Self Regulated Learning for Physical Impairment Students : a Prisma-Based Systematic Literature Review

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Abstract: *The aim of this study is to investigate the application of Self Regulated Learning (SRL) in learning as an innovation to motivate self regulation skills among physical impairment students that can affect emotional regulation and independency in student's learning. This study sort out the literatures by using a systematic literature review to identify the importance and challenges faced in SRL applied to physical impairment students students' learning. The search results were obtained using the keywords "Self Regulated Learning", "physical impairment", and "physical disability" from 2016 to 2025 literatures. A total of 118 relevant publications from Scopus and Google Scholar were collected and processed using the PRISMA method. The analysis focused on Self Regulated Learning trends that have been proven to have a positive impact on learning, with providing insights into the importance and challenges faced and its implications. These implications offer practical guidance for schools, educational technology, and policy makers to improve the learning system. This n offers contribution by providing current synthesis of studies on how educators in adapting Self Regulated Learning (SRL) strategy effectively encourage physical impairment students' learning that aligns with enhancing quality of education.*

Keywords: *Self-regulated Learning, physical impairment*

Abstrak: Penelitian ini bertujuan untuk mengkaji penerapan *Self-Regulated Learning* (SRL) dalam pembelajaran sebagai sebuah inovasi untuk memotivasi keterampilan regulasi diri pada siswa penyandang disabilitas fisik, yang dapat berpengaruh terhadap regulasi emosi dan kemandirian dalam belajar. Penelitian ini menelaah literatur dengan menggunakan *systematic literature review* untuk mengidentifikasi pentingnya SRL serta tantangan yang dihadapi dalam penerapannya pada pembelajaran siswa dengan disabilitas fisik. Pencarian literatur dilakukan menggunakan kata kunci "Self-Regulated Learning", "physical impairment", dan "physical disability" pada publikasi tahun 2016 hingga 2025. Sebanyak 118 publikasi relevan dari basis data Scopus dan Google Scholar dikumpulkan dan dianalisis menggunakan metode PRISMA. Analisis difokuskan pada tren *Self-Regulated Learning* yang terbukti memberikan dampak positif terhadap pembelajaran, sekaligus mengungkap pentingnya SRL, tantangan yang dihadapi, serta implikasinya. Implikasi tersebut memberikan panduan praktis bagi sekolah, pengembang teknologi pendidikan, dan pembuat kebijakan dalam upaya meningkatkan sistem pembelajaran. Penelitian ini berkontribusi dengan menyajikan sintesis mutakhir mengenai bagaimana pendidik dapat mengadaptasi strategi *Self-Regulated Learning* (SRL) secara efektif untuk mendorong pembelajaran siswa penyandang disabilitas fisik, sejalan dengan upaya peningkatan mutu pendidikan.

Kata kunci: *Self-Regulated Learning*, disabilitas fisik

1. INTRODUCTION

Increasing efforts to make learning more accessible and equitable can be supported by strengthening students' willingness and ability to learn independently. Independent learning is a fundamental skill needed to develop students' adaptive capacities both in the present and in the future (Ateş, 2024). This skill is essential because it enables learners to sustain themselves when encountering new tasks or challenges that must be solved without constant external guidance. In this context, Self-Regulated

Learning (SRL) emerges as a learning approach that cultivates students' latent capacities to confront new situations, understand learning contexts more deeply, and solve problems through greater autonomy (Du, Liu, & Zhao, 2025).

The relevance and urgency of using SRL become even more pronounced when applied to students with physical impairments. These students often experience high levels of dependence on others for daily and academic activities, which limits their opportunities to exercise independence or make personal learning decisions. Through SRL, students with physical impairments learn to regulate their behaviors, motivations, and learning strategies according to their abilities and physical limitations. SRL helps them develop compensatory mechanisms for motor impairments that may disrupt their learning processes such as difficulties controlling movements, limitations in fine motor activities, or reliance on assistance for certain tasks. With self-regulatory skills, students are better able to use alternative learning strategies, control the pace of learning, and identify when and what type of assistance they need. Therefore, SRL functions not merely as a teaching method but as an empowering tool that enhances functional independence for students with physical impairments.

