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Inclusion of Students with Special Educational Needs and Disabilities in Lebanon: A Scoping Review

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Abstract

Despite the significant increase in the empirical research on inclusion of students with special educational needs and disabilities (SEND) in Lebanon, no scoping reviews (ScRs) have yet been carried out on this topic. The purpose of this study is to explore research foci and findings in published empirical research literature on inclusion of students with SEND in Lebanon using Arksey and O'Malley's (2005) ScR framework. This ScR examined 59 studies obtained from research databases (ERIC, ProQuest, ScienceDirect, EBSCO Essentials, EBSCO Open Dissertations, and Shamaa), Lebanese institutional databases, Google Scholar, and ResearchGate. This study shows that there are 10 research foci in published empirical research literature on inclusion of students with SEND in Lebanon: 'interventions for students with SEND', 'evaluation of inclusive education (IE)', 'attitudes towards IE', 'profile of inclusive teacher', 'barriers to IE', 'facilitators to IE', 'profile of student with SEND', 'inclusive school selection', 'mechanisms for measuring school inclusiveness', and 'mechanisms for sustaining school inclusiveness'. The most represented research focus is 'interventions for supporting students with SEND' with 22 studies, yet the least represented research foci are 'mechanisms for measuring and sustaining school inclusiveness' with one study for each. Limitations of the ScR are presented. Recommendations for policymakers and practitioners are provided, and directions for future research are proposed.

Keywords: inclusion, inclusive education, special educational needs, disabilities, scoping review, Lebanon

Introduction

Educational inclusion has become the internationally agreed upon approach for educating students with special educational needs and disabilities (SEND) almost all around the world since the beginning of the twenty-first century (El Ahmad, 2022). Whole schooling to educational inclusion or inclusive education (IE) is a comprehensive approach that addresses all aspects of education with the involvement of all education stakeholders. It aims to improve the academic achievement, social growth, and emotional well-being of students with SEND. The Convention on the Rights of Persons with Disabilities [CRPD] (United Nations [UN], 2006) is an international human rights instrument that protects and guarantees the rights of persons with disabilities. Article 24 of the CRPD obligates States parties to the Convention to provide quality IE for students with SEND within the mainstream education system (UN, 2006).

According to the Center for Educational Research and Development [CERD] (2022), 1.07 million students were enrolled in the Lebanese education system for the school year 2021/2022. Of those 1.07 million students, 9, 104 students were registered as students with SEND (CERD, 2022). Those students were divided as the following: 7, 329 students enrolled in private fee-paying schools; 1, 255 students enrolled in public schools; 326 students enrolled in private free schools; and 194 students enrolled in the schools of the United Nations Relief and Works Agency (UNRWA) for Palestine refugees (CERD, 2022). Students with learning difficulties (LD) constituted the largest part (5, 408 students), whereas gifted students constituted the smallest part (40 students) (CERD, 2022).

Khochen-Bagshaw (2023) argues that educating students with SEND in mainstream learning settings gained acceptance and popularity in Lebanon in the second half of the twentieth century, primarily in private and special schools subsidized by non-governmental organizations. The right to education in mainstream learning environments for children with SEND in Lebanon has been clearly recognized in articles 59 and 60 of Law 220 which affirm that students with SEND are to be educated in mainstream classes in public and private schools (Lebanese Law 220, 2000); however, this law has remained unenforced and subject to exclusionary interpretations and applications resulting in parallel systems since no mechanisms or application decrees have been prepared for mandating its implementation (Combaz, 2018; Damaj, 2014). Damaj (2014) goes farther by calling into question the function of Law 220, in its current form, in promoting inclusion for students with SEND. Similarly, Khochen-Bagshaw (2023) highlights that although the interest in education of students with SEND in the mainstream education system has been on the rise since 2000 in Lebanon; many schools in the private sector still refuse to accept them at all. She adds that despite Lebanon's signing of the CRPD (UN, 2006), school principals still retain the privilege of judging the level of inclusiveness they would offer to students with SEND. In addition, Koplewicz et al. (2018) emphasize that admission of students with SEND to schools in public and private sectors is dependent upon teachers and principals' discretion. This would make students' with SEND acceptance to public and private mainstream schools unsystematic and subject to personal whims. Eventually, this would lead to their exclusion (Koplewicz et al., 2018).

Despite the increase in empirical research on inclusion of students with SEND in Lebanon, Kiwan (2019) contends that there is still a substantial gap in the academic literature on disability inclusion in education in Lebanon. Moreover, review studies on educational inclusion in Lebanon are still very scarce, with no scoping reviews (ScRs) have been carried out on this topic in the Lebanese educational context so far. Thus, it is necessary to carry out a ScR of

inclusion of students with SEND in Lebanon for informing policymakers, practitioners, and researchers about the latest knowledge and developments, research foci and findings, and research gaps in this field.

This paper presents a ScR of empirical research studies published on inclusion of students with SEND in Lebanon in line with Arksey and O'Malley's (2005) ScR framework. According to Arksey and O'Malley (2005, p. 21), a ScR may be undertaken for four reasons: (1) "To examine the extent, range and nature of research activity; (2) To determine the value of undertaking a full systematic review; (3) To summarize and disseminate research findings; (4) To identify research gaps in the existing literature". This ScR aims to explore research foci and findings in published empirical research literature on inclusion of students with SEND in Lebanon. It also seeks to identify research gaps in the existing empirical literature on inclusion of those students in Lebanon. For the purpose of this ScR, educational inclusion is defined as educating students with SEND alongside their peers without SEND in mainstream classes on a part-time or full-time basis.

Method

This study adopted ScR methodology (Arksey & O'Malley's, 2005). According to Gale et al. (2022), ScRs are especially useful when no comprehensive review has yet been conducted on a research topic. Moreover, they provide comprehensive descriptions of the topic using systematic search strategies and report on a whole field instead of providing critical appraisal and analysis of data in relation to a specific research question (Gale et al., 2022). However, Tricco et al. (2018, p. 467), contend that ScRs are beneficial for answering broad research questions, for example, "What is known about this concept?".

Arksey and O'Malley's (2005) ScR framework outlines five stages: (1) identifying the research question, (2) identifying relevant studies, (3) study selection, (4) charting the data, and (5) collating, summarizing, and reporting the results.

Stage 1: Identifying the Research Question

The ScR is guided by the following research question:

What are the research foci and findings in published empirical research literature on inclusion of students with SEND in Lebanon?

Stage 2: Identifying Relevant Studies

The following key terms were used during the search process: 'inclusion', OR 'inclusive education', AND 'disabilities', OR 'impairments', AND 'special educational needs', OR 'special needs', AND 'Lebanon', OR 'Lebanese'. Below are the inclusion criteria that guided the search process:

1. Empirical research studies
2. Published research works
3. Peer-reviewed research articles and gray literature, namely master's theses, doctoral dissertations, conference proceedings, and research reports
4. Available from the following sources: research databases (ERIC, ProQuest, ScienceDirect, EBSCO Essentials, EBSCO Open Dissertations, and Shamaa), ResearchGate- RG, Google Scholar- GS, and Lebanese institutional databases (Lebanese American University- LAU, American University of Beirut- AUB, Beirut Arab University- BAU, Notre Dame University- NDU, University of Balamand- UOB, and Holy Spirit University of Kaslik- USEK)

5. Focused on inclusion or integration of students with SEND, excluding gifted students, into mainstream classes
6. Written in English only
7. Conducted in the Lebanese educational context
8. Adopted all methodological approaches: quantitative, qualitative, and mixed methods.
9. No time interval set
10. Full text available

Stage 3: Study Selection

Based on the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklist by Tricco et al. (2018), figure 1 displays the study selection process which comprises the following steps: (1) identifying records through searching databases and other sources, (2) screening titles and abstracts, (3) assessing full texts for eligibility, and (4) including records meeting inclusion criteria. The search process was carried out between February 8 and September 30, 2022. Two-hundred sixty-four records were identified, of which 115 duplicates were removed. The remaining 149 records were then screened by title and abstract which resulted in excluding 52 records for irrelevance. After this step, 97 records remained, and their full texts were assessed for eligibility which resulted in excluding 38 studies with reasons. The author sought assistance from a peer with master's degree in special education when unsure whether to include or exclude a potentially irrelevant or relevant study. Upon disagreement, the final decision was made when a resolution was reached. Finally, 59 studies, without being appraised for quality, were retained, and included in the ScR after meeting the inclusion criteria.

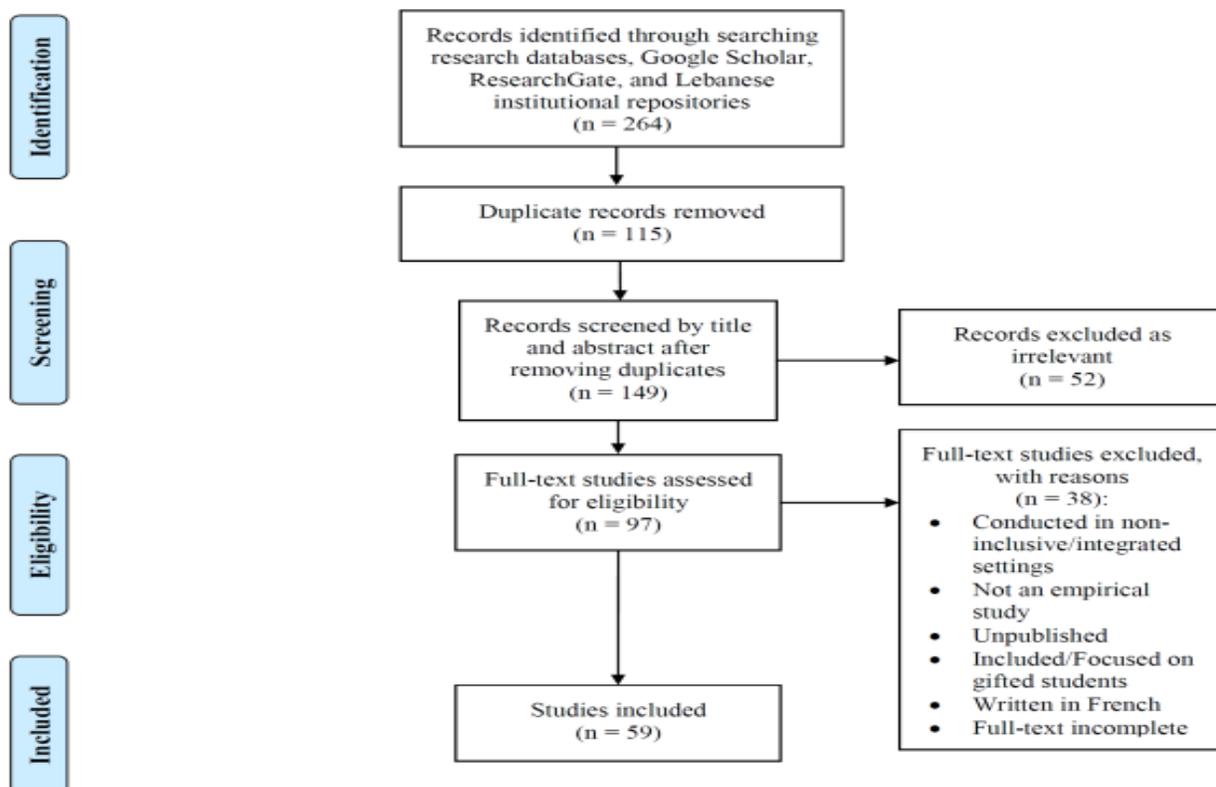


Figure 1. Study Selection Flow Diagram using the PRISMA-ScR Checklist (Tricco et al., 2018)

