

The Path Selection and Practice Strategy of Social Emotional Learning Application from the Perspective of Special Education

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Abstract. With the deepening of the concept of inclusive education, the application of social-emotional learning (SEL) in special education is becoming increasingly prominent. However, previous studies have shown that special needs are often marginalized in conventional sel intervention. This review aims to explore the latest technological breakthroughs and practical paths of SEL in special education through a systematic review of the recent three years (2023-2026) and some foundational literature (a total of 18). The research found that the current progress mainly focused on technology empowerment (such as robots and programming), culture-responsive teaching integration, interdisciplinary collaboration mode, and the improvement of teachers' efficacy. In view of the controversy of the existing research on the lack of IEP data, the lack of sample representativeness and the heterogeneity of intervention effect, this paper constructs a three-dimensional path model including "standardized assessment", "ecological intervention" and "full cycle support", to provide theoretical basis and practical strategies for the precision and inclusiveness of sel in special education.

Keywords: Special Education, Social-Emotional Learning, Personalised Assessment, Emotion Regulation Training, Adaptive Teaching

1. Introduction

Social Emotional Learning (SEL), an educational approach dedicated to developing learners' psychological and social abilities, has attracted increasing attention in the field of special education. SEL includes five core competency dimensions: self-awareness, self-management, social awareness, interpersonal relationships, and responsible decision-making. SEL plays a pivotal role in facilitating the social adaptation and emotional regulation of students with special needs. Research has shown that special education students generally face difficulties in emotion recognition, social interaction, and behavior management, and SEL intervention can significantly improve functional performance in these areas. In the practice of special education, the application of SEL needs to fully consider the individual differences of students, including the characteristics of different types of special needs such as cognitive disorders, emotional and behavioural disorders, as well as autism spectrum disorders. Current research shows that when integrating SEL into the special education curriculum

system, differentiated teaching strategies such as visual support, structured teaching, and situational simulation are needed. Meanwhile, the social and emotional competence level of special education teachers directly affects SEL implementation, highlighting the importance of teacher professional development.

2. Theoretical basis and development context

2.1. Theoretical basis

As a systematic educational framework, Social Emotional Learning (SEL) is designed to guide students to acquire and apply relevant knowledge, attitudes, and skills. These capabilities enable them to comprehend and manage their emotions, set positive goals and work toward achieving them, experience and exhibit empathy for others, establish and maintain positive interpersonal relationships, and make responsible decisions in daily situations. The five-core competency model proposed by the Collaborative for Academic, Social, and Emotional Learning (CASEL) provides a solid theoretical underpinning for SEL practices in special education, covering self-awareness, self-management, social awareness, interpersonal skills, and responsible decision-making.

2.2. Development context

Early research mainly focused on the improvement of behavioral problems through SEL. In recent years, SEL research in special education has exhibited three prominent trends. First, interdisciplinary integration research is on the rise. The cross-disciplinary studies combining neuroscience, psychology, and education have opened up new perspectives for exploring the mechanisms of emotional development in students with special needs. Lipton revealed the SEL neural basis of students with learning disabilities through neuropsychological methods [1]. Personalized intervention programs have become a research hotspot. Daunic et al. developed a stratified intervention model for K-1 grade students with emotional and behavioral disorders, which showed that adjusting SEL course content for different types of disorders can significantly improve intervention effectiveness [2]. Culturally responsive teaching practices are highly valued, and Lee's research suggests that combining SEL with the cultural backgrounds of African American students with disabilities can improve their efficiency in acquiring social skills [3]. Technology empowered SEL interventions are on the rise, and Chezik's SEL course for ASD students, developed using instructional design techniques, significantly enhances students' emotional recognition abilities through virtual situational training [4]. These trends reflect the development of SEL research in special education from standardization to personalization, and from a single discipline to interdisciplinary integration.

With the development of neuroscience and cognitive psychology, the academic community is gradually paying attention to the reshaping effect of SEL on the cognitive architecture of special needs children. The research conducted by LaFountain provides strong empirical support for this shift, as it delves into the specific effects of SEL intervention on Executive Functioning (EF) and Cognitive Skills (CF) of students with Special Educational Needs (SEN) [5]. Research has shown that interventions in the social and emotional domains, including the establishment of attachment relationships, acquisition of emotion regulation strategies, mindfulness training, and music intervention, can significantly activate and reshape students' brain executive functions. Executive functions mainly involve working memory, inhibitory control, and cognitive flexibility, which are advanced cognitive foundations for learning and social adaptation. The literature from 2023 to 2026

shows that social-emotional learning (SEL) research is in a critical historical period, transitioning from a state of "calling for attention" to a state of "precision intervention" in the context of special education. Although theoretical and practical breakthroughs have been made in robot-assisted teaching, culturally responsive integration, and exploration of neural mechanisms for executive function, the lack of standardization in data reporting, lagging integration of IEP, and weak teacher support systems remain the main governance bottlenecks that hinder social-emotional learning (SEL) from benefiting every special needs child.