In addition, students with physical impairments frequently encounter environmental barriers such as limited access to learning facilities, insufficient adaptation of instructional materials, and a lack of structured academic support both inside and outside the classroom. Under such conditions, SRL acts as an internal resource that enables students to maintain focus, manage emotions when facing challenges, and adapt to learning environments that are not always responsive to their specific needs. This means that SRL provides students with greater control over the learning process, even when external circumstances are less than ideal.

Self-regulated learning also has demonstrated benefits in fostering personal development by enhancing learners' ability to understand, manage, and evaluate themselves, as shown in studies conducted with female university students (Orosova et al., 2018). These findings reinforce the idea that SRL plays a crucial role in building self-confidence, psychological resilience, and internal motivation all of which are vital for students with physical impairments to persist and thrive in long-term educational pathways. Thus, the urgency of applying SRL for students with physical impairments extends beyond improving academic outcomes it also supports independence, psychological well-being, and preparedness to navigate future challenges.

Therefore, this article aims to acknowledge the importance and challenges in the application of Self-regulated Learning (SRL) for physical impairment students. By mapping the latest literature, this study is expected to contribute to the development of inclusive educational innovations. Unlike previous studies, which generally focused more on literature reviews related to other learning materials, this study focuses on innovations in implementing Self-regulated Learning (SRL) for the physical impairment students in diverse learning environment. This study has the following research questions :

1. What are the importance in the application of Self-regulated Learning (SRL) for physical impairment students?

2. What are the challenges faced in the application of Self-regulated Learning (SRL) for physical impairment students?

2. METHOD

This study uses the Literature Review research method, which is a study conducted by collecting sources or data related to the topic of discussion obtained from various sources such as books, newspapers, journals, newspapers, the internet, and other libraries. This process involves identifying, assessing, and interpreting summaries derived from research evidence with the aim of providing answers to research questions (Islam, Al Mamun, & Hoque, 2025). In the initial process, 118 sources of literature on "Self-regulated Learning", "physical impairment", and "physical disability" were found to be related to the main keywords, which were then reselected to obtain filtered results focusing on specific discussions on the application of Self Regulated Learning for Physical Impairment Students. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) approach was used with the following steps :

2.1. Identification

Selected literature sources were identified by matching keywords through Google Scholar and Scopus sources. The keywords used, entered sequentially with the words Self-regulated Learning, physical disability, and physical disability, were also filtered with literature focusing on learning innovations related to the implementation of learning with innovations in the form of Self-regulated Learning in the delivery of material. The main focus was on its application in inclusive learning that focuses on implement Self-regulated Learning, which covers not only formal education but also life skills that are important for a person's future.

2.2. Screening

Literature selection was used to obtain meaningful review results. Several methods were chosen, including keyword searches, the use of English in the literature, and the year of publication, namely 2016-2025. A total of 47 out of 118 pieces of literature from the final identification stage were found to meet the content requirements related to the keywords searched, before finally being filtered again into 41 pieces of literature that were more focused on the application of gamification. The selection in this screening stage was useful for reviewing the identification results provided.

2.3. Eligibility

The focus of this eligibility phase was to determine the requirements that met the criteria, namely having clear and measurable outcomes in each piece of literature. The requirement sought in this literature review was related to how Self Regulated Learning (SRL) strategy effectively encourage physical impairment students' learning that aligns with enhancing quality of education In selecting the literature, we found 41 pieces of literature that could represent this. After we reselected them based on the content of the literature in depth and based on their relevance to the main research question related to the application of learning for deaf students, a total of 15 articles were used in the inclusion stage.

