

Constructivism and Self-Regulated Learning in the Merdeka Curriculum: A Systematic Review of Students' Cognitive and Participatory Engagement

Adhiswar Azizi ^{a,1,*}, Avita Aniquil Farikhah ^{b,2}, Najwa Azizah Firdausi ^{c,3}, Nur Jannah ^{d,4}, Ghaitsha Zahira Sofia ^{e,5}, Nabilatus Salsabila ^{f,6}

^{a, b, c, d, e, f} Universitas Islam Negeri Sunan Ampel Surabaya, Jawa Timur, Indonesia

¹ adhiswr@gmail.com; ² aniquifar12@gmail.com; ³ najwazids@gmail.com;

⁴ nurjannah250206@gmail.com; ⁵ ghaitshazahira1012@gmail.com; ⁶ nabilatussalsabila05@gmail.com

*Correspondent Author; adhiswr@gmail.com

ARTICLE INFO

Article history

Received:

28-05-2026

Revised:

19-06-2026

Accepted:

12-08-2026

Keywords

Constructivism, Self-Regulated Learning, Merdeka Curriculum, Cognitive Engagement, Behavioral Engagement

ABSTRACT

This study aims to examine the relationship between constructivism and Self-Regulated Learning (SRL) in enhancing students' cognitive and behavioral engagement and to explore its relevance to the implementation of the Merdeka Curriculum. This study employed a systematic literature review by analyzing ten peer-reviewed journal articles selected based on their relevance, credibility, and alignment with the research objectives. The collected data were synthesized using a descriptive-comparative approach to identify patterns, similarities, and differences across the selected studies. The results of this study indicate that constructivism and Self-Regulated Learning (SRL) have complementary roles in improving students' engagement. Across the ten selected studies, constructivism and SRL consistently promoted critical thinking, problem-solving, active participation, self-directed learning, and reflective learning practices. The synthesis also demonstrated that their integration supports the development of meaningful, student-centered learning environments, making it highly relevant to the implementation of the Merdeka Curriculum. This research provides a conceptual foundation for integrating constructivist learning and Self-Regulated Learning (SRL) strategies in classroom practice to enhance students' cognitive and behavioral engagement. This research also supports the implementation of the Merdeka Curriculum by highlighting the importance of student-centered, meaningful, and self-directed learning as essential components of effective educational practice.

This is an open-access article under the [CC-BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.

Introduction



The development of twenty-first-century educational paradigms requires a shift in instructional practices from teacher-centered learning toward approaches that position students as active agents in constructing knowledge (Suganda et al., 2026). This shift is consistent with the implementation of Indonesia's Merdeka Curriculum, which emphasizes meaningful, flexible, and competency-oriented learning (Prabawati et al., 2024). Within this context, student engagement has become a critical determinant of successful learning, particularly in terms of cognitive and participatory engagement (Aripin et al., 2023). One of the approaches that supports active learning is constructivist theory, which views knowledge as being actively constructed through students' experiences, interactions, and reflections (Lathifah et al., 2024). In addition, self-regulated learning (SRL) plays an important role by emphasizing students' ability to regulate, monitor, and evaluate their own learning processes independently (Mahrufah & Rijanto, 2024).

Constructivism and SRL are closely related because both position students as the primary actors in the learning process. Through a constructivist approach, students engage in exploration, discussion, problem-solving, and reflective activities to develop deeper conceptual understanding (Muhyiddin et al., 2025). Meanwhile, SRL enables students to develop goal-setting skills, select appropriate learning strategies, regulate motivation, and evaluate their learning outcomes (Mahrufah & Rijanto, 2024). The integration of these two approaches is considered highly relevant to the objectives of the Merdeka Curriculum, which encourages students to become more active, independent, and responsible for their own learning.

However, the implementation of constructivism and SRL does not always produce consistent outcomes across different learning contexts. Instructional approaches that emphasize student autonomy may present challenges for learners who have not yet developed adequate self-regulation skills (Mahrufah & Rijanto, 2024). Moreover, student engagement is influenced by various other factors, including the learning environment, the role of teachers, motivation, and individual learner characteristics (Khotimah & Trisnawati, 2025). Therefore, further investigation is needed to understand how constructivism and SRL contribute to the enhancement of students' cognitive and participatory engagement in learning.