Stage 4: Charting the Data

Full texts of the included studies were thoroughly read. Information was extracted from each study regarding the following four elements: author(s) and year, sample, method(s), and main finding(s), as shown in appendix A.

Stage 5: Collating, Summarizing, and Reporting the Results

Braun and Clarke's (2006) thematic analysis framework was adopted during this stage for presenting a narrative account of the existing empirical literature on inclusion of students with SEND in Lebanon. Codes were manually generated from the main findings of the included studies. Codes were then collated into potential themes. The potential themes were then extensively reviewed. Finally, they were refined and named, resulting in a 10- theme data analysis. Findings from the included 59 studies are presented in the next section and its subsections in two categories: (1) description of studies, (2) and research foci.

Findings and Discussion

Description of Included Studies

In terms of type of studies, the 59 included studies are divided as the following: 28 (47%) master's theses/projects and doctoral dissertations, 26 (44%) research articles, 4 (7%) conference proceedings, and 1 (2%) research report, as shown in figure 2.

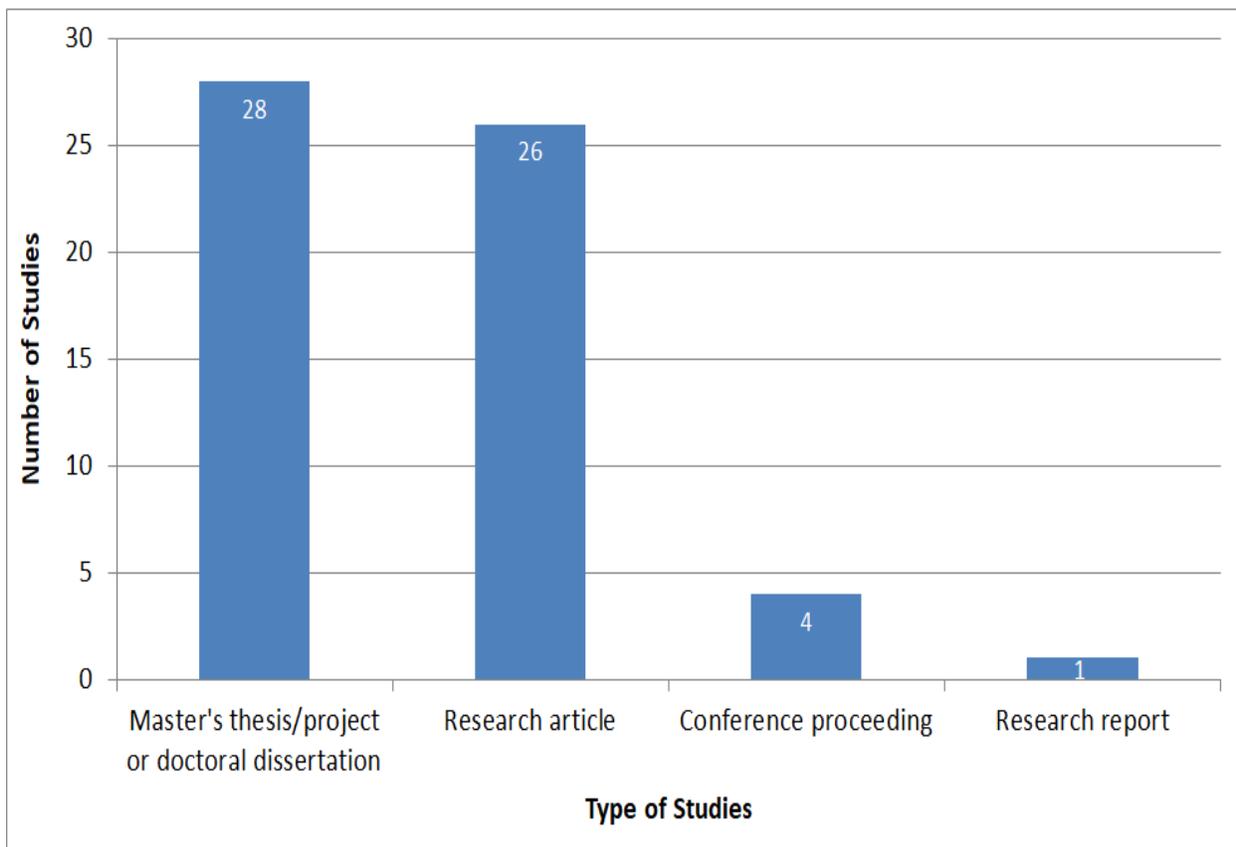


Figure 2. *Distribution of Studies by Type*

In terms of source, 23 (39%) studies were obtained from institutional repositories (12 from LAU repository, 7 from AUB repository, 2 from UOB repository, 1 from BAU repository,

and 1 from NDU repository), 20 (34%) studies were obtained from research databases (4 from EBSCO Essentials, 2 from EBSCO Open Dissertations, 6 from ERIC, 4 from ProQuest, 2 from SD, and 2 from Shamaa), 10 (17%) studies were obtained from GS, and 6 (10%) studies were obtained from RG, as shown in figure 3.

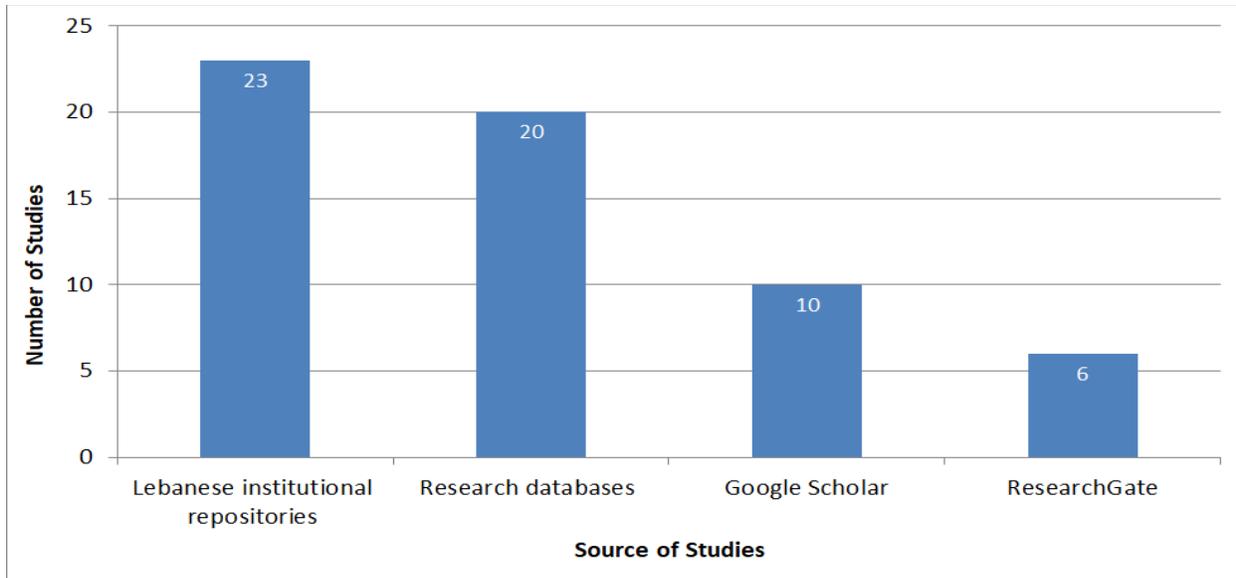


Figure 3. *Distribution of Studies by Source*

In terms of year of publication, 46 (78%) studies were published in 2011 onwards, 11 (19%) studies were published between 2000 and 2010, and 2 (3%) studies were published before 2000, as shown in figure 4.

