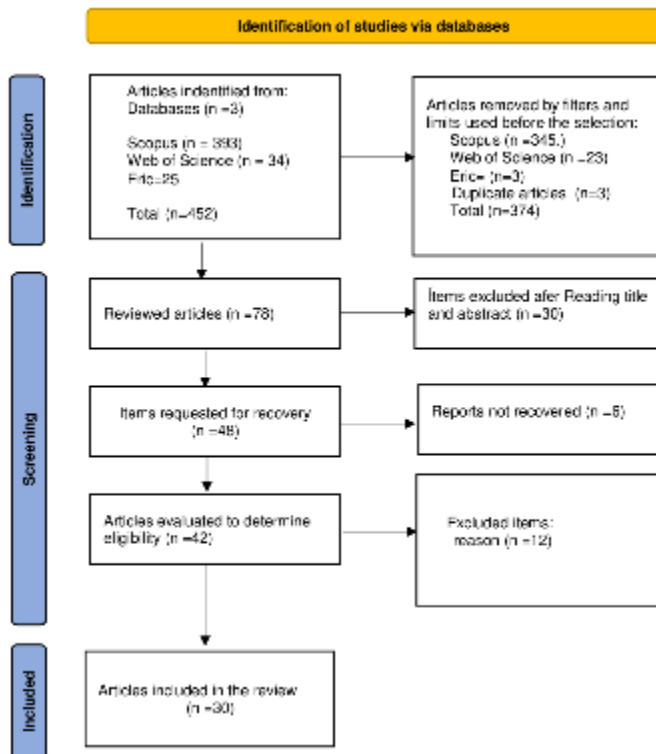


Figure 1. Scoping Review flow diagram

The year 1999 was taken as a starting point, the year in which Tomlinson internationalized the term differentiation in his works, finding articles from 2002 onward. The following graph shows the upward evolution of publications from 2002 to 2023, from the Scopus, WoS, and Eric databases, with respect to the number of articles on differentiated methodological strategies for inclusive education in basic education. As can be seen, in the graph the Scopus database presents a greater number of publications than WoS and Eric, in the last five years, and an increasing trend of publications is expected in the coming years in WoS and Scopus.

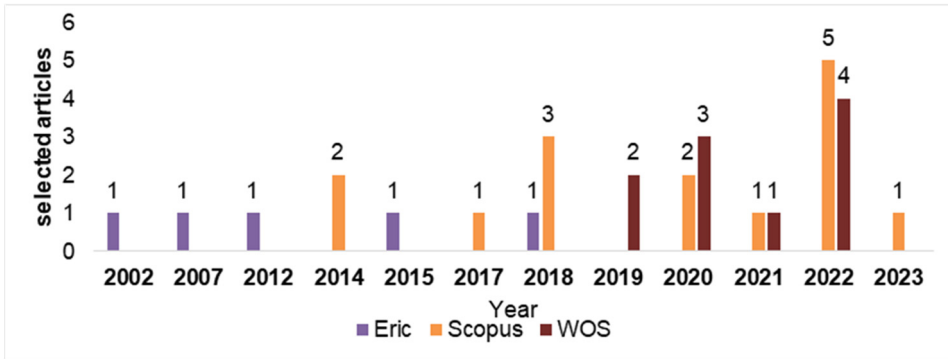


Figure 2. Evolution of publications in the Scopus, WoS and Eric databases.

According to Table 2, it can be seen that in terms of the number of authors per research, of the total (n=30) studies, 8 correspond to an author (Cawthon, 2001; Deroche, 2013; Haelermans, 2022; Malebese, 2017, 2019; Motitswe, 2014; Saloviita, 2018; Vassiliades, 2022). There are 7 researches by 2 authors (Magableh & Abdullah, 2022; Padmadewi et al., 2017; Gibbs & Beamish, 2021; Easa & Blonder, 2022; Onyishi & Sefotho, 2020; Hyry-Beihammer & Hascher, 2015; Orozco & Moriña, 2020) and 15 are by 3 or more authors (Bolourian et al., 2022; Dukpa et al., 2021; Furrer et al., 2020; Harris et al., 2022; Maia Ferreira et al., 2020; Malebese et al., 2019; McGhie-Richmond et al., 2007; Nthibeli et al., 2022; Palacios-Garay et al., 2020; M. Peterson-Ahmad et al., 2018; Piliouras & Evangelou, 2012; Reina et al., 2022; Rietdijk et al., 2018; Sanches-Ferreira et al., 2022; Zerai et al., 2023).