Based on this background, the present study aims to systematically examine the

relationship between constructivism and self-regulated learning within the context of the Merdeka Curriculum and their influence on students' cognitive and participatory engagement. This review is conducted through a systematic analysis of previous literature to identify patterns, key findings, and the contributions of earlier studies. Conceptually, constructivism encourages students to construct understanding actively, while SRL strengthens students' capacity to regulate their learning processes independently. Accordingly, the synergy between constructivism and SRL represents a relevant approach for promoting active, autonomous, and meaningful learning in response to the demands of contemporary education.

Method

This study used a systematic literature review method to identify, evaluate, and synthesize findings from various scientific articles relevant to the application of constructivism theory and Self-Regulated Learning in the context of the Merdeka Curriculum and its influence on students' cognitive and participatory engagement. The literature search was conducted using the Google Scholar, Semantic Scholar, and ResearchGate databases with the following keywords: ("konstruktivisme" OR "constructivism") AND ("Self-Regulated Learning" OR "SRL") AND ("Kurikulum Merdeka") AND ("keterlibatan kognitif" OR "cognitive engagement" OR "participatory engagement"). Article selection followed the PRISMA 2020 protocol through the stages of identification, screening, eligibility assessment, and inclusion, with the inclusion criteria consisting of accredited journal articles published between 2022 and 2026, discussing constructivism and/or SRL as well as student engagement, and available through open access (Page et al., 2021). The search of the Google Scholar, Semantic Scholar, and ResearchGate databases resulted in 180 articles. After the removal of 40 duplicate articles, 140 articles remained and were screened based on their titles and abstracts, resulting in 50 relevant articles, while 90 articles were excluded. At the eligibility stage, full-text assessment of the 50 articles resulted in the exclusion of 34 articles, with the following details: 18 articles did not discuss student engagement, 10 articles were not empirical studies, and 6 articles were not available through open access. At the end of the selection process, 10 articles met the inclusion criteria and were analyzed in this review (Figure 1). Data from the included articles were extracted using a structured worksheet to record the authors, year, research focus, and main findings, and were then analyzed using a narrative synthesis approach by grouping the findings based on the main themes that emerged

(Ghamrawi et al., 2025). The study selection process was documented through a PRISMA 2020 flow diagram showing the number of articles identified, screened, assessed for eligibility, and excluded along with the reasons for exclusion. This approach ensures transparency and reproducibility of the review process, as recommended in systematic reporting guidelines. Conclusions were drawn based on the patterns and main themes identified from the synthesized findings of the included studies. This procedure ensured transparency and reproducibility, as recommended in systematic reporting (Ghamrawi et al., 2025).

Results and Discussion

The literature search found a number of articles discussing the application of constructivism theory and Self-Regulated Learning in cognitive and participatory learning. After a selection process based on the relevance of the research topic, 10 relevant articles were obtained for further analysis. The selected articles were then reviewed based on their research focus and main findings related to the influence of constructivism and Self-Regulated Learning on student engagement in the learning process.

Based on the analysis of the 10 articles, it was found that constructivism theory and Self-Regulated Learning play a role in increasing student engagement, both cognitively and participatively. Constructivism theory emphasizes that students build understanding through experience, interaction, discussion, and learning activities, while Self-Regulated Learning helps students regulate, monitor, and evaluate their learning process independently.

The results of the article review were then grouped into several main themes, namely: (1) the influence of constructivism on cognitive engagement, (2) the influence of constructivism on participatory engagement, (3) the influence of Self-Regulated Learning on cognitive engagement, (4) the influence of Self-Regulated Learning on participatory engagement, and (5) the relationship between constructivism and Self-Regulated Learning in supporting active and student-centered learning.

1. The Influence of Constructivism Theory on Students' Cognitive Engagement

The analysis of four articles showed that constructivism theory increases students' cognitive engagement. This influence can be seen in the improvement of students' ability to understand concepts, think critically, solve problems, and

connect new knowledge with their existing experiences. In constructivist learning, students do not only receive information passively but also play an active role in constructing their knowledge through various meaningful learning activities.

The increase in cognitive engagement can be seen through the implementation of exploration, discussion, reflection, and collaboration activities. Nasution and Hasanah (2025) and Muhyiddin et al. (2025) found that group discussions, problem-based learning, peer feedback, and work presentations were able to increase student participation, critical thinking skills, and independence in developing knowledge. Similar findings were also shown by Prabawati et al. (2024), who explained that project-based learning, diagnostic assessment, and flexible teaching modules provide students with opportunities to build understanding according to their needs and learning experiences, making learning more in-depth and meaningful.