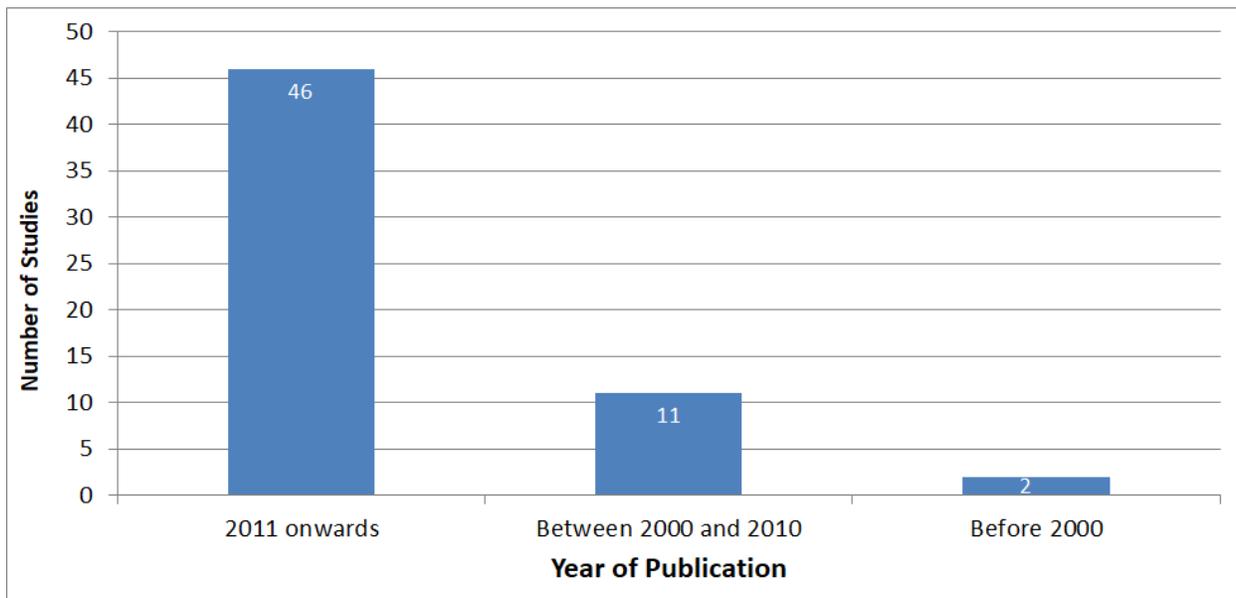


Figure 4. *Distribution of Studies by Year of Publication*

In terms of educational cycle, some studies targeted students with SEND in more than one educational cycle. Twenty-nine (49%) studies targeted students with SEND in the elementary cycle; nineteen (32%) studies targeted them at school level without identifying the educational cycle; nine (15%) studies targeted them in the preparatory cycle; five (8%) studies targeted them in higher education (HE) institutions, and 1 (3%) study targeted them in preschool, as shown in figure 5.

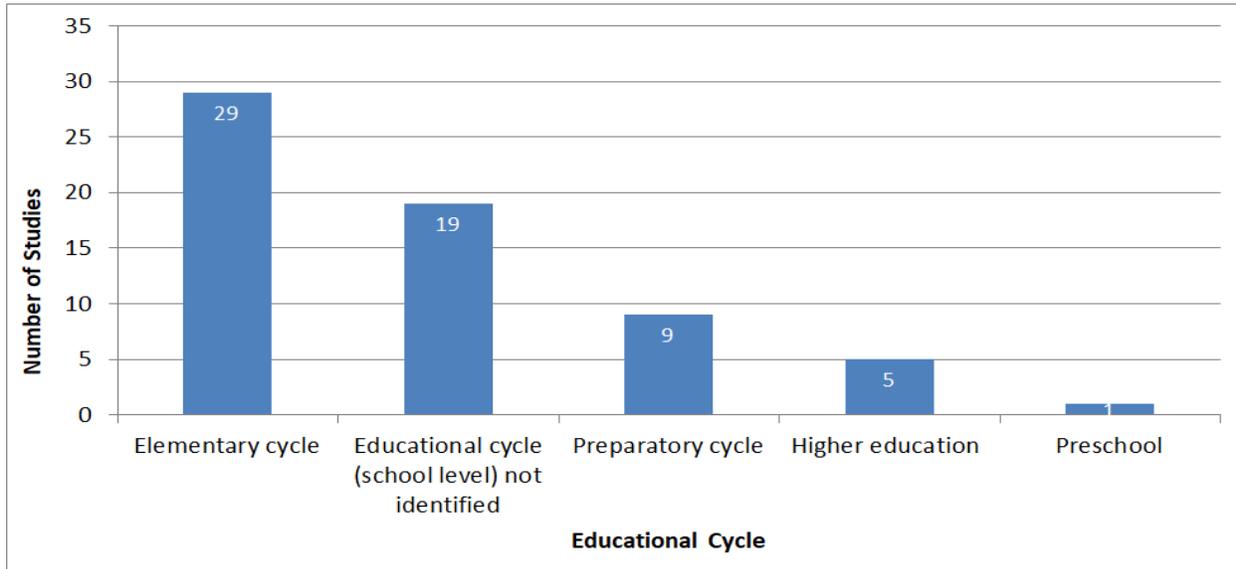


Figure 5. *Distribution of Studies by Educational Cycle*

In terms of methodology of studies, 30 (51%) studies adopted a quantitative approach, 18 (30%) studies adopted a mixed methods approach, and 11 (19%) studies adopted a qualitative approach, as shown in figure 6.

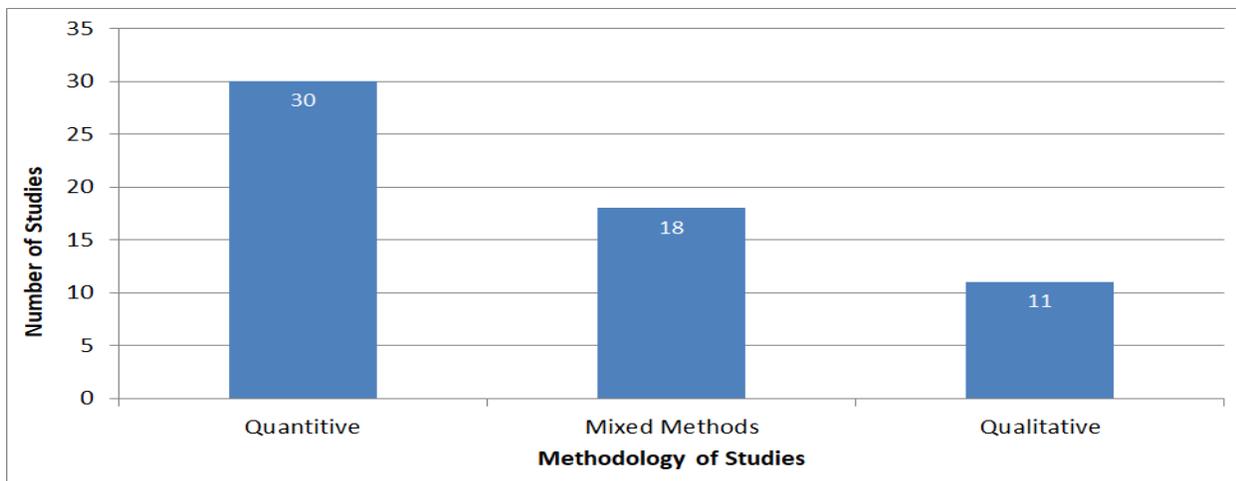


Figure 6. *Distribution of Studies by Methodology*

Research Foci of Included Studies

Ten research foci/themes are identified in the ScR, as shown in table 1. The following are the research foci and their representative studies: interventions for students with SEND (22

studies), evaluation of IE (12 studies), attitudes towards IE (11 studies), profile of inclusive teacher (10 studies), barriers to IE (nine studies), facilitators to IE (nine studies), profile of student with SEND (three studies), inclusive school selection (two studies), mechanisms for measuring school inclusiveness (one study), and mechanisms for sustaining school inclusiveness (one study). Many studies addressed different topics; hence, they are included and counted in more than one row. Each of these foci will be addressed in detail below.

Table 1. *Research Foci and their Representative Studies in the ScR*

#	Research Foci/Themes	Number of Studies	Representative Studies
1	Interventions for supporting students with SEND	22	S5, S6, S11, S16, S18, S22, S23, S24, S25, S26, S33, S35, S36, S38, S45, S50, S51, S54, S55, S56, S57, S58
2	Evaluation of IE	12	S7, S8, S14, S17, S19, S20, S27, S32, S37, S40, S42, S46
3	Attitudes towards IE	11	S2, S4, S7, S15, S28, S29, S30, S44, S47, S51, S52
4	Profile of inclusive teacher	10	S10, S12, S28, S30, S34, S38, S42, S48, S51, S53
5	Barriers to IE	9	S1, S3, S4, S7, S13, S40, S41, S50, S59
6	Facilitators to IE	9	S3, S7, S13, S28, S31, S37, S43, S49, S53
7	Profile of student with SEND	3	S20, S21, S39
8	Inclusive school selection	2	S9, S40
9	Mechanisms for measuring school inclusiveness	1	S13
10	Mechanisms for sustaining school inclusiveness	1	S13

Research Focus 1: Interventions for Supporting Students with SEND

‘Interventions for supporting students with SEND’ is the most prevalent research focus in published empirical research literature on inclusion of students with SEND in Lebanon; it is reflected in more than one third (22 studies) of the 59 reviewed studies. The interventions for supporting students with SEND had positive impacts on those students and were beneficial for them (Amin & Oweini, 2013; Assi, 2006; Awada & Gutiérrez-Colon, 2017; Awada & Gutiérrez-Colon, 2018; Bassous, 2019; Bendak, 2011, 2018a, 2018b; Cheikh El Ard, 2009; El Ghussein, 2009; El Hassan, 2020; ElDaou & El-Shamieh, 2015; EL-Daw & Hammoud, 2015; Elkabani & Zantout, 2015; Elkabani et al., 2020; Fakhreddine, 2013; Ghali et al., 2016; Hojeij, 2005; Ismail & Saad, 2020; Kayal, 2014; Nabhan, 2018; Zantout et al., 2020). They can be classified into four categories: instructional, psychosocial-behavioral, assistive technology (AT), and occupational. Instructional interventions aim to enhance learning outcomes of students with SEND and improve their academic achievement. They form the biggest part of support interventions for students with SEND in Lebanon (13 out of 22). The majority (12 out of 13) of these instructional interventions were beneficial for students with SEND (Awada & Gutiérrez-Colon, 2017; Awada

& Gutiérrez-Colon , 2018; Bendak, 2011, 2018b; Cheikh El Ard, 2009; ElDaou & El-Shamieh, 2015; El Ghussein, 2009; El Hassan, 2020; Fakhreddine, 2013; Hojeij, 2005; Kayal, 2014; Nabhan, 2018). This result is consistent with a study by Narang and Gupta (2014) which found that three remedial techniques improved the spelling ability of students with LD attending inclusive classrooms.

Instructional interventions can be classified into technology-based and non- technology-based interventions. Instructional interventions which were technology-based were only two (Cheikh El Ard, 2009; Nabhan, 2018) as the majority of interventions did not implement educational technology (Awada & Gutiérrez-Colon , 2017; Awada & Gutiérrez-Colon , 2018; Bassous, 2019; Bendak, 2011, 2018b; ElDaou & El-Shamieh, 2015; El Ghussein, 2009; El Hassan, 2020; Fakhreddine, 2013; Hojeij, 2005; Kayal, 2014).