3. Application challenges in special education

3.1. Teachers lack self-efficacy and professional competence

Alsalamah conducted research and found that when special education teachers (SETs) put social emotional learning (SEL) into practice, their self-efficacy generally ranged from low to moderate levels [6]. The participants in the study strongly emphasized the importance of obtaining external support that can enhance their self-efficacy in social-emotional learning (SEL) during the interview process. This conclusion reveals a structural weakness in current teacher training, where teachers generally recognize the importance of SEL but lack specific practical skills.

3.2. Heterogeneity of intervention effects and attribution dilemma

There are different opinions in the academic community regarding the actual effectiveness of Social Emotional Learning (SEL), especially in terms of its effects on students with behavioral disorders. The research conducted by Ross found that, on the one hand, social emotional learning (SEL) did not show significant effectiveness in reducing students' behavioral problems. Teachers have provided feedback that this situation is mainly due to insufficient training and a lack of a consistent curriculum system, which hinders the implementation of interventions and tracking of behavioral progress, on the other hand, the study also found that social emotional learning (SEL) is not only effective but also highly significant in enhancing students' emotional well-being, manifested in increased student participation in the classroom and improved relationships with peers [7]. This seemingly contradictory conclusion deeply reveals the dimensional differences in the effectiveness of SEL, which may have an immediate effect in improving "soft" psychological states such as happiness and belonging. However, in the absence of a systematic curriculum structure and high-intensity behavioral training to support it, it is difficult to directly achieve "hard" problem behavior correction. Ross's research reminds that people cannot evaluate SEL as "effective" or "ineffective" in a general way, but should subdivide its impact mechanisms on different dimensions (emotions, cognition, and behavior).

3.3. The crisis of identity definition and data quality

The rigor of quantitative research is currently a weakness in this field. In the process of analyzing IEP data, Dul pointed out situations such as small sample size, missing data, and non-normal distribution, which reflect the data difficulties commonly faced by special education research. Due to the significant heterogeneity of special needs children, it has become exceptionally difficult to collect large-scale standardized data, which has led to insufficient statistical inference power for many research conclusions [8]. In addition, there is still a governance crisis in the process of constructing the evaluation system regarding how to define "disability" and "race", Cipriano pointed out in a review of its system that there are significant differences among studies on how to classify

disability and racial identities separately, and there is a lack of unified standards [9]. More seriously, existing research supports meaningful assessments by using subgroup analysis, which specifically analyzes how disabled and minority students benefit from interventions. However, the evidence in this area is very limited. The governance crisis in this field of taxonomy has directly resulted in incomparable data, making it difficult for people to address the core issue of "what kind of SEL is most effective for which specific special students", thereby hindering the generation of precise intervention strategies.

3.4. Systemic implementation barriers and fairness challenges

The obstacles that exist at the system level are still difficult to overcome. Dane's research emphasizes that, when covering all student groups, disabled students face the greatest degree of institutional barriers in accessing effective socio-emotional learning (SEL) [10]. These obstacles include, but are not limited to, the unfriendly physical environment, the non-inclusive nature of textbook content, and the neglect of social and emotional dimensions in the educational evaluation system. Dane called for relevant research to not only stop at the level of intervention technology, but also to rise to the height of social justice, to expose and dismantle these systemic barriers, and advocate for the construction of an educational ecological governance model that truly has inclusive and fair characteristics for disabled students.

4. Suggestions

4.1. Evaluation path

The primary typical path to address the confusion in identity classification and the issue of unfair evaluation raised by Cipriano and Lee, J, is to standardize the questions of "what to measure" and "how to measure". Lee, J., pointed out that social-emotional competence (SEC) is a key factor affecting students' mental health and possesses malleable characteristics. Therefore, the typical path of evaluation must strive to achieve a fair SEC evaluation system [11]. This situation requires people to abandon the single, universal scale based on the norm for ordinary children in the process of developing evaluation indicators, and instead focus on developing assessment tools that are sensitive to disability types. For example, for students with autism who lack oral communication skills, assessment tools should include nonverbal behavioral observation indicators rather than relying solely on self-report questionnaires. At the same time, as Cipriano called for, it is essential to construct Minimum Reporting Standards. In the process of conducting research and writing practical reports in the future, it is necessary to require participants' disability categories, ethnic backgrounds, and cross identity information to be clearly listed in a mandatory manner. The purpose is to ensure that ethnic minorities and various types of disabled youth can be fully presented in the data, thereby providing accurate data support for future meta-analysis and policy-making work.