In addition, students' cognitive engagement becomes stronger when learning is supported through scaffolding, the Zone of Proximal Development (ZPD), and discovery learning, as explained by Tohari and Rahman (2024). Learning support provided gradually helps students understand the material, develop creativity, and increase learning independence. The four studies show that students' cognitive engagement increases when they are given opportunities to discuss, explore ideas, solve problems, and connect the material with real-life experiences. Thus, constructivism theory can create a more active, meaningful, and student-centered learning process.

2. The Influence of Constructivism Theory on Students' Participatory Engagement

The analysis of two articles showed that constructivism theory encourages students' participatory engagement in learning. Through this approach, students are given opportunities to interact, discuss, express opinions, and collaborate with peers in developing their understanding. This condition encourages students to become more actively involved in various learning activities compared to teacher-centered learning.

Muhyiddin et al. (2025) found that group discussions, peer feedback, and presentations of written work in maharah kitabah learning were able to increase students' participation in exchanging ideas, providing responses, and presenting

their thoughts. Similar findings were presented by Lathifah et al. (2024), who showed that the implementation of constructivist strategies, such as the Karplus learning cycle, the use of visual media, and experience-based learning, encouraged students to participate more actively in learning, express their opinions confidently, and become involved in learning activities both independently and in groups.

The two studies show that constructivism theory plays a role in increasing students' participatory engagement by positioning students as active subjects in the learning process. This increase can be seen in their active involvement in discussions, collaboration with peers, confidence in expressing opinions, and participation in various learning activities. Thus, the application of constructivism theory can create a more interactive learning environment and encourage active student engagement throughout the learning process.

3. The Influence of Self-Regulated Learning on Students' Cognitive Engagement

The analysis of two articles showed that constructivism theory encourages students' participatory engagement in learning. Through this approach, students are given opportunities to interact, discuss, express opinions, and collaborate with peers in developing their understanding. This condition encourages students to become more actively involved in various learning activities compared to teacher-centered learning.

Muhyiddin et al. (2025) found that group discussions, peer feedback, and presentations of written work in maharah kitabah learning were able to increase students' participation in exchanging ideas, providing responses, and presenting their thoughts. Similar findings were presented by Lathifah et al. (2024), who showed that the implementation of constructivist strategies, such as the Karplus learning cycle, the use of visual media, and experience-based learning, encouraged students to participate more actively in learning, express their opinions confidently, and become involved in learning activities both independently and in groups.

The two studies show that constructivism theory plays a role in increasing students' participatory engagement by positioning students as active subjects in the learning process. This increase can be seen in their active involvement in discussions, collaboration with peers, confidence in expressing opinions, and participation in various learning activities. Thus, the application of constructivism theory can create a more interactive learning environment and encourage active

student engagement throughout the learning process.

4. The Influence of Self-Regulated Learning on Students' Participatory Engagement

The analysis of the literature from three articles showed that Self-Regulated Learning (SRL) has a positive influence on students' participatory engagement in the learning process. This influence can be seen in increased active participation, the ability to regulate learning behavior, a sense of responsibility, and student involvement in various learning activities. Through the ability to set learning goals, choose appropriate strategies, and control behavior during the learning process, students become more active in academic activities, are able to maintain their learning efforts, and participate continuously (Aripin et al., 2023).

In addition to increasing active participation, Self-Regulated Learning also contributes to participatory engagement through increased motivation and self-efficacy. Students who are able to manage their learning process tend to be more confident in facing academic challenges, making them more willing to express opinions, ask questions, cooperate, and maintain their efforts when experiencing difficulties in learning (Khotimah and Trisnawati, 2025). In addition, self-regulation skills also develop responsibility, discipline, time-management skills, the ability to maintain focus, and the ability to complete tasks independently, allowing students to participate more actively and not fully depend on teacher guidance (Suganda et al., 2026).

The three studies show a consistent pattern of findings that Self-Regulated Learning contributes to increasing students' participatory engagement. The ability to regulate goals, strategies, motivation, and learning behavior encourages students to become more active in classroom activities and other academic activities. Thus, Self-Regulated Learning not only supports learning independence but also strengthens students' participation, persistence, and responsibility in the learning process.

