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Strategies, Practices, and Methods of Educators who Work with Students with Specific Learning Disabilities (SLD): Review of the Current Trends and Challenges

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Strategies, Practices, and Methods of Educators who Work with Students with Specific Learning Disabilities (SLD): Review of the Current Trends and Challenges

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Abstract: The purpose of this literature review is to search, analyze, and identify the most significant trends, practices, and issues in the field of special education, especially the category of learning disabilities. As research expands, education, schools, and teachers of students with SLD go through different changes that require them to learn and dig deeper. These changes include ongoing practices, strategies, learning styles, interventions, and other trends for students with SLD. This paper discusses the current and common trends in educating individuals with SLD in 2022. Living with an advanced form and devices of technologies makes educators think about the ideal method of knowing and practicing its related subjects and complicated components. Research has shown that different teachers expressed challenges and issues regarding the new subjects and trends they must deal with, including their current practices, class behavior management, parents' involvement, and students' overall outcomes and achievements. The trends in the special education field are always progressing over time as the research goes on. Changes and trends sometimes make teachers struggle with the way they teach and accommodate their students with disabilities, especially those with SLD. This article applied specific procedures in this literature review, including identification, screening, eligibility, and inclusion or exclusion. The major database used in this review was carried out following certain criteria and search engines, such as Google, The Saudi Digital Library, ResearchGate, Google scholar, Eric, SAGE, Scopus, and other engines. About 50 articles were detected and were under analysis. Some of these articles were excluded due to the issue of not meeting the criteria, such as different topics, coverage of the disability, and population type. After the analysis, more than 30 articles were included in this review. The findings of the papers were qualitatively analyzed and described. The findings showed different main themes, including assistive technology, accessibility, evidence-based practice, cultural consideration and responsiveness, and parental support and student independence. The results showed that teachers and practitioners still face these issues when dealing with those with SLD. The findings of this review can predict a basis for teachers, parents, care agencies, and decision-makers. This paper will discuss and outline detailed information about what this century has for those with learning difficulties and the possible practices and challenges that students, parents, and teachers currently encounter.

Keywords: Assistive Technology, Accessibility, Cultural Responsiveness, Evidence-Based Practices, Parental Involvement, Independence.

1 Introduction

Likewise other fields, special education has been going through different types of trends over time. Historically, since the '40s, the League of Nations started the adaptation of granting rights to every human. These rights include granting free and appropriate education to all students regardless of their culture, race, color, and religion [1]. However, the issuance of these rights has been under various research and practices that called for more inclusion and independence. The huge shifts in the special education service included multiple trends, such as reconsideration of students' placement tests, redesigning curriculum that meets students' needs, and designing individualized services that provide intensive care for all students with disabilities [2]. Despite the huge transformation of the field of special education that included the providence of appropriate education, opening the classroom doors, and increasing the accountability of service providers, Esteves and Rao [3] emphasized that more advancement is needed to keep up the professional and high-quality education to all who work with students with disabilities, including teachers and parents. The issues and trends of special education continue to demand researchers for more accessibility and differentiated instructions to students with disabilities without placing them in special rooms or relying on special education teachers [4]. The major objective of this review include:

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1-Exploring the most significant issues of applying educational and assistive technology and its related challenges to teachers (Examples, computer-supported software, mobile devices, and mobile learning, assistive technology tools, online learning platforms, & multimedia)

2-Challenges toward students' accessibility to the environment and curriculum

3-Issues with adhering the evidence-based practices for teachers and practitioners

4-Difficulties with cultural responsiveness and application

2 Educational and Assistive Technologies

Educational technology is a huge umbrella that shades various types of technologies and tools that could benefit all students, including those with disabilities. For those with SLD, there are multiple types of disorders that fall under the category of learning disabilities. Muktamath, Hegde, and Chand [5] mentioned that the category of learning disability can include dyslexia, dysgraphia, dyscalculia, auditory processing disorder, nonverbal learning disabilities, and visual perceptual/visual motor deficit. These types of disorders make it hard for many individuals and teachers to deal with some strategies and technologies that can benefit them and improve their learning and independence progress. The Yale Center for Dyslexia and Creativity estimates that dyslexia has the most common portion of all types of learning disabilities which can include an impact of 20% of the population. They added that dyslexia can affect the cognitive abilities of more than 80% of students with learning disabilities (Yale Center for Dyslexia & Creativity, 2022).