Instructional interventions implementing educational technology yielded positive results. Cheikh El Ard (2009) in her study showed that a computer software program had a positive impact on elementary students with attention deficit hyperactivity disorder (ADHD) and LD having reading difficulties. Nabhan (2018) showed that computer software programs and internet search engines had a positive impact on a preparatory dyslexic student's reading, spelling, reading comprehension, and writing skills, too.

Similarly, instructional interventions, which were not technology-based, yielded positive results. A study by Awada and Gutiérrez-Colon (2017) suggested that combined strategy instruction consisting of different strategies in inclusive settings is more effective than regular instruction in enhancing reading comprehension for both preparatory and secondary students with and without LD when using narrative texts, yet with no difference when using expository texts. In addition, in another study by them in 2018, they found that combined strategy instruction helped preparatory students with LD improve their reading comprehension skills. Yet, they argued that there is no best strategy, as each one has its positive aspects and drawbacks. In the same way, the results of a study by Hojeij (2005) indicated that dyslexic students in grade four who were taught through a multisensory teaching approach performed higher than dyslexic students who were taught through traditional approach. A visualizing and verbalizing program by Fakhreddine (2013) improved reading comprehension skills, attitudes, and motivation of two upper elementary students with Asperger syndrome, too. Likewise, ElDaou and El-Shamieh (2015) in their study showed that chess training had a positive effect on improving concentration skills and period, and in listening language scores for upper elementary students with ADHD. Furthermore, the results of a study by El Ghussein (2009) exposed that play therapy program had a positive impact on improving learning outcomes of a preparatory student with ADHD. Moreover, Bendak (2018b) concluded that repeated readings method had a positive effect on enhancing reading fluency and passage comprehension of slow learners at two private schools.

Individual educational plan (IEP) is an instructional tool developed by educators with the participation of parents for supporting learning of students with SEND, particularly those with LD. In this regard, Bendak (2011) in her study revealed a positive effect for IEPs on improving reading performance for students with dyslexia in grade three. In addition, El Hassan (2020) showed that the support available for preschool and lower elementary (LE) students with autism spectrum disorder (ASD) included an IEP, structured educational approach, universal design for learning (UDL), visual aids, technology, and hands-on activities.

One single study by Kayal (2014) addressed educational adaptations as an instructional support strategy for students with SEND. She found that modifications and accommodations were beneficial for grade five and six students with LD.

However, in her attempt to discover how elementary teachers were supporting students with LD to use metacognitive strategies for controlling their own learning, Bassous (2019) discovered that teachers were not overtly teaching those skills to students with LD. The findings also revealed that the perceived barriers to providing effective metacognitive skills for those students were school barriers, parents' barriers, lack of pre-service teacher education about metacognitive skills, teachers' self-perceptions, lack of time, and characteristics of students' LD.

Psychosocial-behavioral interventions seek to promote well-being and socialization of students with SEND. They also aim to manage and reduce their disruptive behavior inside and outside classroom, especially students with ASD and ADHD. Although these interventions form a small part of support interventions for students with SEND in Lebanon (4 out of 22), they were beneficial for them (Amin & Oweini, 2013; Assi, 2006; EL-Daw & Hammoud, 2015; Ismail & Saad, 2020). This result is in line with a study by Wu et al. (2019) which revealed that a behavior modification intervention was effective in increasing on-task behaviors for students with ASD and reducing their disruptive behaviors in an inclusive classroom, as well.

Amin and Oweini (2013) showed that a combined intervention improved social skills of a first grader with ASD in an urban school. EL-Daw and Hammoud (2015) found that a building up self-esteem program had a positive impact on social skills of LE students with special needs from public Lebanese schools, too. Moreover, the inclusion of students with special needs reduced their behavioral problems (EL-Daw & Hammoud, 2015). Similarly, Assi (2006) revealed that Barkley's behavior management program was effective in modifying inappropriate classroom behaviors for an elementary student with ADHD when collaboration and consistency between regular and special education teachers (SET) were maintained. Ismail and Saad (2020) reported an improved awareness of rights and low level of learned helplessness for students with LD in grade three to 12 from a private school as a result of self-determination intervention implemented for those students.

AT interventions aim at improving the learning experience of students with SEND, and they provide opportunities for them to learn on equal basis with students without SEND. Specifically, they seek to increase students' with SEND access to curriculum, learning, and assessment. Although intervention studies focusing on developing and empirically testing AT for supporting students with SEND are also limited (4 out of 22), the results showed that the developed systems had more effectiveness, efficiency, and satisfiability than traditional systems (Elkabani et al., 2020; Elkabani & Zantout, 2015; Ghali et al., 2016; Zantout et al., 2020). This result is similar to a study by Sheikh (2018) which showed that an accessible testing system designed for students with visual impairments (VI) and specific LD to take high stakes mandated tests had efficacy. However, these AT intervention studies targeted only students with VI. They also focused on helping those students to learn and practice only mathematics.

Occupational interventions seek to develop sensory-motor coordination and integration of students with SEND. Only one single study by Bendak (2018a) investigated the effect of a motor-visual intervention on the motor-visual integration of 10 LE students with ASD selected from two private schools. Bendak (2018a) found that the intervention had a positive effect on improving the motor-visual integration of those students. This result supports the results of a study by Cho et al. (2015) which exposed positive impact for a visual perceptual intervention on visual motor integration and activities of daily living performance of children with cerebral palsy.

Research Focus 2: Evaluation of IE

‘Evaluation of IE’ is the second most prevalent research focus in published empirical research literature on inclusion of students with SEND in Lebanon; it is reflected in one fifth (12 studies) of the 59 reviewed studies. The studies on evaluation of IE yielded mixed results (poor and good quality of inclusion). El Ahmad (2022) argues that there is an alignment between the evaluation of IE and the inputs-processes-outcomes framework for measurement of IE indicators (Loreman et al., 2014).

First, evaluation of inputs involves evaluating whether resources, infrastructure, and physical and psychosocial school environment are adequate and appropriate for accommodation of students with SEND or not. Studies focused on evaluating inputs are five out of the 12 studies on evaluation of IE, with results of one study (El Ahmad, 2022) falling under evaluation of processes and outcomes in addition to evaluation of inputs. In general, inputs were found to be poor and unsafe for accommodating students with SEND at inclusive schools in Lebanon (Al Boukhari, 2017; Andary, 2013; El Ahmad, 2022; Hajal & Al Chibani, 2021; Itani, 2022). This result corroborates the result of a study by Hussein (2019) which indicated that schools were unequipped for accommodation of students with SEND in Palestine. Four studies (Al Boukhari, 2017; El Ahmad, 2022; Hajal & Al Chibani, 2021; Itani, 2022) addressed school facilities and physical aspects of school environment, whereas only one study (Andary, 2013) targeted the psychosocial aspects of school environment.

In her study aimed at evaluating the physical environment of three public Lebanese schools in terms of its safe accessibility and full usability for students with VI, Al Boukhari (2017) revealed negative results. Hajal and Al Chibani (2021) exposed that most private inclusive schools are not fully equipped for accommodating students with special needs, too. Likewise, a study by Itani (2022) showed that school structure is not suitable for accommodating students with special needs. Also, El Ahmad (2022) showed poor availability of AT for supporting students with SEND at an UNRWA LE school. Andary (2013) showed that habitus/ecology at two private inclusive schools needs to change to contribute to the inclusion of students with mild disabilities.

Second, evaluation of processes comprises targeting one of the following three aspects: (1) conceptualization and implementation of an IE policy/program, (2) implementation of school or teachers’ practices, or (3) presence of inclusive schools criteria. Studies on evaluation of processes are seven out of 12 studies. Generally speaking, studies on evaluation of processes pertaining to aspects one and two yielded negative results, while studies on evaluation of processes pertaining to aspect three yielded positive results.

Regarding the first aspect, Frangieh and Akiki (2020) found partial and ill-defined school principals and teachers’ conceptualization of inclusion, which is nothing other than physical integration of students with SEND into mainstream schools. Moreover, Berri (2015) indicated absence of special programs for students with ADHD at nine public and six private schools in South Lebanon. Furthermore, Fares (2009) exposed improper implementation of inclusion in spite of the presence of individualized learning and enhancement of students’ self-esteem as elements of social justice at a private elementary school in Beirut. These findings reflect the result of a study by Matolo and Rambuda (2022) which found ineffective implementation of IE policy in South Africa.

Regarding the second aspect, ElSaheli-Elhage and Sawilowsky (2016) identified and compared SET and administrators’ assessment practices targeting students with LD at private schools in terms of context, input, process, and product. Results were negative for evaluation of

context, input, and processes yet positive for product evaluation. In addition, El Ahmad (2022) revealed that teachers' inclusive teaching practices at an UNRWA LE school were inconsistent, i.e., they were implemented once by teachers. These results support the findings of a study by Kofi (2015) which highlighted that the teaching practices at inclusive basic schools in the Winneba Township of Ghana were not inclusive.

Regarding the third aspect, Ghandour (2017) indicated that a private elementary school in Beirut met the criteria of a successful inclusive school. Similarly, Kobrossy (2019) reported that IE elements were present at a private Lebanese inclusive school in North Lebanon. These findings are in agreement with a study by Syamsi (2014) which concluded that criteria of inclusive schools were available in Indonesia.

Finally, evaluation of outcomes encompasses evaluating the extent or quality of IE provision. Studies on evaluation of outcomes are two out of 12 studies. El Ahmad (2022) found that an IE provision to a large extent was provided for students with SEND at an UNRWA LE school, yet they were socially excluded by teachers from daily classroom routine procedures. This result is in accordance with a study by Ralić et al. (2020) which found provision of good quality of IE in Poland and Croatia. In contrary, Khochen (2017) reported that 10 public, private, and UNRWA preparatory and secondary schools did not provide IE for students with VI but educational facilitation and social integration. This finding is congruent with a study by Engevik et al. (2018) which reported moderate IE provision for students with SEND in Norway.