Regarding the research methodology, the approach, design and instruments have been considered. Of 30 articles, 8 are quantitative (Magableh & Abdullah, 2022; Peterson-Ahmad et al., 2018; Haelermans, 2022; Saloviita, 2018; Furrer et al., 2020; Palacios-Garay et al., 2020; Sanches-Ferreira et al., 2022; Reina et al., 2022) of which we have a quasi-experimental (n=2), pre-experimental (n=1), experimental (n=1), non-experimental (n=2) design), as well as 2 unspecified. Regarding the instruments, 7 use questionnaires and 1 does not specify. In addition, 18 investigations are qualitative (Padmadewi et al., 2017; Gibbs & Beamish, 2021; Harris et al., 2022; Vassiliades, 2022; Maia Ferreira et al., 2019; Zerai et al., 2023; Onyishi & Sefotho, 2020; Motitswe, 2014; Hyry-Beihammer & Hascher, 2015; Malebese et al., 2019; Nthibeli et al., 2022; Malebese, 2019; Orozco & Moriña, 2020; Malebese, 2017; Deroche, 2013; Piliouras & Evangelou, 2012; McGhie-Richmond et al., 2007; Cawthon, 2001), from this group we have case studies (n=4), focus group (n=1), descriptive (n=1); action research (n=3); multicase study (n=1); content analysis (n=1), phenomenological (n=1) and unspecified (n=6). Regarding the instruments, we have an interview and critical analysis (n=2); interview guide (n=10) observation sheet (n=3); observation scale (n=1); not specified (n=2), some authors combine several instruments. There are 4 studies mixed (Bolourian et al., 2021; Dukpa et al., 2021; Easa & Blonder, 2022; Rietdijk et al., 2018), of which the methodology is not specified, but rather the use of questionnaire and interview. Guide (n=2) and interview guide and file are mentioned. observation (n=2).

Regarding population areas and regions, these studies appear with a higher incidence in South Africa (n=4), Australia (n=3), United States (n=2), Portugal (n=2), Netherlands (n= 2), Spain (n=2), Canada (n=2), Switzerland (n=1), Finland (n=1), Bhutan (n=1), Greece (n=1), Israel (n=1), Eritrea (n=1), Nigeria (n=1), Peru (n=1), Argentina (n=1).

**Table 2.** Distribution of articles according to their characteristics

Author/year	Approach/design	Instrument	Country
(Magableh & Abdullah, 2022)	Quantitative / quasi-experimental	Northeast	Jordan
(Padmadewi et al., 2017)	Qualitative and descriptive/case study.	Northeast	Indonesia
(Gibbs & Beamish, 2021)	Qualitative /NE	Interview guide	Australia
(Harris et al., 2022)	Qualitative/focus groups	Northeast	Australia
(Peterson-Ahmad et al., 2018)	Quantitative/pre and post test	Questionnaire	united states
(Vassiliades, 2022)	qualitative. interpreter/case study	Interview guide, observation. sheet.	Argentina
(Maia Ferreira et al., 2019)	Qualitative /NE	interview guide	Portugal
(Rietdijk et al., 2018)	Mixed/NE	Questionnaire, interview guide.	Holland
(Haelermans, 2022)	Quantitative/experimental design	Questionnaires	Holland
(Zerai et al., 2023)	Qualitative /NE	observation sheet.	Eritrea
(Easa & Blonder, 2022)	Mixed/NE	Questionnaire and interview guide.	Israel
(Onyishi & Sefotho, 2020)	Qualitative/descriptive	Interview guide.	Nigeria
(Motitswe, 2014)	Qualitative/case study	Interview guide, data collection sheet, participant observation sheet.	South Africa
(Hry-Beihammer & Hascher, 2015)	Qualitative/content analysis.	interview guide _	Australia and Finland
(Saloviita, 2018)	Quantitative / Non-experimental	Questionnaire	Finnish
(Furrer et al., 2020)	Quantitative/NE	Questionnaire	Swiss
(Palacios-Garay et al., 2020)	Quantitative/non-experimental	Questionnaire	Peru
(Malebese et al., 2020)	Qualitative/NE	Interview guide and information sheet.	South Africa
(Nthibeli et al., 2022)	Qualitative/phenomenological	Interview guide.	South Africa
(Dukpa et al., 2021)	Mixed/NE.	Structured interview guide, online questionnaire.	Bhutanese
( Malebese, 2019)	Qualitative/Action Research	Interview guide and critical analysis.	South Africa
(Bolourian et al., 2022)	Mixed/NE	Observation sheet, interview guide, questionnaire.	USA
(Sanches-Ferreira et al., 2022)	Quantitative/NE	Questionnaire.	Portugal
(Orozco & Morriña, 2020)	Qualitative/ multicase study	Interview guide.	Spain
(Reina et al., 2022)	Quantitative/quasi-experimental	Questionnaires	Spain
(Malebese, 2017)	Qualitative/Action Research	Interview guide and critical analysis.	northeast
(Deroche, 2013)	Qualitative/case study	interview guide	Canada
(Piliouras & Evangelou, 2012)	Qualitative/Action Research	Document analysis guide.	Greece
(McGhie-Richmond et al., 2007)	Qualitative/NE	Classroom observation scale.	Canada
(Cawthon, 2001)	Qualitative/NE	Observation sheet, interview guide.	northeast