5. The Relationship between Constructivism Theory and Self-Regulated Learning on Student Engagement

The analysis of the ten articles showed that constructivism theory and Self-Regulated Learning (SRL) have a mutually supportive relationship in increasing student engagement, both cognitively and participatively. Constructivism

emphasizes that students construct knowledge through experience, interaction, collaboration, and meaningful learning activities, while SRL helps students regulate, control, and evaluate their learning process. The relationship between the two can be seen in their shared role in placing students at the center of learning, where constructivism provides active learning experiences, while SRL supports students' ability to set goals, choose learning strategies, maintain motivation, and engage in reflection.

The implementation of constructivist learning, such as group discussions, problem-based learning, collaboration, and reflection, not only increases students' cognitive engagement but also serves as a means for developing self-regulation skills. In this process, students are required to regulate their thinking, manage their time, take the initiative to seek information, and take responsibility for their learning process. Conversely, students who have good Self-Regulated Learning skills tend to be better able to make use of constructivist learning through active participation in discussions, cooperation, and task completion.

Based on all the analyzed articles, constructivism and Self-Regulated Learning have a complementary relationship. Constructivism provides a learning environment that encourages student activity and engagement, while SRL equips students with internal abilities to manage these activities independently. The synergy between the two results in more active, meaningful, and student-centered learning because students not only construct knowledge but are also able to direct their own learning process. A summary of the findings from the analyzed articles can be seen in Table 1 below.

Number	Authors Name	Research Focus	Findings
	and Publication Year		
1.	Muhyiddin et al. (2025)	The effectiveness of the constructivist model in improving writing skills and active participation	Improving writing quality, collaboration, confidence, and student engagement.

		through collaborative learning.	
2.	Nasution & Hasanah (2025)	The implementation of a constructivist approach to improve students' understanding and active participation in constructing knowledge.	Improving students' understanding of the material, critical thinking skills, and engagement in learning.
3.	Prabawati et al. (2024)	The implementation of the Merdeka Curriculum based on constructivist principles to support independent construction of cognitive knowledge.	Supporting project-based learning, deeper conceptual understanding, and character development among students.
4.	Tohari & Rahman (2024)	The development of children's cognitive abilities through Vygotsky's and Bruner's constructivism.	Improving deep understanding, creativity, and learning independence.

5.	Lathifah et al. (2024)	The implementation of constructivism to increase student participation in learning.	Improving active learning, student participation, and learning outcomes.
6.	Gunawan et al. (2024)	The relationship between students' self-regulated learning, self-confidence, and mathematical problem-solving skills.	Self-regulated learning contributes to improving students' mathematical problem-solving skills and self-confidence. Self-confidence also supports this relationship.
7.	Mahrufah & Rijanto (2024)	The influence of Self-Regulated Learning on critical thinking skills and learning outcomes.	Improving critical thinking, learning strategy management, and learning outcomes.
8.	Aripin et al. (2023)	Self-Regulated Learning and students' active participation in academic activities.	Increasing students' active participation, persistence, and engagement.

9.	Khotimah & Trisnawati (2025)	The relationship between Self-Regulated Learning, motivation, self-efficacy, and student participation.	Improving self-efficacy, learning motivation, and student participation.
10.	Suganda et al. (2026)	The role of Self-Regulated Learning in developing learning responsibility and discipline to increase student participation.	Improving discipline, responsibility, and learning initiative to encourage student participation.

Table 1. Findings from the Reviewed Articles

Discussion

1. The Influence of Constructivism and Self-Regulated Learning on Student Engagement

Based on the synthesis of the reviewed literature, the constructivist paradigm has been shown to make a significant contribution to students' cognitive engagement. This approach promotes the development of critical thinking, deep conceptual understanding, problem-solving skills, and the ability to connect new knowledge with prior learning experiences. Consequently, constructivism fosters strong mental engagement throughout the learning process (Doolittle et al., 2023; Mishra, 2023; Erawati & Adnyana, 2024).

From a constructivist perspective, students function as active agents who construct knowledge through exploration, experience, and social interaction. Learning is no longer centered on the teacher's transmission of information but rather on students' processes of constructing understanding independently. Such conditions encourage students to think continuously, establish connections among

concepts, and assign meaning to the learning material, thereby facilitating the optimal development of cognitive engagement (Chand, 2023).