Research Focus 3: Attitudes towards IE

'Attitudes towards IE' is the third most prevalent research focus in published empirical research literature on inclusion of students with SEND in Lebanon; it is reflected in about one fifth (11 studies) of the 59 reviewed studies. Ten studies (Al Rayess, 2014; El Hassan, 2020; ElZein, 2009; Khalaf, 2021; Khansa, 2015; Khochen & Radford, 2012; Kobrossy, 2019; Mallouk, 2019; Van Loan, 2013; Zakka, 2018) out of the 11 studies on attitudes towards IE were all completely conducted at private educational institutions, with only one study (Kustantini, 1999) carried out at public, private, and special schools. In addition, three studies (Khansa, 2015; Mallouk, 2019; Van Loan, 2013) out of the 11 studies on attitudes towards IE were carried out at HE institutions, which were all private ones. Moreover, only one study (El Hassan, 2020) was conducted at preschool and LE cycles.

In general, the attitudes towards students with SEND and their inclusion in mainstream classes in Lebanon are positive (Al Rayess, 2014; El Hassan, 2020; ElZein, 2009; Khalaf, 2021; Khansa, 2015; Khochen & Radford, 2012; Kobrossy, 2019; Kustantini, 1999; Mallouk, 2019; Van Loan, 2013; Zakka, 2018). This finding ties well with what was revealed by Hellmich et al. (2019). They showed positive attitudes towards IE in Germany. However, Khochen and Radford (2012) had reservations about including all students with SEND. Similarly, AUB faculty members' willingness to provide accommodations for students with SEND was contingent upon the type of the accommodations requested and the student's disability (Mallouk, 2019). Likewise, ElZein (2009) highlighted that the types of SEND to be included were only mild intellectual retardation and physical disabilities and implementation of inclusion in all educational cycles, except the secondary cycle. Al Rayess (2014) also revealed that students with autism were socially neglected by their peers in three out of five surveyed classes at four conveniently sampled private inclusive schools in Beirut and Mount Lebanon. Al Rayess (2014) reported that SET had significantly higher attitude scores than regular education teachers. In addition, teachers who undertook in-service and formal training on teaching students with SEND had more positive attitudes than those who did not (Al Rayess, 2014; Khalaf, 2021). Khalaf

(2021) found that there was an effect for gender on teachers' attitudes towards IE in favor of female teachers, as well. Furthermore, she showed that there was an effect for experience in teaching students with SEND on teachers' attitudes in favor of those having high levels of experience. Surprisingly, she exposed that parents of students without SEND had more favorable attitudes towards IE than parents of students with SEND.

Research Focus 4: Profile of Inclusive Teacher

'Profile of inclusive teacher' is the fourth most prevalent research focus in published empirical research literature on inclusion of students with SEND in Lebanon; it is reflected in one sixth (10 studies) of the 59 reviewed studies. Nine studies (Baalbaki, 2016; Bassous, 2019; Berri, 2015; Chebli, 2016; El Hassan, 2020; Hamza, 2013; ELDaou & Kazan, 2016; Kebbi & Al-Hroub, 2018; Khalaf, 2021) out of the 10 studies on profile of inclusive teacher were conducted at schools, whereas only one study (Mallouk, 2019) was conducted in HE context. The studies on profile of inclusive teacher addressed three issues: (1) teacher professional competence, (2) teacher professional development, and (3) teacher stress and burnout.

Studies on teacher professional competence sought to identify level of professional competence, particularly knowledge, skills, and self-efficacy, of teachers working with students with SEND in mainstream classes. They form the biggest part of studies on profile of inclusive teacher (six out of 10). The studies on teacher professional competence yielded mixed results. Three studies (Bassous, 2019; Berri, 2015; Khalaf, 2021) revealed good knowledge and self-efficacy of teachers. This finding is consistent with Nina et al.'s (2022) study result of high self-efficacy scores in IE practices of private school teachers compared to public school teachers in Belém and Castanhal, Brazil. Nevertheless, three studies (El Hassan, 2020; Hamza, 2013; Mallouk, 2019) showed poor teacher knowledge, awareness, and skills. This finding confirms Lamture and Gathoo's (2017) study result of low self-efficacy of general education teachers in teaching students with SEND compared to resource teachers in mainstream schools in Mumbai, India.

Studies on teacher professional development aimed at investigating the impact of trainings for teachers on their knowledge and self-efficacy to teach students with SEND in mainstream classes. Studies on teacher professional development are two (Chebli, 2016; ELDaou & Kazan, 2016), and they yielded positive results. This result is in line with a study by Leifler (2020) which showed improvement in teachers' capacity to create inclusive learning environment after undertaking a professional development intervention. According to Chebli (2016) and ELDaou and Kazan (2016) training for inclusive teachers had positive impact on their knowledge and self-efficacy. ELDaou and Kazan (2016) indicated that ICT training for science teachers enhanced students' with SEND motivation, interaction, and participation in class, and their academic performance in science at four private inclusive schools, as well.

Studies on teacher stress and burnout aimed to examine the level of stress and burnout of teachers teaching students with SEND. Studies on teacher stress and burnout are two (Baalbaki, 2016; Kebbi & Al-Hroub, 2018). They revealed that teachers were under stress and experienced burnout. This finding is in agreement with a study by Candeias et al. (2021) which exposed that general education teachers had higher levels of burnout than SET in inclusive schools. Kebbi and Al-Hroub (2018) showed that most stress sources among general and SET at eight private elementary schools in Beirut were moderately stressful, and most stress effects were frequently stressful. They also highlighted that most effective stress coping strategies were 'organizing time and setting priorities' and 'doing relaxing activities (hobby)'. In addition, Baalbaki (2016) exposed high burnout on emotional exhaustion and low burnout on depersonalization and

personal accomplishment among SET at five private schools in Beirut mainly due to systemic factors.

Research Focus 5: Barriers to IE

‘Barriers to IE’ is reflected in nine studies of the 59 reviewed studies. The barriers to implementing IE can be classified into two categories: (1) internal barriers inside the school boundaries and (2) external barriers outside the school boundaries. Internal barriers (15 barriers) are twice the external barriers (seven barriers), and they have a worse impact on implementation of IE than external barriers. Similarly, Sharma (2017) suggests that there are two types of barriers to IE: internal and external.

Internal barriers to IE include the following: inaccessible educational institutions (El Ahmad & Kawtharani, 2022; Wehbi, 2007), inappropriate academic programs and curriculum (El Ahmad & Kawtharani, 2022; Wehbi, 2007), lack of qualified support staff (El Ahmad & Kawtharani, 2022; Daoud, 2016; Khochen & Radford, 2012; Wehbi, 2006, 2007); inadequate teacher training (El Ahmad & Kawtharani, 2022; Kayal, 2014; Khochen, 2017; Khochen & Radford, 2012; Kobrossy, 2019; Wehbi, 2007), negative attitudes of teachers and students (El Ahmad & Kawtharani, 2022; Khochen & Radford, 2012), lack of resources (El Ahmad & Kawtharani, 2022; Khochen & Radford, 2012), lack of direction for teachers (Kayal, 2014), crowded classrooms (El Ahmad & Kawtharani, 2022), absence of whole school approach (Khochen, 2017), poor awareness of students on IE (Kayal, 2014; Wehbi, 2007), lack of common school vision (Kobrossy, 2019), rigid and exclusionary educational policies (McBride et al., 1999; Wehbi, 2007), poor funding (Daoud, 2016; Khochen & Radford, 2012), students’ personal health issues (Wehbi, 2007), and disruptive behavior of students with SEND (Kayal, 2014). These findings are similar to those of Sharma (2017), who suggests that internal barriers to IE include negative attitudes, inappropriate curriculum, untrained teachers, and poor organization of the education system.

External barriers to IE include the following: bad socio-economic conditions of parents (Wehbi, 2007), difficulties with transportation (Wehbi, 2007), family pressures (Wehbi, 2007), poor knowledge and awareness of parents on IE (El Ahmad & Kawtharani, 2022; Kayal, 2014; Wehbi, 2006, 2007), parents’ lack of access to information (Khochen, 2017), negative attitudes of parents and community leaders (El Ahmad & Kawtharani, 2022; Khochen & Radford, 2012; Wehbi, 2007), and poor communication and cooperation between the school and parents and local community (El Ahmad & Kawtharani, 2022; Kayal, 2014). These findings reflect those of Sharma (2017), who suggests that external barriers to IE comprise location of the school, school enrolment, educational barrier, social stigmatization, and bad economic conditions.

Research Focus 6: Facilitators to IE

‘Facilitators to IE’ is reflected in nine studies of the 59 reviewed studies. The facilitators to IE can be classified into two categories: (1) facilitators directed towards the inside of the school and (2) facilitators directed towards the outside of the school. The former (11 facilitators) are twice the latter (five facilitators), and they have a more significant and positive impact on inclusion of students with SEND than facilitators directed towards the outside of the school. Likewise, Matolo and Rambuda (2022) propose that there are internal and external support factors to IE. In addition, they add that no internal or external support actors were available for accommodating students with SEND into mainstream classrooms in South Africa.

Facilitators directed towards the inside of the school comprise the following: changing educational policies (Wehbi, 2006), raising awareness of students (Wehbi, 2006), capacity-building (Andary, 2013; Baalbaki, 2016; Ismail, 2002; Kobrossy, 2019; Wehbi, 2006), securing

funds (Hatoum, 2010; Kobrossy, 2019), maintaining coordination and collaboration among school staff (El Ahmad & Kawtharani, 2022; Ismail, 2002; Kobrossy, 2019), changing school environment (Andary, 2013; El Ahmad & Kawtharani, 2022), implementing a variety of instructional strategies (El Ahmad & Kawtharani, 2022), implementing attitude and behavior modification interventions for students (El Ahmad & Kawtharani, 2022; Ismail, 2002), school principal's leadership and support (Irani, 2008; Ismail, 2002); teachers' beliefs and attitudes (Ismail, 2002; Mallouk, 2019), and provision of resources (Ismail, 2002).

Facilitators directed towards the outside of the school encompass the following: building supportive community (Wehbi, 2006), enhancing engagement of parents and local community (El Ahmad & Kawtharani, 2022; Hatoum, 2010; Ismail, 2002; Kobrossy, 2019), referring students with extensive needs to local community institutions for part-time special education services (El Ahmad & Kawtharani, 2022), and supporting parents and increasing their knowledge and awareness on IE (El Ahmad & Kawtharani, 2022; Hatoum, 2010).