The present study for analysis and synthesis purposes has considered six macrocategories corresponding to differentiation in the context by countries (Haelermans, 2022; Magableh & Abdullah, 2022; Maia Ferreira et al., 2020; Onyishi & Sefotho, 2020; Rietdijk et al., 2018; Saloviita, 2018; Zerai et al., 2023); six articles correspond to differentiation in school study areas (Easa &

Blonder, 2022; Malebese, 2017, 2019; Malebese et al., 2019; Padmadewi et al., 2017; Reina et al., 2022), five studies on differentiation in the classroom (Deroche, 2013; Furrer et al., 2020; Gibbs & Beamish, 2021; Harris et al., 2022; Hyry-Beihammer & Hascher, 2015)- (Peterson-Ahmad et al., 2018; Motitswe, 2014; Palacios-Garay et al., 2020; Orozco & Moriña, 2020; Piliouras & Evangelou, 2012), two articles about averaging , effective strategies (Vassiliades, 2022; McGhie-Richmond et al., 2007), five articles address differentiation and disability (Nthibeli et al., 2022; Dukpa et al., 2021; Bolourian et al., 2022; Sanches-Ferreira et al., 2022; Cawthon, 2001). The articles in turn address microcategories, which are the result of topics and categories addressed in a precise way by each article.

**Table 3:** Analysis and synthesis of the selected articles

Macrocategories	Microcategories	Authors
Differentiation in the context by country	<ul style="list-style-type: none"> <li>-Differentiated instruction (Magableh &amp; Abdullah, 2022).</li> <li>-inclusion; special education; pedagogical differentiation ( (Maia Ferreira et al., 2020).</li> <li>-Writing teaching, classroom practice, self-regulation strategies (Rietdijk et al., 2018).</li> <li>-Differentiation, motivated learning strategies (Haelermans, 2022).</li> <li>-Differentiated instruction and inclusive education, question modification strategy, mathematics (Zerai et al., 2023).</li> <li>-Differentiated instruction, inclusive education, diverse students (Onyishi &amp; Sefotho, 2020).</li> <li>- Differentiation, teamwork. (Saloviita, 2018).</li> </ul>	(Haelermans, 2022; Magableh & Abdullah, 2022; Maia Ferreira et al., 2020; Onyishi & Sefotho, 2020; Rietdijk et al., 2018; Saloviita, 2018; Zerai et al., 2023).
Differentiation in areas of school study	<ul style="list-style-type: none"> <li>- Differentiated strategies with students with autism spectrum in English (Padmadewi et al., 2017).</li> <li>- Differentiated instruction, teaching chemistry (Easa &amp; Blonder, 2022).</li> <li>- Socially inclusive teaching strategy (Malebese, 2017, 2019; Malebese et al., 2019)</li> <li>-Special educational needs, physical education, inclusion strategies (Reina et al., 2022).</li> </ul>	(Easa & Blonder, 2022; Malebese, 2017, 2019; Malebese et al., 2019; Padmadewi et al., 2017; Reina et al., 2022).
Differentiation in the classroom	<ul style="list-style-type: none"> <li>-Differentiated instruction (Gibbs &amp; Beamish, 2021).</li> <li>- Online student participation, teaching strategies (Harris et al., 2022).</li> <li>multigrade teaching (Hyry-Beihammer &amp; Hascher, 2015).</li> <li>- Teaching strategies and inclusive education (Furrer et al., 2020).</li> <li>- Inclusion, strategies (Deroche, 2013).</li> </ul>	(Deroche, 2013; Furrer et al., 2020; Gibbs & Beamish, 2021; Harris et al., 2022; Hyry-Beihammer & Hascher, 2015).
Differentiated strategies	<ul style="list-style-type: none"> <li>- Inclusion; pedagogy; special education; web 2.0 (M. Peterson-Ahmad et al., 2018).</li> <li>- Inclusive education, differentiation, strategy (Motitswe, 2014).</li> <li>Teaching strategies, inclusive practices (Palacios-Garay et al., 2020).</li> <li>- Methodological strategies of inclusive pedagogy (Orozco &amp; Moriña, 2020).</li> <li>- Inclusive strategies of teachers (Piliouras &amp; Evangelou, 2012) .</li> </ul>	(Peterson-Ahmad et al., 2018; Motitswe, 2014; Palacios-Garay et al., 2020; Orozco & Moriña, 2020; Piliouras & Evangelou, 2012) .
Surplus, cash strategies	<ul style="list-style-type: none"> <li>- Inclusion, surplus (Vassiliades, 2022) .</li> <li>- Inclusive strategies (McGhie-Richmond et al., 2007) .</li> </ul>	(Vassiliades, 2022; McGhie-Richmond et al., 2007) .
Differentiation and disability	<ul style="list-style-type: none"> <li>- Inclusive education, autism spectrum, strategies (Nthibeli et al., 2022) .</li> <li>- Autism spectrum, inclusive pedagogy (Dukpa et al., 2021).</li> <li>- Inclusive practices, autism spectrum (Bolourian et al., 2022).</li> <li>- Child-teacher relationship, inclusion (Sanches-Ferreira et al., 2022).</li> <li>- Inclusive strategies for deaf people (Cawthon, 2001).</li> </ul>	(Nthibeli et al., 2022; Dukpa et al., 2021; Bolourian et al., 2022; Sanches-Ferreira et al., 2022; Cawthon, 2001).