The literature review indicates that various constructivist strategies, including problem-based learning, project-based learning, classroom discussions, peer feedback, and independent inquiry, contribute substantially to students' cognitive engagement. These activities require students to apply reasoning, develop logical thinking, and engage higher-order cognitive processes in understanding and solving learning problems (Doolittle et al., 2023; Siregar et al., 2025; Romdhon et al., 2024). Furthermore, constructivism is considered more effective in promoting deep and long-lasting understanding because students integrate new knowledge with their existing learning experiences (Hai-Ninh et al., 2023).

Nevertheless, the effectiveness of constructivism largely depends on the quality of its implementation. Well-designed constructivist learning environments can significantly enhance students' mental engagement, whereas poorly structured implementation may reduce its effectiveness. This finding highlights teachers' pedagogical competence as a crucial factor in creating learning environments that support students' cognitive engagement (Erawati & Adnyana, 2024).

In addition to being influenced by the learning environment, cognitive engagement is also determined by internal factors, particularly self-regulated learning (SRL). Self-regulated learning refers to students' ability to plan, manage, monitor, and evaluate their learning processes independently. This ability enables students to engage more actively in information processing, making learning more effective and meaningful. Mahrufah and Rijanto (2024) found that SRL positively influences students' critical thinking skills. Through self-regulatory processes, students become more reflective, systematic, and capable of developing metacognitive skills that support deeper cognitive engagement.

The findings concerning constructivism and SRL indicate that these two constructs complement each other in enhancing students' cognitive engagement. Constructivism provides a learning environment that encourages exploration, discussion, and problem-solving, while SRL equips students with the ability to regulate the cognitive processes required during these learning activities. Therefore, optimal cognitive engagement can be achieved when constructivist learning is supported by strong self-regulation skills.

Beyond its impact on cognitive engagement, constructivism also plays an important role in promoting students' participatory engagement. Constructivist learning positions students as the primary actors in constructing knowledge through experience, instructional media, hands-on activities, and interaction with the learning environment. The teacher's role as a facilitator provides students with opportunities to discuss, collaborate, and express their ideas independently, thereby increasing their participation in classroom learning (Lathifah et al., 2024).

Participatory engagement is likewise supported by self-regulated learning. Students with strong self-regulation skills tend to manage their time effectively, sustain motivation, assume responsibility for learning tasks, and participate actively in academic activities. A positive school environment can further strengthen the relationship between self-regulation and student engagement (Suganda et al., 2026). Accordingly, constructivism and SRL contribute in complementary ways: constructivism provides an interactive learning environment, whereas SRL equips students with the ability to direct and manage their own learning processes, allowing student engagement to develop optimally.

2. The Synergy of Constructivism and Self-Regulated Learning in Enhancing Student Engagement

A comparative analysis of the ten reviewed studies reveals a consistent pattern regarding the relationship among constructivism, self-regulated learning (SRL), and student engagement. Overall, the literature demonstrates that both constructivism and SRL positively influence student engagement across cognitive and participatory dimensions. These findings suggest that both approaches play essential roles in creating student-centered, dynamic, and meaningful learning environments (Arega & Hunde, 2025; Banihashem et al., 2021; Theobald, 2021). The analysis further indicates that constructivism is more dominant in enhancing cognitive engagement, whereas SRL has a stronger influence on participatory engagement. Nevertheless, the two constructs complement one another through different mechanisms that collectively promote student engagement (Doolittle et al., 2023; Theobald, 2021).

The dominance of constructivism in the cognitive domain is reflected in its capacity to encourage critical thinking, problem-solving, deep conceptual understanding, and meaningful learning through discussion, investigation, and

case-based learning activities (Mishra, 2023; Romdhon et al., 2024; Arega & Hunde, 2025). In contrast, SRL is more closely associated with the development of discipline, motivation, responsibility, and persistence, all of which promote active participation in various learning activities (Theobald, 2021; Xu et al., 2024; Yang et al., 2025). The effectiveness of constructivism is highly dependent on teachers' ability to design collaborative learning experiences, whereas the success of SRL relies primarily on students' internal characteristics, including self-efficacy, intrinsic motivation, discipline, and reflective capacity (Banihashem et al., 2021; Mamun & Lawrie, 2023). Despite differences in research contexts, the majority of studies consistently identify both constructs as positive factors in enhancing student engagement (Arega & Hunde, 2025).