Research Focus 7: Profile of Student with SEND

'Profile of student with SEND' is reflected in three studies of the 59 reviewed studies. Two studies (Itani, 2022; Terzian, 2015) of the three studies on profile of student with SEND were conducted at schools. Yet only one study (Ghemrawi et al., 2023) was carried out at a private university. These three studies sought to investigate the relationship among personal characteristics of students with SEND, their academic characteristics, and school characteristics.

Ghemrawi et al. (2023) examined the relationship between VI and sleep duration among university students in Lebanon and the United Arab Emirates (UAE). They found that VI in university students is related to short sleep duration, use of mobile phone before sleeping, and level of stress. Moreover, Itani (2022) aimed to investigate the relationship between school architecture and self-efficacy of students with special needs in some schools. She revealed that there is a significant relationship between school architecture and self-efficacy of students with special needs. Finally, Terzian (2015) sought to investigate academic self-concept and academic motivation for students with LD at five private inclusive schools in Beirut. She showed that there is a significant positive correlation between academic self-concept and academic motivation for students with LD. She also exposed that students' with LD academic self-concept is lower than that of students without LD. This result agrees with a study by Szenczi et al. (2018) which indicated that there is a relationship between different facets of academic self-concept and mastery motivation in students with LD, where low academic self-concept may lead to lower motivation. Szenczi et al. (2018) add that academic self-concepts of students with LD are usually low.

Research Focus 8: Inclusive School Selection

'Inclusive school selection' is reflected in two studies of the 59 reviewed studies. Selection of inclusive schools for students with VI was restricted and contingent upon certain factors and conditions, such as availability of support for students with VI and their ability to behave in a way deemed acceptable by society (Khochen, 2017; Khochen-Bagshaw, 2023). This finding is congruent with a study by Bacon (2019) which concluded that some small mainstream schools in New York City implement mechanisms to avoid accepting students with SEND in need of intensive support services. According to Khochen-Bagshaw (2023), students with VI and their parents preferred local inclusive schools. She also indicated that school selection depended on whether students with VI needed or did not need support. The factors influencing school selection when in need of support were school's willingness and availability of support by organizations, whereas the factors when not in need of support were academic achievement,

convenience, and school reputation (Khochen-Bagshaw, 2023). Similarly, Khochen (2017) showed that the selection of school was highly affected by professionals' opinions and was dependent on support availability. She also exposed that principals' decisions for accepting students with VI were influenced by school policy, which was influenced by disability types and severity and support availability. Finally, she revealed that organizations' approaches for identifying a school were influenced by school staff's attitudes, school proximity, and support availability.

Research Focus 9: Mechanisms for Measuring School Inclusiveness

'Mechanisms for measuring school inclusiveness' is reflected in one study of the 59 reviewed studies. Based on Loreman et al.'s (2014) inputs-processes-outcomes framework, the mechanisms for measuring school inclusiveness can be classified into two categories: (1) mechanisms measuring processes and (2) mechanisms measuring outcomes. The former are three and comprise the following: observing practices and language of teachers; checking and analyzing IEPs; and eliciting impressions and satisfaction of IE stakeholders (El Ahmad & Kawtharani, 2022). The latter are two and encompass the following: observing students' participation and performance; and tracking students' academic achievement (El Ahmad & Kawtharani, 2022).

First, observing practices and language of teachers (El Ahmad & Kawtharani, 2022) is in accordance with what Loreman et al. (2014) and Winter and O'Raw (2010) suggested for measuring IE. They suggested examining pedagogical strategies and techniques that teachers implement to meet learning needs of all children. Second, checking and analyzing IEPs (El Ahmad & Kawtharani, 2022) supports what Winter and O'Raw (2010) proposed. They proposed examining IEPs regarding involvement of parents in developing and managing IEP support. Third, eliciting impressions and satisfaction of IE stakeholders, including parents of students with SEND, their children, and school staff through meetings conducted for them (El Ahmad & Kawtharani, 2022) confirms what Kyriazopoulou and Weber (2009) recommended. They recommended investigating satisfaction of IE stakeholders as a mechanism for measuring IE. Fourth, observing students' participation and performance (El Ahmad & Kawtharani, 2022) corroborates what Loreman et al. (2014) proposed. They proposed investigating level of participation and inclusion of SEND in school events as a mechanism for measuring IE. Finally, tracking students' academic achievement (El Ahmad & Kawtharani, 2022) is similar to Loreman et al.'s (2014) suggestion for measuring IE. They suggested monitoring academic achievement of SEND across school systems.

Research Focus 10: Mechanisms for Sustaining School Inclusiveness

'Mechanisms for sustaining school inclusiveness' is reflected in one study of the 59 reviewed studies. Based on Loreman et al.'s (2014) inputs-processes-outcomes framework, the mechanisms for sustaining school inclusiveness can be classified into two categories: (1) mechanisms addressing inputs and (2) mechanisms addressing processes. The former are two and comprise the following: providing training and support for teachers; and providing requirements and resources (El Ahmad & Kawtharani, 2022). The latter are one and encompass conducting monitoring and follow-up (El Ahmad & Kawtharani, 2022).

First, providing training and support for teachers (El Ahmad & Kawtharani, 2022) is in line with what Stubbs (2008) proposed for sustaining IE. She proposed delivering in-service training and regular support for all education cadres. This finding is also congruent with a study by Fisher et al. (2000) which showed that providing training for teachers on IE was a means for sustaining IE at an urban elementary school in the United States. Second, providing requirements

and resources (El Ahmad & Kawtharani, 2022) is consistent with a study by Fisher et al. (2000) which revealed sustainability of IE at that urban elementary school through ensuring adequate resources for the school. Finally, conducting monitoring and follow-up (El Ahmad & Kawtharani, 2022) is in agreement with Stubbs's (2008) suggestion. She suggested carrying out participatory monitoring for IE on an on-going basis as a mechanism for sustaining IE.

Limitations

This ScR has five limitations. First, the screening and data extraction during the study selection process were conducted by the author only. The single review could result in less accuracy in including/excluding potentially irrelevant/relevant studies. However, to mitigate the negative impact of a single review, the author sought assistance from a peer with master's degree in special education during study selection process when unsure whether to include/exclude a potentially irrelevant/relevant study. Second, the review included studies published in English only and excluded studies published in French due to the author's poor command of the French language. Third, the search process did not include Web of Science and Scopus since the author is not subscribed to the paid versions of these databases which provide full-text access. It also did not include some Lebanese institutional databases because they were available only for their faculty and students. The author might have missed published studies on inclusion of students with SEND in Lebanon in those databases. Fourth, the author did not carry out quality appraisal for included studies for greater coverage of the available studies on the topic under study. Finally, the review was limited to published research works only as it would be difficult for the author to have access for unpublished master's theses and doctoral dissertations due to administrative constraints set by some private Lebanese universities.

Recommendations

For better inclusion experiences for students with SEND in mainstream classes in Lebanon, the author recommends the following based on the findings of the review:

For Policymakers:

1. Enhancing students' with SEND unconditional access and admission to mainstream schools
2. Improving inputs at schools, including facilities, resources, and physical and psychosocial aspects of school environment
3. Providing teachers with adequate training to improve their professional competence to cater for the learning needs of students with SEND in mainstream classes
4. Reducing workload of teachers and supporting them to prevent their stress and burnout

For Practitioners:

1. Ensuring consistency of teachers' instructional practices towards students with SEND
2. Implementing more occupational interventions for students with SEND to improve their sensory-motor coordination and integration

Conclusions and Directions for Future Research

Although there has been an increase in the empirical research on inclusion of students with SEND in Lebanon, no ScRs have been conducted on this topic so far. This paper is the first

to review empirical research literature on educational inclusion of students with SEND in Lebanon using ScR methodology. It is a significant resource for policymakers, practitioners, and researchers interested in this topic. The findings offer understanding of the state of inclusion of students with SEND in Lebanon, barriers and facilitators to successful inclusion, and the profile of inclusive teachers teaching students with SEND in mainstream classes. These findings would help in transforming educational experiences for students with SEND and enhancing their academic and social progress and participation in inclusive settings in Lebanon. The findings would also give insight into the research foci and gaps in this field. This would inform researchers of under-researched areas or contexts of inclusion and of the feasibility of conducting a systematic review, as well.

This comprehensive ScR examined 59 studies in terms of general characteristics and research foci and their findings in the published empirical research literature on inclusion of students with SEND in Lebanon. The findings revealed that 78% of the studies were conducted in the last decade. In addition, 47% of these published studies were master's theses/projects and doctoral dissertations. Moreover, 51% of the published studies employed a quantitative approach. Furthermore, about 90% of the studies were conducted at schools. The ScR identified 10 research foci: (1) interventions for supporting students with SEND, (2) evaluation of IE, (3) attitudes towards IE, (4) profile of inclusive teacher, (5) barriers to IE, (6) facilitators to IE, (7) profile of student with SEND, (8) inclusive school selection, (9) mechanisms for measuring school inclusiveness, and (10) mechanisms for sustaining school inclusiveness. The most represented research focus is 'interventions for supporting students with SEND' with 22 studies, yet the least represented research foci are 'mechanisms for measuring and sustaining school inclusiveness' with one study for each.

The interventions for supporting students with SEND had positive impacts on those students. However, studies on evaluation of IE yielded mixed results (poor and good quality of inclusion). The attitudes towards inclusion of students with SEND in mainstream classes are positive. As for the profile of inclusive teacher, studies on teacher professional competence yielded mixed results (poor and good knowledge and self-efficacy of teachers). Studies on teacher professional development yielded positive impacts on enhancing teachers' knowledge and self-efficacy and students' performance. Nevertheless, studies on teacher stress and burnout revealed that teachers are under stress, and they experience burnout. The barriers to IE are internal barriers inside the school boundaries and external barriers outside the school. The facilitators to IE are facilitators directed towards the inside and outside of the school. Selection of inclusive schools for students with VI is restricted and contingent upon certain factors and conditions set by school principals which is a clear violation to the Law 220/2000. The mechanisms for measuring school inclusiveness are mechanisms measuring IE processes and outcomes. Finally, the mechanisms for sustaining school inclusiveness are mechanisms addressing IE inputs and processes.