## 4. Discussion

### 4.1 Differentiation in the context by country

One of the main concerns of international organizations has focused on the promotion of cultural diversity and inclusion with equity (European Education Area [EEA], 2021). In response to this cultural diversity, differentiated strategies have emerged as an alternative. Differentiated teaching has improved reading comprehension for high school students in Jordan and benefits students with below average reading skills (Magableh & Abdullah, 2022). It is also important to use differentiated teaching strategies to adapt to the individual needs of each child, especially those with special needs (Maia Ferreira et al., 2020). Differentiation is effective in addressing individual differences in learning and improving academic performance (Rietdijk et al., 2018).

In Eritrea, according to the study analyzed, teachers use five-question modification strategies to adapt to the needs of students (Zerai et al., 2023) while teachers in Enugu, Nigeria, rarely use differentiated instruction strategies due to some limitations, time, space, high student population, among others (Onyishi & Sefotho, 2020). The research analyzed inclusive teaching strategies in Finnish comprehensive school teachers, finding co-teaching, group work, and differentiation, the limitations being the low response rate and lack of information on background variables. Additionally, teachers by subject use less these strategies compared to classroom teachers (Saloviita, 2018). The heterogeneity of students in classrooms not only refers to student performance, but also these multiple contexts, both cultural, linguistic, and cultural approach among others, force teachers to put their professionalism into play to address diverse heterogeneity (Pozas & Schneider, 2019). Some recommendations of the authors suggest studies in other contexts, with longer duration of time, and larger samples for study reliability. Among the limitations, the authors suggest for future research the implementation of differentiated methods and skills in teachers and students.

### 4.2 Differentiation in schools of study

Curricular planning addresses various content and thematic areas related to attention to the educational needs of students (Akos et al., 2007; Tomlinson, 2000b). This involves considering school areas based on those needs. We present articles highlighting the use of the inclusive teaching strategy and its positive impact on improving the ability to read in English, using visual media with students suffering from autism spectrum disorder (Padmadewi et al., 2017), pedagogical kits for teaching chemistry, applying differentiated instruction (Easa & Blonder, 2022), techniques for listening and speaking the English language (Malebese et al., 2019), strategies such as peer support and cooperative learning to improve inclusive education (Reina et al., 2022).

There is also an article using a socially inclusive teaching strategy to transform the teaching of English as a first complementary language (Malebese, 2017). Attention to diversity according to different disciplinary areas, applying strategies such as peer support and cooperative learning (Moliner Garcia et al., 2017), as well as techniques and other skills of differentiated instruction allow achieving learning. Among the recommendations given by the authors, include the participation of parents and the community, storytelling and play, and starting from the concrete to the abstract, as well as using indigenous knowledge systems in teaching English to create a socially inclusive strategy. To address the limitations of the studies it is suggested for future research to use a tool of fidelity criteria to measure the theory of contact, using a sensitive curriculum to address social inclusion.