2.4. Inclusion

The result of the approach using digital literature search to answer the first research question is to identify the importance of Self-regulated Learning (SRL) strategy effectively encourage physical impairment students' learning that aligns with enhancing quality of education. Through the second research question, the literature review is used to identify the challenges faced in SRL applied to physical impairment students students' learning. From these two research questions, conclusions will be drawn from the relevant literature as follows :

- Robinson, L. E., Palmer, K. K., & Bub, K. L. (2016). Effect of the Children's Health Activity Motor Program on Motor Skills and Self-Regulation in Head Start Preschoolers: An Efficacy Trial
- Rice, M. F., & Carter, R. A., Jr. (2016). Online Teacher Work to Support Self-Regulation of Learning in Students with Disabilities at a Fully Online State Virtual School
- Pozo, P., Grao-Cruces, A., & Pérez-Ordás, R. (2016). Teaching personal and social responsibility model-based programmes in physical education: A systematic review: A systematic review
- Marshman, E. M., Kalender, Z. Y., Nokes-Malach, T., Schunn, C., & Singh, C. (2018). Female students with A's have similar physics self-efficacy as male students with C's in introductory courses: A cause for alarm?
- Agaliotis, I., & Varsamis, P. (2019). Using MIMIC Modeling to Identify Dimensions of Self-Regulation in Cerebral Palsy
- Rademacher, A., & Koglin, U. (2018). The concept of self-regulation and preschoolers' social-emotional development: a systematic review
- Coelho, V., Cadima, J., Pinto, A. I., & Guimarães, C. (2018). Self-Regulation, engagement, and Developmental Functioning in Preschool-Aged children
- Cheng, S., & Lai, C. (2019). Facilitating learning for students with special needs: a review of technology-supported special education studies

- Reisiee, H., Sharifi, T., Ghazanfari, A., & Chorami, M. (2021). Comparison of the effectiveness of Self-Compassion therapy and Psychological capital training on stress tolerance and emotional Self-Regulation
- Callan, G. L., Rubenstein, L. D., Barton, T., & Halterman, A. (2021). Enhancing motivation by developing cyclical self-regulated learning skills
- Metawee, M. M. A., & Shokier, Z. M. (2022). The effectiveness of a self-regulation program in improving the quality of university life among female students with physical disabilities.
- Cheng, Z., Zhang, Z., Xu, Q., Maeda, Y., & Gu, P. (2023). A meta-analysis addressing the relationship between self-regulated learning strategies and academic performance in online higher education
- McGowan, A. L., Chandler, M. C., & Gerde, H. K. (2023). Infusing Physical Activity into Early Childhood Classrooms: Guidance for Best Practices
- Oliveira, A., Castro, I., Guimarães, A., Vidal, S., Carneiro, M., Magalhães, B., Rosário, P., & Pereira, A. (2025). Promoting Self-Regulation in Children with Cerebral Palsy: A Mixed Analysis of the Impact of a Training Program for Psychologists
- Du, J., Liu, L., & Zhao, S. (2025b). Empowering students in online learning environments through a Self-Regulated Learning–Enhanced Learning Management System