The consistency of these findings reinforces the view that student engagement results from the interaction between external and internal factors. An effective constructivist learning environment requires students to possess adequate self-regulation skills, while SRL develops more effectively when students are provided with opportunities to explore, collaborate, and participate actively in learning (Amiruddin et al., 2023; Kharroubi & ElMediouni, 2024). Thus, constructivism and SRL should be understood as interrelated components that jointly shape student engagement.

Based on the synthesized literature, constructivism and SRL are not independent concepts but mutually reinforcing constructs. Constructivism functions as an external stimulus that shapes the learning environment through problem-solving activities, discussion, and social interaction, thereby encouraging students to construct knowledge actively (Banihashem et al., 2021; Theobald, 2021). Such environments provide opportunities for both cognitive and participatory engagement to develop (Mishra, 2023; Chand, 2023). Meanwhile, SRL serves as an internal factor that enables students to set goals, select learning strategies, monitor their progress, and evaluate learning outcomes independently (Theobald, 2021; Xu et al., 2024).

The relationship between these two constructs is reciprocal. Constructivist learning environments can effectively foster self-regulation through project-based learning, reflection, and problem-solving activities that require students to manage their learning independently (Banihashem et al., 2021; Kharroubi & ElMediouni,

2024). Conversely, students with strong SRL skills are better prepared to take advantage of the learning opportunities provided by constructivist instruction, resulting in more optimal engagement (Duran et al., 2024; Yang et al., 2025). Therefore, student engagement reaches a higher level when supportive learning environments and strong self-regulation coexist as foundations of meaningful and transformative learning.

The synergy between constructivist learning environments and strong self-regulation aligns closely with the characteristics of Indonesia's Merdeka Curriculum. This curriculum positions students at the center of the learning process by providing broad opportunities to explore knowledge, develop their potential, and construct understanding based on meaningful learning experiences. These characteristics are consistent with the principles of constructivism, which emphasize students' active involvement in knowledge construction (Nasution & Hasanah, 2025). Furthermore, the flexibility of the Merdeka Curriculum requires students to manage their learning processes independently through goal setting, learning strategy selection, and reflection on learning outcomes, making self-regulation a crucial competency to develop (Mahrufah & Rijanto, 2024).

In line with these findings, the Merdeka Curriculum can be viewed as a framework that integrates constructivist principles and self-regulated learning simultaneously. Learning practices such as project-based learning, differentiated instruction, and reflective activities provide students with opportunities to construct knowledge while simultaneously developing self-regulation skills (Prabawati et al., 2024). Accordingly, improvements in students' cognitive and participatory engagement depend not only on student-centered instructional design but also on students' capacity to regulate their own learning processes. The synergy between constructivism and SRL ultimately constitutes an important foundation for achieving the goals of the Merdeka Curriculum, namely developing learners who are independent, reflective, adaptive, and actively engaged in learning.

6. Theoretical and Practical Implications and Future Research Agenda

The findings of this literature review contribute theoretically to the understanding of student academic engagement as a multidimensional construct encompassing cognitive and participatory dimensions simultaneously (Estévez et al., 2021; Țepordei et al., 2025). The synthesis demonstrates that student engagement

results from the interaction between external factors, represented by constructivist learning environments, and internal factors, represented by self-regulated learning (SRL). Constructivism provides a student-centered learning environment, while SRL enables students to regulate their goals, strategies, motivation, and self-evaluation, thereby forming a complementary conceptual framework (Waheed et al., 2025). Moreover, the review reveals a functional differentiation in which constructivism is more dominant in enhancing cognitive engagement, whereas SRL plays a greater role in promoting participatory engagement.

From a practical perspective, these findings indicate that enhancing student engagement requires not only changes in instructional methods but also systematic efforts to strengthen students' self-regulation skills. Teachers should design constructivist learning experiences through discussion, project-based learning, authentic problem-solving, and reflection to promote students' cognitive engagement (Romdhon et al., 2024). In addition, teachers should foster SRL through goal setting, time management, learning progress monitoring, and self-evaluation so that students can become independent and responsible learners.