Tools of educational and assistive technologies can include computers, special devices, and screens. Examples of digital devices can include mobile devices, tablets, iPads, iPhones, iPods, and other smart devices. Today's schools go through various research and studies had found regarding the professional and correct method of the implementation of computer-based systems to better educate students with learning difficulties. Some researchers also recommend using computer assessment, which allows for a more individualized testing experience that better accommodates students with learning disabilities [8]. According to Gelbart [6], schools are increasingly using computer-based systems to deliver annual assessments to students with SLD, a practice that could considerably affect these students. In a comparison between two types of assessment (paper-and-pencil versus computer-based training "CBT"), Dolan et al., [7] found that the performance of students with SLD increased when CBT was used, especially when they were provided with more advanced training on accessing accommodations on the computer as well as receiving training on how to use the computer hardware. Satsangi et al. [8] mentioned that over the last two decades, there has been an increase in the importance of improving academic outcomes of kindergarten to 12th grade (K 12) students with disabilities, including those with SLD. This has involved the implementation of innovative approaches and technologies to expand instructional support in classrooms [9]. The researchers added that the implementation of manipulatives was shown to have a positive impact on students who have learning disabilities. Virtual manipulatives are computer/tablet-based, two to three-dimensional representations of concrete objects that can be manipulated by the student (i.e., rotated, flipped, enlarged) on the screen [10]. The use of virtual manipulation is a major tool employed in a sample of recent methods for working with students with LD. Satsangi et al. [11] examined the effect of the implementation of an instructional strategy using a virtual manipulative balance combined with explicit instruction to teach multistep linear equations to students with math difficulties. The study found "increased percent accuracy and independence scores for all students across an intervention and maintenance phase". Relying on a combination of explicit instruction and virtual manipulatives to educate students with LD is a popular current trend in the use of standards of evidence-based strategies to help students increase their learning skills in math content [12] and [13].

Another example of trending practices in instructional technology is assistive technology (AT), especially because AT can play a significant role in the academic outcomes of all students, especially those with SLD [14]. Further, assistive technology has been valuable in designing and validating interventions for individuals with disabilities to improve their academic achievements [15]. Technology-based solutions are also a recent trend with educators seeking to increase the skills of students with SLD, in the areas of reading, writing, math, and social skills; many promising implications for the design of instruction have been noted through the introduction of technology to improve learning outcomes [16] and [17]. Examples of AT include audio players and records, timers, reading guides, seat cushions, FM listening systems, calculators, writing supports, electronic books, and graphic organizers.

Smith and Okolo [18] cited a report by Rideout, Foehr, and Roberts from 2010, which made the rather shocking assertion that during 7.5 hours, children 8-18 years of age were utilizing technology 10.75 hours – meaning that they had to be accessing more than one type of technology during the 7.5-hour timeframe; clearly, this digital generation spends a great deal of time interacting with technology [19]. Therefore, it is obvious that integrating technology into education is an effective way for educators to engage and instruct such students who also have SLD, as they are already very familiar with using technology during their recreational hours. Mobile technology, sometimes referred to as mobile

learning, is also a new trend being examined by researchers [20].