3. RESULT AND DISCUSSION

Through the results of the literature review, it was found that literature published between 2016 and 2025 showed an increasing trend in discussions related to the proof of learning innovation. In the graph provided, there was an increase in literature discussing the effects of implementing Self-regulated Learning (SRL) in physical impairment students learning program. Therefore, from figure 1, it shows a total of 15 major literature sources were collected that met the focus of the literature review research, which discussed the importance and the challenges faced when applying Self-regulated Learning (SRL) for the physical impairment students.
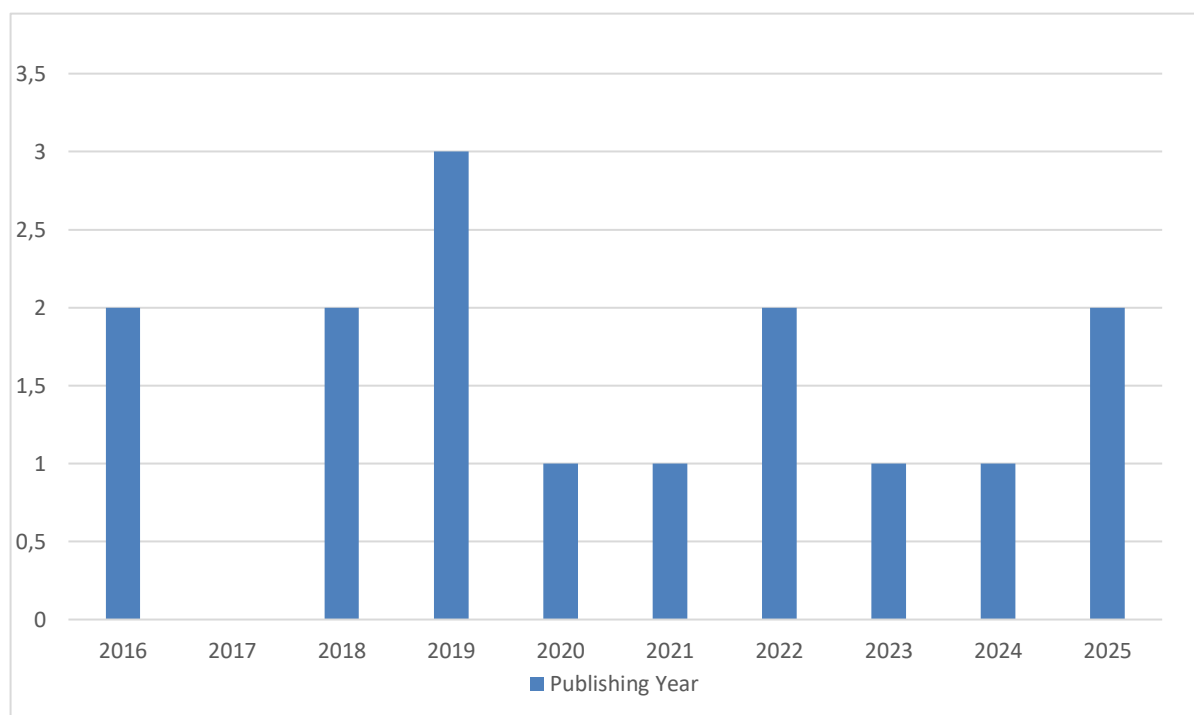

Figure 1. Graph of literature discussing Self-regulated Learning (SRL) for the physical impairment students

The Importance in Implementing Self-regulated Learning (SRL) physical impairment students' learning program

Self-Regulated Learning (SRL) is essential because it equips students with the ability to take active control over their learning processes with planning, monitoring, and evaluating their own performance. For students with physical impairments, the use of Self-Regulated Learning is especially important because it directly supports autonomy, academic success, and lifelong functioning in ways they supporting independency in students learning.

Self-Regulated Learning promotes independence in learning, which is crucial for students who often rely on others for daily tasks, especially the physically impairment students got the understanding that they have border in physically using their body. By developing skills such as goal setting, self-monitoring, and strategic planning, students can engage more independently in academic activities despite physical limitations. This increased autonomy improves confidence, motivation, and self-efficacy for physically impaired students (Robinson, Palmer, & Bub, 2016; Pozo, Grao-Cruces, & Pérez-Ordás, 2016).

Second, using Self-Regulated Learning (SRL) helps students to compensate for physical and motor limitations. Motor impairments can interfere with behavioral regulation, task management, and consistent engagement. With using Self-Regulated Learning strategies, such as breaking tasks into manageable steps so that they can follow the steps easily, using assistive tools to help them move independently, and employing alternative learning strategies enable students to adapt more effectively to their physical constraints (Coelho et al, 2018; Marshman et al 2018).

Third, Self-Regulated Learning is important because it contributes to better academic outcomes, especially in environments where structured support may be inconsistent or in a dynamic environment that changing time by time. When students learn to regulate their own learning behaviors, they demonstrate improved attention, persistence, and responsibility for completing academic tasks. This is particularly relevant for students with disabilities, who may face additional barriers in diverse conditions such as traditional or online learning environments (Rademacher & Koglin, 2018).

Fourth, Self-Regulated Learning supports long-term personal development and quality of life. Studies show that students who develop strong self-regulation skills are better prepared to handle challenges because they study about how to handle it by themselves, manage stress because they trained to have a well-organized future plan to manage anything they may face, and navigate the demands of higher education and daily life. For students with physical impairments, these skills are critical for overcoming dependence and building resilience (Callan et al, 2021; Cheng, 2023). The use of SRL is important for enhancing engagement in both in-person and online learning settings. In virtual classrooms, students often struggle without direct instructions and the example from teachers. Self-Regulated Learning strategies help them remain organized, track their progress, and remain motivated despite reduced or having limited physical interaction and feedback (McGowan, Chandler, & Gerde, 2023).