For educational institutions, these findings highlight the importance of creating an academic climate that supports collaboration, intellectual freedom, exploration, and reflection. Schools should also strengthen teachers' pedagogical capacity to implement constructivist instruction and facilitate the development of students' SRL. Student engagement is therefore likely to be optimized when student-centered instructional strategies are integrated with the cultivation of self-regulation as a foundation for meaningful learning.

The literature synthesis further demonstrates that constructivism and self-regulated learning positively influence students' cognitive and participatory engagement, particularly within the implementation of the Merdeka Curriculum, which emphasizes student-centered learning. However, several research gaps remain, including the limited number of studies that explicitly integrate constructivism and SRL within a single instructional model, the lack of longitudinal research examining long-term effects, and the scarcity of cross-level, cross-subject, and cross-school studies, which limits the external validity of current findings.

This review also has several limitations. The number of studies meeting the inclusion criteria was relatively limited, comprising only ten articles, and therefore

does not fully represent the development of research on constructivism and SRL. In addition, methodological heterogeneity, variations in research contexts, and limitations in literature accessibility constrain the generalizability of the findings. As a literature-based study, this review also depends on the quality of reporting in the primary studies and cannot empirically verify causal relationships among the variables.

Based on these research gaps, future studies should develop instructional models that explicitly integrate constructivism and SRL within the implementation of the Merdeka Curriculum. Future research should also employ longitudinal experimental designs, include broader educational levels, and investigate the integration of both approaches with educational technologies such as Learning Management Systems (LMS), artificial intelligence (AI), and blended learning environments. Furthermore, examining moderating variables such as digital literacy, self-efficacy, school leadership, and socioeconomic background would provide a more comprehensive understanding of the relationship among constructivism, SRL, and student engagement.

Overall, the convergence of constructivism and self-regulated learning constitutes a crucial foundation for supporting the implementation of the Merdeka Curriculum. Constructivism creates active and meaningful learning environments, while SRL strengthens students' ability to manage their learning processes independently. Their synergy consistently enhances both cognitive and participatory engagement. Nevertheless, more comprehensive empirical research is still needed to develop instructional models that are responsive to the demands of twenty-first-century education.

Conclusion

Based on a systematic review of ten selected articles, this study concludes that constructivism and self-regulated learning (SRL) are two complementary approaches that jointly enhance students' engagement in both cognitive and participatory dimensions. Recent research indicates that constructivism contributes to the development of active learning through knowledge construction, exploration, collaboration, and problem-solving, while SRL strengthens students' ability to regulate their learning goals, strategies, motivation, and self-evaluation independently. The synergy between these two approaches aligns closely with the principles of the Merdeka Curriculum, which positions students at

the center of the learning process and promotes the development of independent, reflective, and actively engaged learners.

In practice, the integration of constructivism and SRL can be implemented through project-based learning, collaborative discussions, problem-solving activities, reflective practices, and the systematic cultivation of self-regulatory strategies such as learning planning and self-evaluation. Nevertheless, the present review reveals that research on the integration of these two approaches remains limited, particularly in the development of integrated instructional models and the examination of their long-term effects. Therefore, future studies should develop a more comprehensive constructivism-SRL instructional framework, employ longitudinal research designs, and examine its implementation across various educational levels and contexts to provide a deeper understanding of its contribution to enhancing student engagement. Conclusion should be written concisely as an answer to the research questions or as evidence supporting the research hypothesis. Ideally, the conclusion reflects the relationship between the research questions, objectives, results, and discussion.

References

- Amiruddin, Baharuddin, F. R., Takbir, & Setialaksana, W. (2023). May student-centered principles affect active learning and its counterpart? An empirical study of Indonesian curriculum implementation. *SAGE Open*, 13(4). <https://doi.org/10.1177/21582440231214375>
- Arega, N. T., & Hunde, T. (2025). Constructivist instructional approaches: A systematic review of evaluation-based evidence for effectiveness. *Review of Education*. <https://doi.org/10.1002/rev3.70040>
- Aripin, N. A., Savitri, J., & Megarini, M. Y. (2023). PELATIHAN STRATEGI SELF-REGULATED LEARNING FASE FORETHOUGHT UNTUK STUDENT ENGAGEMENT murid SMP. *JIP (Jurnal Intervensi Psikologi)*, 15(2). <https://doi.org/10.20885/intervensipsikologi.vol15.iss2.art4>
- Ayyubi, S. A., & Wisudawati, P. A. W. (2025). Building environmental awareness: Problem-based learning based on constructivism. *FIKROTUNA: Jurnal Pendidikan dan Manajemen Islam*. <https://doi.org/10.32806/jf.v15i1.652>
- Banihashem, S. K., Farrokhnia, M., Badali, M., & Noroozi, O. (2021). The impacts of constructivist learning design and learning analytics on students' engagement and self-regulation. *Innovations in Education and Teaching International*, 59, 442-452. <https://doi.org/10.1080/14703297.2021.1890634>