The proliferation of mobile devices and tools, such as personal digital assistants, iPods, smartphones, and portable tablets, has had a strong impact, particularly on the younger generation of learners [21]. The use of such devices in schools and for research is now ubiquitous, including in the field of educating those with SLD and other disabilities [22]. This trend demands education professionals close the research gap and increase their use of mobile learning, especially as it has been increasingly adopted by schools globally in the last decade [23]. Moreover, there are still some areas where the use of mobile technology as an academic method or an assistive technology tool has not been firmly proven to enhance educational outcomes for individuals with SLD [24]. Thus, more research is needed to deepen the investigation of various benefits that mobile devices can have for all students, including those with learning issues. The use of mobile technology enables people to digitally access their agendas, utilize online services, enable learning opportunities, allow for work preparation, and be used globally to make everyday activities better organized and more easily accessible [25]. In an interesting study, Lenhart [26] found more than 88% of American adolescents (middle and higher schools) have access to a smartphone.

Recently, scholars have argued that access to digital environments with compatible supports and environmental settings for students with disabilities, including those with SLD, could present strengths that could benefit these students greatly [27]. With all the trends and possible benefits of technology, scholars have urged that educators employ such items in the K-12 setting to enhance the learning process for all students, including those with SLD [28] and [29]. Draper et al., [30] argued that the emergence of mobile devices, and their associated applications (apps), have a valuable function in enhancing the communication, collaboration, learning, and sharing of students with SLD in the academic environment and that the full benefits of such items have only just begun to be explored, particularly when it comes to educational research and practices for use with those with LD

Other innovations that have been trending in educating students with SLD over the last decade that can be implemented alongside mobile learning include the innovation of augmented reality (AR) and virtual reality (VR). The inclusion of augmented reality on mobile devices aims to improve the outcomes of all students [31]. The newness of AR means that there is a lack of research investigating the benefits of its use with those with SLD. Richard et al., [32] implemented AR with elementary school students with intellectual disabilities for teaching matching. Their findings showed a successful manipulation of three-dimensional objects to improve matching skills and demonstration of a high level of engagement. Similarly, VR is also an innovation that lacks research, especially involving students with disabilities [33]. The possible advantages of VR should motivate educational researchers to conduct more studies on the use of VR as an effective tool that could enhance the educational and social skills of students with LD and other disabilities. Scholars have noted that virtual reality, utilizing the avatar features, affords a safe environment for students to master physical proximity, control sound level, and affect body language in ways that allow the user to experiment with social interactions they might otherwise not risk [34] and [35]. Further exploration of AR and VR is necessary to realize the full potential of both in educating students and others. Technology is one of the big trends but not the only trend that educators usually struggle with in the special education field.

3 The Accessibility of Environments

Accessibility to the educational and social environments has always been a significant focus in the field of special education, including the way that schools improve and provide accommodations and modifications to address the educational and social needs of students with disabilities. In addition, it can be extremely helpful in inclusive classes to minimize the restrictions that might slow or weaken the speed of achievement of those with SLD. One such program is Universal Design for Learning (UDL), which Madden [36] argued may be the best method of integrating students with all disabilities, including those with SLD, in the general education classroom, noting that doing so as much as possible is one of the most significant trends in today's education. Michael & Trezek [37] stated that the National Center for Educational Statistics (NCES) (2005) noted that half of the students with exceptional needs (aged 6-21) spend about 80% of their time in general education settings. This high percentage is very significant, especially since individuals with learning challenges are consistently found to underachieve compared to their typical peers of the same age [38]. According to the National Assessment of Educational Progress (NAEP) (2009), only about 6% of students with special needs, including those with learning challenges, can achieve proficiency in writing assessments. Further, roughly 46% were achieving below the basic level, and 48% achieved at only a basic level [39]. This makes the use of UDL a critical tool in educating students with SLD that should be the subject of research studies as well as integrated into educational practices in schools. The Center for Applied Special Technology (CAST) developed Universal Design for Learning, based on the understanding that the way educators and researchers understand how to improve the educational outcomes for all students, including students with SLD, is by utilizing flexible methods and materials [40]. The UDL principles correspond well with today's increased utilization of instructional technology, including modifying the relationship between children and literacy by implementing technology to combine reading strategy instructions directly

into high-quality educational practices for all learners, including those with learning challenges [41]. UDL is also significant in building a base for enhancing reading strategy instruction to improve comprehension in students with and without disabilities [42] and [43]. Accommodating individuals with SLD with the most efficient tools is important to assuring high-quality education for students with learning disabilities. The IDEA (2004) mandates specific accommodations for students with disabilities to ensure these children are not negatively impacted by traditional test-taking procedures IDEA 2004 and [44].