4.2. Intervention pathways

In the path selection of "how to teach", people should shift from a single classroom teaching mode to a composite mode that emphasizes both technological empowerment and ecological integration. On the one hand, in the process of exploring typical paths for technology empowerment, cutting-edge technology should be fully utilized to lower the learning threshold. Taylor's Project RAISE is an excellent example of this kind [12]. In the future, when it comes to practice, more exploration should be made on how to utilize open educational resources (OER) and use robots, AI-assisted

teaching systems, and virtual reality (VR) technology to provide personalized, repeatable, and low-anxiety social training scenarios for students with autism and other developmental disorders. Technology should not only be an auxiliary tool, in other words, but it should become a bridge connecting special students with the social and emotional world. In the future, when it comes to practice, more exploration should be made on how to utilize open educational resources (OER) and use robots, AI-assisted teaching systems, and virtual reality (VR) technology to provide personalized, repeatable, and low-anxiety social training scenarios for students with autism and other developmental disorders. Technology should not only be an auxiliary tool, in other words, but it should become a bridge connecting special students with the social and emotional world. This situation means that when selecting intervention paths, they should not be limited to a few isolated SEL courses set up each week, but should be embedded into the overall ecology of the school. Specifically, people need to start by formulating classroom rules, integrating them with subject teaching, and then developing campus culture. In addition, McCormick's study on long-term effects provides people with a reminder that when designing interventions, it is necessary to have a full lifecycle perspective. People need to pay attention to the impact of SEL on students' long-term access to special education services, to ensure that intervention effects can span different learning stages and continuously support students' lifelong development [13].

4.3. Support path

The implementation of SEL is ultimately determined by the question of "who will teach". In the context of Ross and Alsalamah pointing out the issues of low teacher efficacy and insufficient training, an effective support typical path should include a full cycle empowerment system from pre-service to in-service, that is, a system that empowers the entire cycle from pre-service to in-service. In the process of carrying out teacher education, the "adjust the teacher first" firefighting mode proposed by Gidalevich is introduced, using mandatory emotion awareness training (i.e. using emotion rulers, mindfulness exercises, etc.) to help pre service teachers establish strong metacognitive awareness and emotion regulation abilities, so that they can remain calm in the face of challenging behaviors of special students and provide effective emotional support [14]. Schools and educational administrative departments should provide continuous, evidence-based support for teachers' professional development. In the context of Ross pointing out the issue of "lack of consistent curriculum", it is necessary to provide standardized, tiered SEL curriculum packages and behavior tracking tools for teachers. This approach not only reduces the burden of lesson preparation for teachers but also ensures the fidelity of intervention implementation. Meanwhile, establishing interdisciplinary research communities can promote collaboration among special education teachers, psychologists, and therapists, enabling them to jointly address challenges encountered in the implementation process.

5. Conclusion

In summary, the literature from 2023 to 2026 shows that social emotional learning (SEL) research is currently at a critical historical period, with special education focusing on it. This period is a transition from a state of "calling for attention" to a state of "precise intervention". Although theoretical and practical breakthroughs have been made in robot assisted teaching, cultural responsive integration, and exploration of neural mechanisms for executive function, there are still deficiencies in data reporting in terms of standardization, lagging IEP integration, and weak teacher support systems. These are still the main governance bottlenecks that hinder social emotional

learning (SEL) from benefiting every special needs child. In the process of future practice, it is necessary to adhere to the equal emphasis on technological innovation and educational equity. On the one hand, people need to use these technologies to break through barriers while robots and AI technologies are driving them forward. On the other hand, people need to carry out institutional design work to dismantle systemic barriers. At the same time, it is necessary to focus on both improving emotional well-being in the short term and tracking social adaptation and cognitive development in the long term. This can be achieved through the construction of a standardized evaluation system and long-term longitudinal tracking. It will ultimately establish a set of SEL best practice paradigms that are suitable for students with different disabilities and cultural backgrounds, so that every special needs child can achieve comprehensive and dignified development while being nourished by social emotions.

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