As the findings reveal that only 8% and 3% of the reviewed studies on inclusion of students with SEND were conducted in HE and preschool contexts respectively, future research on inclusion of students with SEND is needed in these contexts. Moreover, future research should increase the use of qualitative approach since only 19% of the reviewed studies employed this approach. By doing this, researchers and IE stakeholders can have a deeper understanding of the phenomenon, experiences, and context of inclusion. In addition, since selection of inclusive school was addressed by only two studies, and mechanisms for both measurement and sustainability of school inclusiveness were addressed by only one study for each, further research

is needed in these three areas. There is also a need for more research on inclusive teacher stress and burnout as only two studies were conducted on this topic. There is a need for additional research on educational adaptations, IEPs, and occupational interventions because each one was addressed by only one study, as well. Furthermore, the researcher suggests exploring differentiation and UDL as instructional tools and interventions for students with SEND in inclusive settings in Lebanon since they have not been addressed yet. Finally, the author recommends replicating the ScR taking the following into consideration: (1) forming a team of reviewers comprising a minimum of two reviewers, (2) including published research works in French language, (3), including Web of Science, Scopus, and more Lebanese institutional databases, (4) carrying out quality appraisal for included studies, and (5) including unpublished research works in the review.

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Appendix A. Overview of Included Studies

#	Author(s) & Year	Sample	Method(s)	Main Finding(s)
S1	Wehbi (2007)	200 participants	Survey questionnaire	The barriers to educational inclusion were the following: (1) barriers related to educational system, (2) bad socio-economic conditions, (3) personal health issues, (4) family pressures due to negative attitudes, beliefs, and misconceptions, and (5) difficulties with transportation.
S2	ElZein (2009)	15 parents	Interviews	Positive attitudes towards aspects of inclusion; its different forms; types of special needs to be included, namely mild intellectual retardation and physical disabilities; and inclusion implementation in all educational cycles, except the secondary cycle
S3	Wehbi (2006)	33 students, 9 parents, and an unidentified number of educators	Document review, focus group discussions, and in-depth interviews	*Lack of awareness of issues confronting people with disabilities and inadequate qualified educators *Need for policy change, awareness-raising, capacity-building, and community-building for supporting inclusion.
S4	Khochen and Radford (2012)	40 teachers, 3 head teachers, and 2 managers	Survey questionnaire and semi-structured interviews	*Positive attitudes towards inclusion of students with disabilities, yet with reservations about inclusion of all students. *The barriers to including students with disabilities were the following: negative attitudes of teachers, students without disabilities and their parents, and community leaders; poor training for teachers; and lack of human and physical resources due to poor funding.
S5	Awada and Gutiérrez-Colon (2018)	16 English language preparatory teachers from private and public schools in Beirut, capital of Lebanon	Reflection logs and reading tests	*Combined strategy instruction consisting of different strategies helped students with learning difficulties improve their reading comprehension skills *No best strategy, as each one has its positive aspects and drawbacks
S6	Awada and Gutiérrez-Colon (2017)	289 preparatory and secondary students of English as foreign language were sampled from 1 private and 1 public school in Beirut.	Reading tests	*Combined strategy instruction in inclusive settings was more effective than regular instruction in enhancing reading comprehension for both students with and without LD when using narrative texts, yet with no difference when using expository texts
S7	Kobrossy (2019)	14 participants	Semi-structured interviews	*High willingness of the school population for including students with visual impairment (VI) *IE elements were present at the school understudy, yet its implementation was challenged by a lack of a common vision and proper training.
S8	Hajal and Al Chibani (2021)	10 private inclusive schools in Bekaa, Eastern Lebanon	Checklists filled out by the researchers and principals	Most private inclusive schools were not fully equipped for accommodating students with special needs.

S9	Khochen-Bagshaw (2023)	62 participants	Semi-structured interviews	<p>*School selection for students with VI in need for support provision was driven by school's willingness to enroll them and the availability of support by organizations, which was an exclusionary practice.</p> <p>*When they did not need such support provision, school selection was driven by academic achievement, convenience, and school reputation.</p> <p>*Students with VI and their parents preferred local inclusive schools, yet they had to normalize themselves in ways deemed acceptable by society to be accepted by those inclusive schools.</p>
S10	ELDaou and Kazan (2016)	11 science teachers selected from 4 private inclusive Lebanese schools teaching grades 1-11	4 surveys, analysis of science teachers' lesson plans, collection of term 1 and 2 science exam grades of students with special needs, and class observations	<p>*Positive correlation between science teachers' technology knowledge and usability, their technology self-efficacy, and attitudes towards technology integration on one side, and academic performance of students with special needs in science on the others side.</p> <p>*Teachers who undertook the training gave better technology definitions and had higher technology self-efficacy level than those who did not undertake the training.</p> <p>*Teachers' knowledge and beliefs impacted their intent to use technology which was reflected in its integration into their lesson plans.</p> <p>*The ICT training for teachers enhanced students' motivation, interaction, and participation in class, and their academic performance in science.</p>
S11	Ismail and Saad (2020)	122 students with LD ranging from grade 3 to 12 from a private inclusive Lebanese school	Questionnaire (interrupted due to school closure because of COVID-19 outbreak) and semi-structured interviews	Improved awareness of rights and low level of learned helplessness for students with disabilities
S12	Kebbi and Al-Hroub (2018)	100 general education teachers and 39 special education teachers (SET) from 8 private elementary Lebanese schools in Beirut	Survey questionnaire	<p>*Most teachers' stress sources were moderately stressful, and most stress effects were frequently stressful.</p> <p>*Most effective stress coping strategies were 'organizing time and setting priorities' and 'doing relaxing activities (hobby)'.</p>
S13	El Ahmad and Kawtharani (2022)	24 participants from a lower elementary (LE) school at UNRWA	Semi-structured interviews and focus group discussions	The school worked hard to overcome barriers to IE and measure and sustain inclusiveness of the school.
S14	ElSaheli-Elhage and Sawilowsky (2016)	679 SET and 89 administrators from 57 private inclusive schools across Lebanon	Survey questionnaires	<p>*A critical gender imbalance in implementing assessment practices in favor of females with a significant inaccuracy in ethical standards.</p> <p>*Almost half of the SET and administrators were not well-prepared for assessment of students with LD with significantly higher involvement of administrators in student assessment than teachers.</p> <p>*Some teachers' assessment practices were still traditional.</p> <p>*Teachers and administrators perceived a positive impact of student assessment on different aspects of the school.</p>

S15	Khansa (2015)	50 part and full-time instructors from a private Lebanese university	Survey questionnaire	*Instructors had positive attitudes towards inclusion of students with LD. *Willingness for providing accommodations for those students by extending time of exams and class projects and not penalizing them for language mistakes.
S16	Bendak (2011)	18 grade 3 students with dyslexia selected from a private school in Beirut	Standardized oral reading test	Positive effect for IEPs on improving reading performance for students with dyslexia
S17	El Ahmad (2022)	142 participants	Questionnaire surveys and structured classroom observations	Students with SEND received an IE to a large extent, yet inclusive practices of teachers were inconsistent, in addition to poor availability of assistive technologies and exclusion of students with SEND from classroom routine procedures.
S18	Amin and Oweini (2013)	Grade 1 student with ASD, his mother, 3 typically developing classmates, regular teacher, and special educator from an urban inclusive school in Beirut	Rating scale, an observational record, and informal interviews	The combined intervention improved social skills of the student with ASD understudy.
S19	Frangieh and Akiki (2020)	37 school principals and 120 teachers	Questionnaire	Partial and ill-defined conceptualization of inclusion which was nothing other than physical integration of students with SEND into mainstream schools
S20	Itani (2022)	35 SET and 25 students with special needs from some schools in Lebanon	Questionnaires and interviews	*School architecture was unsuitable for students with special needs. *Significant relationship between school architecture and self-efficacy of students with special needs
S21	Ghemrawi et al. (2023)	1, 002 students from two universities in Lebanon and UAE	Questionnaire	VI in university students was related to short sleep duration, use of mobile phone before sleeping, and level of stress.
S22	Nabhan (2018)	A preparatory dyslexic student from a private school in Lebanon	Published tests, accounts, observations, and interviews	The computer software programs and internet search engines had a positive impact on the student's reading, spelling, reading comprehension, and writing skills.
S23	EL-Daw and Hammoud (2015)	116 LE students from public Lebanese schools	Rating scales	*The building up self-esteem program had a positive impact on social skills for students with special needs who undertook the program. *Inclusion of students with special needs reduced their behavioral problems.
S24	ElDaou and El-Shamieh (2015)	14 cycle 2 students with ADHD from 2 schools in Saida, South Lebanon	Rating scale, concentration tasks, and school scores record	The chess training had a positive effect on improving concentration skills and period, and in listening language scores for students with ADHD.
S25	Bendak (2018a)	10 cycle 1 ASD students	Standardized test	The intervention improved the motor visual integration of ASD students.