4 Evidence-Based Practices

Implementing evidence-based instructional practices is an essential trend in schools and research practices. These may include the Response to Intervention (RTI), Multi-Tiered System of Support (MTSS), and peer-mediated tutoring. The RTI practices that exist in today's schools permit different results, including the classification of students and the determination of needed interventions. For more than a decade, the RTI approach has been legally mandated by the laws of a few states; however, most of the United States does not have such laws and most states do not require that schools adhere to certain protocols of RTI (e.g., the length of tiers and frequency of progress monitoring) [45]. The continuing significance of the use of RTI relies upon the consistent use of its specific processes as they shape the decisions that impact things such as educational procedures and issues of eligibility to receive special education services [46]. Additionally, there has been much debate over the proposal to implement a pattern of strengths and weaknesses (PSW) as an alternative approach to RTI in special education literature [47] and [48]. However, RTI continues to remain significant in impacting the education of students with SLD, including the benefits of moving a student from tier to tier based on the need, to provide a greater intensity of instruction to struggling learners [49].

5 Cultural Responsiveness

The United States is a land of immigrants. Today's U.S. schools necessarily educate students with SLD from different cultures, and backgrounds, and who have different languages spoken in their homes. Despite its changes over time, the American Psychiatric Association describes the term SLD as "a neurodevelopmental disorder that impacts the cognitive abilities of students and results in issues with math, reading, and written expressions". The concept was revealed in 1962 by Samuel Kirk. Kirk introduced the concept of the LD and described it as "A retardation, disorder, or delayed development in one or more of the processes of speech, language, reading, writing, arithmetic, or other school subject causing a psychological handicap affected by a potential cerebral dysfunction and emotional behavioral issues. It may not be a cause of mental retardation, sensory deprivation, or cultural and instructional factors" [50] p. 263. From the definition, the diagnosis of SLD should be based on the mentioned characteristics that Kirk included no other factors that may include race or culture.

The aspect of educating students with SLD in the modern world rests upon how far schools go to be responsive to the cultural and linguistic diversity of students with learning disabilities. Appropriate education for all students with SLD starts with an adherence to the federal guidelines for the identification of students with learning disabilities, which is based in part on a medical model of diagnosis; however, it cannot be ignored that there is disproportional identification of certain sociodemographic groups across the nation [51]. This trend creates concerns regarding this disproportionate treatment of students who come from groups that are considered socially disadvantaged, of racial/ethnic minority, of a language minority, and/or of low socioeconomic status [52]; [53]; [54]; and [55].

6 Parental Involvement

Parent and community involvement are critical aspects of educating students with SLD. The IDEA (2004) makes it clear that parents of students with disabilities, including those with learning challenges, should be encouraged to be fundamental partners with their children's schools and participants in the Individualized Education Program (IEP) process. The trend to include parents of students with SLD maintains that they should always be considered for equal partnership in any decision-making regarding their students [56]. Finally, it is also asserted that while the law requires schools to ensure parents are involved in school decisions, the current research states there is a considerable separation between actual practices and what the law demands [57]. Cavendish and Connor [58] found that parents of individuals with SLD expressed concern over obstacles they encountered that impacted their ability to participate in their student's outcomes and that these obstacles included a perceived lack of opportunity to provide input to schools, noting communication difficulties with school teams and disagreement with a tendency among education professionals to underestimate the potential of their students, regardless of how well-meaning specialists might be [59] and [60]. The importance of this current trend also involves the disconnection between schools and parents due to multiple factors, including cultural diversity in terms of race, social class, gender, and disability, with each intersection among these factors overwhelming inequalities and usually weakening parents [61]; [62]; and [63]. Comprehending the parents'

perspective of their role and involvement in their children's educational and social outcomes is a sensitive area; to appropriately address it, it is crucial to enhance teacher preparation and professional development to better facilitate collaboration between parents and schools as solid and strong partners [64].