### 4.3 Differentiation in the classroom

Differentiation is not simply a strategy, but a philosophy that implies a more comprehensive and sensitive approach in the classroom, avoiding the application of standardized teaching methods (Doubet & Hockett 2015; Tomlinson, 2000b). A study was found in which teachers applied

differentiated instruction through various strategies, finding a limitation in the time in the application of the same (Gibbs & Beamish, 2021), another study refers to distance education teachers and the use of strategies such as building relationships, safe environments, use of technology, to serve diverse students (Harris et al., 2022), peer mentoring and narrative research in understanding teaching practices in small and multi-grade schools (Hyry-Beihammer & Hascher, 2015), peer acceptance and social interactions in the care of students with intellectual disabilities (Furrer et al., 2020) the use of inclusion strategies in the classroom, such as universal design for learning and changing expectations (Deroche, 2013). Differentiated strategies such as peer tutoring, and gamification (Moliner Garcia et al., 2017) mentioned by the authors of this macro category contribute to better performance, being necessary for continuous teacher training, differentiated instruction training, and guidance from school leaders (Gibbs & McKay, 2021). The authors recommend promoting the use of differentiated strategies, given that it is not exclusive to students with special needs, application in different educational settings, and resources to address diversity in classrooms.

#### 4.4 Differentiated strategies

Teaching procedures that allow a planned and proactive approach to student diversity are known as differentiation strategies (Tomlinson & Vitale, 2005; Roiha & Polso, 2021). One of the research examined how future teachers use Web 2.0 technology, specifically the Pinterest platform, to customize teaching for students with disabilities in an inclusive classroom (Peterson-Ahmad et al., 2018). In another study, teachers used curriculum differentiation to meet students' learning needs (Motitswe, 2014), in addition, another research noted that basic education teachers use didactic strategies to promote inclusion at lower levels (Palacios-Garay et al., 2020). Another study refers to the use of several methodological strategies, such as project work, cooperative learning, peer tutoring, dialogic learning, play and gamification, interactive groups, corners, experiential learning, and service learning (Orozco & Moriña, 2020). Collaborative action research can help teachers create an inclusive and collaborative learning environment in multicultural classrooms during science lessons (Piliouras & Evangelou, 2012). The variety of strategies that can be used applying offers multiple learning possibilities in heterogeneous classrooms to address diversity (Moliner García et al., 2017).

#### 4.5 Overage, effective strategies

"Overage" refers to students who are older than typical for their degree of study, making them a diverse group with differentiated educational needs. One study focused on how teachers address school overage and what pedagogical strategies they use in these situations. An attempt was made to reconstruct a variety of pedagogical approaches and practices that teachers use to deal with overage (Vassiliades, 2022), such as "temporary overage", in which students go through workshops for lower grades and their age, to reach the expected learning. Another study investigated skills for effective teaching among primary school teachers working in inclusive classrooms to determine whether the emergence of 'constructivist' skills is independent or derived from mastery of teaching behaviors that are of a more transmissive nature (McGhie-Richmond et al., 2007). Differentiation requires the use of strategies to address over-age and to demonstrate reliance on constructivist skills for communicative behaviors.

#### 4.6 Differentiation and disability

Talking about inclusion involves considering students with learning needs in regular educational settings (Maia Ferreira et al., 2020). Therefore, attention is always focused on diversity, and differentiated strategies are applicable in this context. One of the research addresses strategies for the treatment of students with autism, such as teamwork, visual activities, and planning lessons with the

participation of students (Nthibeli et al., 2022). On the other hand, another research proposes using multiple forms of possible communication with materials and resources that encourage active participation (Dukpa et al., 2021). Research conducted in Bhutan revealed a lack of knowledge on the part of teachers to attend to the inclusion of students with autism (Bolourian et al., 2022). Differentiated strategies promote effective inclusion and improve learning.

This scoping study has some limitations, such as the use of only three databases and a few search strings. However, it is hoped that this study will be valuable for future research that seeks to complement or build other taxonomies of differentiation strategies to promote appropriate use by teachers and meet the needs of students who require inclusive and quality education.

## 5. Conclusion

The scoping review of the literature shows evidence that the use of differentiated methodological strategies is essential to meet educational needs and ensure inclusive and quality education. It has also been verified that individualized adaptation through personalized approaches such as co-teaching, teamwork, peer collaboration, peer support, collaborative learning, and play activities contribute to improving learning opportunities for students with different characteristics and contexts. In addition, in particular cases such as autism and overage, this differentiated strategy based on collaborative work and visual activities allows them to achieve better educational objectives by adapting to their conditions. This conclusion reaffirms the importance of continuing to train teachers in the implementation of differentiated strategies, which requires a greater commitment to promote early inclusive practices.

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