S26	Bendak (2018b)	20 slow learners in cycle 1 from 2 private schools	Standardized test and passage comprehension sections	The repeated readings intervention had a positive effect on enhancing reading fluency and passage comprehension of slow learners.
S27	Ghandour (2017)	32 participants from a private elementary school in Beirut	Online questionnaires, semi-structured interview, observation, and document analysis	The school under study met the criteria of a successful inclusive school.
S28	Mallouk (2019)	144 faculty members from a private university in Beirut	Online questionnaire survey	<p>*Willingness to provide accommodations, yet this willingness was contingent upon the type of the accommodation requested and the student's disability, whereby physical disabilities were the most favored and mental illnesses were the least favored.</p> <p>*Only personal beliefs and attitudes of faculty members towards students with disabilities and accommodations significantly predicted that willingness.</p> <p>*Limited knowledge of faculty members about disabilities and legislations and the designing of accommodations in courses.</p>
S29	Al Rayess (2014)	35 teachers and 82 students, of which 5 students with autism, from 4 private inclusive schools in Beirut and Mount Lebanon	Data were collected from teachers through questionnaire survey and from students through a questionnaire.	<p>*Teachers generally had positive attitudes towards inclusion of students with autism, yet with SET having significantly higher attitude scores than regular education teachers.</p> <p>*Teachers who undertook in-service and formal training on teaching students with autism had more positive attitudes than those who did not.</p> <p>*Student with autism was socially neglected by their peers in 3 out of 5 surveyed classes.</p>
S30	Khalaf (2021)	254 participants from 7 private schools in Beirut	Online questionnaire surveys	<p>*Teachers had high level of attitudes towards IE.</p> <p>*They had high level of self-efficacy for teaching in mainstream classes.</p> <p>*There was an effect for gender on teachers' attitudes towards IE in favor of female teachers.</p> <p>*There was an effect for level of education on teachers' attitudes in favor of those holding master's.</p> <p>*There was an effect for training on teachers' attitudes in favor of those who had high levels of training.</p> <p>*There was an effect for experience in teaching students with SEN on teachers' attitudes in favor of those having high levels of experience.</p> <p>*There was a significant positive correlation between teachers' self-efficacy and their attitudes.</p> <p>*Parents of students with and without SEN had positive attitudes towards IE.</p> <p>*Parents of students without SEN had more favorable attitudes towards IE than parents of students with SEN.</p>

S31	Irani (2008)	31 participants from a private inclusive school in Beirut	Questionnaires, semi-structured interviews, and document review	<p>*School principal was a key factor for successful implementation of inclusion.</p> <p>*The beliefs and views of the principal towards inclusion were major means for welcoming students with special educational needs.</p> <p>*The support of the principal was significant for commitment and satisfaction of teachers.</p> <p>*Provision of favorable work conditions and sufficient resources for teachers influenced the teaching-learning environment.</p>
S32	Fares (2009)	94 participants from a school in Beirut	Questionnaires, semi-structured interviews, focus group discussions, and classroom observations	<p>*Presence of individualized learning and enhancement of students' self-esteem in the school, yet with improper implementation of inclusion of students with special needs.</p> <p>*Students would work and achieve better results when they all worked in groups arranged by teachers.</p> <p>*Students would achieve better and gain respect of all by enhancing their self-esteem.</p> <p>*The academic achievement of students with LD did not improve due to absence of teachers' awareness of these students.</p>
S33	Assi (2006)	3 participants from an inclusive school	Observations	The Barkley's behavior management program was effective when collaboration and consistency between regular and SET were maintained.
S34	Chebli (2016)	92 general and SET from 2 inclusive schools	Questionnaires	<p>*Positive impact for the training on teachers' knowledge about autism and self-efficacy</p> <p>*Only knowledge about autism predicted self-efficacy.</p>
S35	El Ghussein (2009)	A preparatory student with ADHD selected from an inclusive school	Assessment lessons employing a rating scale	The play therapy program had a positive impact on the student with ADHD.
S36	Cheikh El Ard (2009)	8 elementary students with LD and ADHD from private inclusive schools in Beirut	Test	The computer software program had a positive impact on students with LD having reading difficulties.
S37	Andary (2013)	95 participants from 2 purposively selected private inclusive schools in Beirut	Questionnaires and interviews	<p>*The habitus needed to change.</p> <p>*Teachers' training had a critical role.</p> <p>*Acquiring social, economic, linguistic, or cultural capital can played a crucial role in developing the educational system and transforming the schools understudy into successful inclusive schools.</p>
S38	Bassous (2019)	12 elementary general and SET from 6 inclusive schools in different areas across Lebanon	Semi-structured interviews and classroom observations	<p>*Teachers had knowledge about how to teach metacognitive skills, yet they were not overtly teaching those skills to students with LD.</p> <p>*The perceived barriers to providing effective metacognitive skills for those students were school barriers, parents' barriers, lack of pre-service teacher education about metacognitive skills, teachers' self-perceptions, lack of time, and characteristics of students' LD.</p>

S39	Terzian (2015)	112 students from 5 private inclusive schools in Beirut	Questionnaires	<p>*Students' with LD academic self-concept was lower than that of students without LD.</p> <p>*A significant positive correlation between academic self-concept and academic motivation for students with LD.</p>
S40	Khochen (2017)	<p>Qualitative phase: 136 participants</p> <p>Quantitative phase: 85 teachers</p>	Interviews, focus group discussions, and a questionnaire	<p>*Selection of the school for students with VI was highly affected by professionals' opinions and was dependent on support availability.</p> <p>*When students with VI and their parents made an autonomous decision, students with VI had to behave in a way deemed acceptable by society.</p> <p>*The major barriers to IE were lack of access to information, lack of teacher training, poor knowledge of inclusion principles, and lack of whole school approach.</p> <p>*Schools did not provide IE for students with VI but educational facilitation and social integration.</p> <p>*Students with VI and their parents faced restrictions while selecting a school. They had limited autonomy which was influenced by the type of schools students attended.</p> <p>*Principals' decisions for accepting them were influenced by school policy which was influenced by disability types and severity and support availability. Organizations' approaches for identifying a school were influenced by school staff's attitudes, school proximity, and support availability.</p>
S41	Daoud (2016)	25 participants from a private mainstream school in North Lebanon	Questionnaires and semi-structured interviews	<p>*Students with specific learning difficulties (SLD) faced problems in language and higher order thinking acquisition in addition to cognitive, concentration, and social problems.</p> <p>*The school offered those students helpful yet inadequate services.</p> <p>*Students should be offered help in homework completion and weaknesses areas out of school time.</p> <p>*The challenges to establishing such a center were financial constraints and professionalism of such a center. Finally, they indicated that research-based programs and strategies were recommended for students with SLD.</p>
S42	Berri (2015)	317 female elementary teachers from 9 public and 6 private schools in South Lebanon.	Questionnaire surveys and focus group discussions	<p>*Teachers had good knowledge about diagnosis and symptoms of ADHD yet poor general knowledge about ADHD and its treatment.</p> <p>*Inconsistency in the effect of ADHD students' gender on teachers' perceptions of ADHD subtypes.</p> <p>*Absence of special programs for students with ADHD</p>
S43	Hatoum (2010)	12 urban mothers of elementary school-aged children with Down Syndrome (DS) from Beirut	Semi-structured interviews	<p>*Mothers were a dynamic driving force behind ensuring educational programs and related services for their children with DS.</p> <p>*The critical factors influencing the education of their children were the following: (1) financial resources, (2) background and characteristics of mothers, (3) support, and (4) religion.</p>
S44	Van Loan (2013)	1,036 participants from a private university	Questionnaire surveys	Positive attitudes towards students with disabilities

S45	Hojeij (2005)	5 grade 4 male students with dyslexia from a private inclusive school in Metn	Assessment tasks	Dyslexic students who were taught through a multisensory teaching approach performed higher than dyslexic students who were taught through traditional approach.
S46	Al Boukhari (2017)	9 VI students and 14 partially and fully VI adults from Beirut	Questionnaires, semi-structured interviews, and observations	Lack of safe accessibility and full usability of the physical environment at 3 public schools
S47	Kustantini (1999)	45 administrators, 228 teachers, and 241 parents from public, private, and special schools in Beirut	Questionnaire survey	Positive attitudes towards various aspects of mainstreaming of students with special needs, particularly mild mental retardation and motor handicaps
S48	Hamza (2013)	18 teachers and 3 counselors were selected from 3 private elementary inclusive schools in Beirut.	Semi-structured interviews	Little awareness of the counselor's role in dealing with students with special needs
S49	Ismail (2002)	18 participants	In-depth interviews, observation, and document review	*The critical elements for success of inclusion were the following: people and structures, preparation programs for teachers, attitudes and beliefs, leadership role of principals, collaboration between general and SET, and parental involvement. *They also supported full inclusion of students with special needs.
S50	Kayal (2014)	54 participants	Surveys, semi-structured interviews, focus group discussions, observations, and document analysis	*Modifications and accommodations were beneficial for students with LD. *The challenges to their implementation appeared at 3 levels: during classwork, during and after exams, and with main players involved with designing and implementing them.
S51	El Hassan (2020)	6 participants from a private inclusive school in North Lebanon	Semi-structured interviews and classroom observations	*The support available included an IEP, structured educational approach, universal design for learning, visual aids, technology, and hands-on activities. *Teachers' perceptions towards the curriculum were objective, yet their perceptions towards inclusion of ASD students were positive. *Teachers were unprepared to teach students with ASD, yet paraprofessionals had some experience and background.
S52	Zakka (2018)	28 principals of private schools inside and outside Beirut	Questionnaire survey	Positive attitudes of private school principals towards inclusion of students with SEN
S53	Baalbaki (2016)	54 SET and 5 heads of special education departments, who were selected from 5 private inclusive schools in Beirut	Questionnaire, semi-structured interviews, and researcher's reflective journal	*High burnout for teachers on emotional exhaustion and low burnout on depersonalization and personal accomplishment due to systemic factors mainly. *The study recommended providing SET with adequate exposure and training.

S54	Fakhreddine (2013)	4 students with Asperger syndrome selected from an inclusive private school in Beirut	Curriculum-based measurement tasks, battery of standardized tests, checklist, and questionnaire	The program improved reading comprehension skills, attitudes, and motivation of 2 students with Asperger syndrome who undertook the intervention.
S55	Elkabani and Zantout (2015)	Unknown number of participants at least at the secondary schooling and upper elementary levels	Assessment tasks	More satisfiability, effectiveness, and efficiency for the developed system for VI math. students than conventional systems
S56	Ghali et al. (2016)	6 VI upper elementary students in Lebanon	Assessment tasks	More efficiency, effectiveness, and satisfiability for the developed system for VI math. students than traditional systems
S57	Elkabani et al. (2020)	6 VI upper elementary and 7 VI preparatory students	Assessment tasks	More effectiveness, efficiency, and satisfiability for the developed system for VI math. students than traditional systems
S58	Zantout et al. (2020)	6 VI students with at least secondary education in mathematics	Assessment tasks	More satisfiability, effectiveness and efficiency for the developed workspace for VI math. students than traditional systems
S59	McBride et al. (1999)	Unknown number of participants	Interviews, classroom observations, informal discussions, and document review	*Many policies within the Ministry of Education were leading to educational exclusion of students with special needs. *Critique to mandating the educational issues of those students to the Ministry of Social Affairs, which emphasized care rather than education.