Defending the educational rights of their children with SLD can be an intimidating experience for families, even for those who are experienced in the language and principles of special education services [65]. Until very recently, making sure that the rights of historically marginalized groups were considered was a difficult job that required intensive effort from families, educators, lawyers, and policymakers [66]. What complicates the issue more is that families of students with SLD usually do not have sufficient skill to understand all the technical terminologies, rules, and settings of special education; so, as a result, these parents feel frustrated in their efforts to maintain positive and high-quality school outcomes for their children with disabilities, including SLD [67]; [68]; and [69]. To conclude, even though efforts to better serve students with SLD and collaborate more fully with parents of these children have been going on for decades, parents and schools still struggle with developing collaborative partnerships concerning special education services delivery [70].

7 Students' Independence

A major goal of special education programs and efforts with students with disabilities is to ensure that these children may eventually become independent and productive members of their communities, to the extent they are capable [71]. In a research survey, Vanderberg et al., [72] reported that approximately 60 million individuals in the United States have reading difficulties at a functional level. This huge number makes it challenging for researchers and educators to determine ways and approaches that can serve such a large and diverse number of individuals in a manner that will readily address their challenges. Challenges with reading may correlate with negative outcomes in different domains, including education, psychological health, professional and personal development, physical health, and employment [73]. Therefore, it is important to provide employment or vocational rehabilitation to students with SLD. Limited reading skills may impact the ability to obtain work and/or a living wage [74]. In the United States, it is not a surprise that approximately half of struggling readers are living under the poverty level, which makes the issue more complicated and of greater importance to examine how students with reading issues are educated [75].

In a three-year study, Vanderberg et al. [76] examined the effectiveness of a reading intervention with individuals with reading challenges in a vocational rehabilitation environment. Fifty-seven students with reading disabilities were enrolled in the Reading Clinic at the Michigan Career and Technical Institute. The researchers introduced an individualized reading intervention that targeted phonological processing, orthographic pattern recognition, and comprehension. The findings suggested that the participants made moderate to large gains in passage reading accuracy and comprehension during the intervention. However, Vanderberg et al. [77] emphasized that participants were not able to show gains in reading rate, which raises concerns about the applicability of children's intervention strategies to adults identified as having the same issues and shows the need for additional research on the adult population with reading challenges. This point is critical to how schools implement interventions and determine what practices to employ. A failure to implement appropriate reading instruction for those with SLD, such as direct and explicit instruction, can lead to a failure to overcome reading challenges, which might eventually create obstacles to success in adulthood. This issue is only one aspect of ongoing trends for teaching students the skills they need to be able to be more successful as they transition, after high school, to jobs or college [78].

8 Conclusions

The social science research is extending as schools encounter more challenges and difficulties when dealing with students with SLD and other students with educational obstacles. Various studies focused on expanding research studies that are built on evidence-based practices. These evidence-based practices are driven to be strategies, methods, interventions, curricula, and instructions. This paper has gone through different trends and current issues that educators, researchers, and other specialists currently struggle with. Indeed, the various devices and tools of technology make it more challenging for parents, teachers, and students to look for the ideal method that they can apply to gain the most effective consequences and outcomes that can improve students' learning. In addition, research has shown that many educators and parents share similar trends and issues regarding their students which include, increasing the independence of their children with SLD, exploring effective ways to culturally connect with teachers, choosing the right practices for classroom behavior management, and encouraging parents' involvement. Despite the continuous progress that special education research is making over time, schools and researchers have been going through a gap that leaves schools struggling with these issues in the field of special education. These challenges usually make teachers encounter difficulties while accommodating their students with disabilities, especially those with SLD. This paper reviewed, discussed, and outlined the detailed literature review about what this century has for those with learning difficulties and the possible practices and challenges that students, parents, and teachers currently face.

Conflict of interest

The authors declare that there is no conflict regarding the publication of this paper.

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