Self-Regulated Learning (SRL) ensures that educational experiences become more personalized and adaptable. Physical impairments present diverse needs and challenges, Self-Regulated Learning empowers each student to tailor learning strategies that work best for them. This flexibility and inclusivity in learning is essential for achieving equity and meaningful learning.

Types of Challenges Faced in Self-regulated Learning (SRL) physical impairment students' learning program

The review of existing literature reveals that students with physical impairments experience significant challenges in developing and applying Self-Regulated Learning (SRL). Across studies, these difficulties arise from teacher-related factors, student characteristics, environmental conditions, technological limitations, and assessment complexities. First, challenges at the teacher and practitioner level are evident. Although teachers express strong intentions to support Self-Regulated Learning, most are unable to implement Self-Regulated Learning strategies effectively. This implementation and intention gap is primarily due to limited knowledge which can be affected from

their distance from the city, inadequate training for the practitioners, and insufficient procedural competence even among trained professionals. These findings indicate a systemic preparation challenges within educator and psychologist training programs (Rice & Carter, 2016; Oliveira et al, 2025)

Second, student-level barriers strongly influence Self-Regulated Learning outcomes. Participants with physical disabilities demonstrate significant baseline deficits in self-regulation, motor control, and autonomy (Metawee & Shokier, 2022). Motor limitations interfere directly with behavioral regulation processes, while heavy dependence on others reduces opportunities for independent learning. Without structured support, many students show a decline in self regulation capabilities over time (Reisiee et al, 2021). Third, environmental and instructional contexts also shape SRL development. Online learning environments, in particular, present unique challenges. Teachers struggle to deliver Self-Regulated Learning scaffolding remotely, while students lack the necessary tools and structure to successfully self-regulate in virtual settings (Du, Liu, & Zhao, 2025). Moreover, unstructured physical activities such as regular recess are insufficient to maintain or improve Self-Regulated Learning without intentional design.

Fourth, findings highlight the inadequacy of generic Self-Regulated Learning interventions and the need for specialized tools. Existing Self-Regulated Learning measures are often not adapted for physical impairments, and technology integration in special education remains limited (Cheng & Lai, 2019). Many studies employ only basic guided-learning strategies, with fewer exploring diverse, technology-supported SRL methods. Fifth, the multidimensional nature of Self-Regulated Learning in populations such as cerebral palsy requires specialized assessment approaches. The variation in disability type and severity emphasizes the necessity for individualized intervention planning (Agaliotis, & Varsamis, 2019).

Self-regulated Learning (SRL) interventions lacking ongoing support by its environment, such as teachers, practitioners, school, and from parents of the physical impairment students demonstrate limited long-term effectiveness. One-time training events that must be held in multiple times of practicing or unstructured activities such as the program does not have specific steps and aims that need to be achieved may fail to sustain Self-Regulated improvement, whereas structured programs with practices have more promising outcomes.

4. CONCLUSION

The conclusion of this Systematic Literature Review is that Self-regulated Learning (SRL) significantly improves the quality of learning of physical impairment students. The research and literature collected support the use of technology that maximizes to study everywhere, which has a positive impact in creating a more inclusive learning environment through studying without time and place border, that also experience-based learning so that the material can be conveyed in an interesting and enjoyable way without reducing the depth of the content, thereby increasing the motivation and emotional engagement of physical impairment students.

This supports the strengthening of the foundation of quality education, for equitable, accessible, and inclusive education. With the rapid development of how a students can be independent for themselves, this is increasing awareness of the importance of inclusive education, where Self-Regulated Learning designed and developed in various educational contexts can be a very effective alternative to implement for the physical impairment students.

Therefore, the results of this study can be an important reference in curriculum development and teacher training to realize a fair, innovative, and learner-centered educational transformation. To support this, based on the challenges that the study found, it is necessary to strengthen the systemized learning program, teacher capacity through training in Self-regulation Learning (SRL) theory and its implementation, as well as encourage collaboration between educational institutions, technology developers, and the disability community especially the physical impairment students so that the resulting products are more contextual and have a real impact.

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