- Chand, S. P. (2023). Constructivism in education: Exploring the contributions of Piaget, Vygotsky, and Bruner. *International Journal of Science and Research (IJSR)*. <https://doi.org/10.21275/sr23630021800>
- Doolittle, P., Wojdak, K., & Walters, A. (2023). Defining active learning: A restricted systemic review. *Teaching and Learning Inquiry*. <https://doi.org/10.20343/teachlearningu.11.25>
- Duran, M. J., Aciego, J. J., González-Prieto, I., Carrillo-Ríos, J., González-Prieto, Á., & Claros-Colome, A. (2024). A gamified active-learning proposal for higher-education heterogeneous STEM courses. *Education Sciences*. <https://doi.org/10.3390/educsci15010010>
- Erawati, N. K., & Adnyana, P. B. (2024). Implementation of Jean Piaget's theory of constructivism in learning: A literature review. *Indonesian Journal of Educational Development (IJED)*. <https://doi.org/10.59672/ijed.v5i3.4148>
- Estévez, I., Rodríguez-Llorente, C., Piñeiro, I., González-Suárez, R., & Valle, A. (2021). School engagement, academic achievement, and self-regulated learning. *Sustainability*, 13(6). <https://doi.org/10.3390/su13063011>
- Ghamrawi, N., Shal, T., Ghamrawi, N. A. R., Abu-Tineh, A., Alshaboul, Y., & Alazaizeh, M. A. (2025). A step-by-step approach to systematic reviews in educational research. *European Journal of Educational Research*, 14 (2), 549–566. <https://doi.org/10.12973/eu-jer.14.2.549>
- Gunawan, S., Supriadi, N., & Putra, R. W. Y. (2024). Analisis Kemampuan Pemecahan Masalah Matematis terhadap Self Regulated Learning dan Self Confidence murid. *J-PiMat: Jurnal Pendidikan Matematika*, 6(1), 1247–1258. <https://doi.org/10.31932/j-pimat.v6i1.3438>
- Hai-Ninh, B., & Nguyen, H. M. (2023). How do constructivism learning environments generate better motivation and learning strategies? The design science approach. *Heliyon*, 9. <https://doi.org/10.1016/j.heliyon.2023.e22862>
- Kharroubi, S., & ElMediouni, A. (2024). Conceptual review: Cultivating learner autonomy through self-directed learning and self-regulated learning: A socio-constructivist exploration. *International Journal of Language and Literary Studies*. <https://doi.org/10.36892/ijlls.v6i2.1649>
- Khotimah, K., & Trisnawati, N. (2025). Pengaruh Self-Regulated Learning terhadap Student Engagement pada Mata Pelajaran Kearsipan melalui Self Efficacy sebagai Variabel Mediasi pada murid SMKN 1 Surabaya. *JURNAL Edueco*, 8(2), 575–589. <https://doi.org/10.36277/edueco.v8i2.354>
- Lathifah, A. S., Hardaningtyas, K., Pratama, Z. A., & Moewardi, I. (2024). Penerapan Teori Belajar Konstruktivisme dalam Meningkatkan Keaktifan dan Hasil Belajar murid. *DIAJAR: Jurnal Pendidikan Dan Pembelajaran*, 3(1), 36–42. <https://doi.org/10.54259/diajar.v3i1.2233>

- Mahrufah, M., & Rijanto, T. (2024). Pengaruh Self-regulated Learning terhadap Kemampuan Berpikir Kritis dan Hasil Belajar murid. *Jurnal Pendidikan Madrasah*, 9(2), 213–218. <https://doi.org/10.14421/jpm.2024.213-218>
- Mamun, M. A. A., & Lawrie, G. (2023). Student-content interactions: Exploring behavioural engagement with self-regulated inquiry-based online learning modules. *Smart Learning Environments*, 10, 1–31. <https://doi.org/10.1186/s40561-022-00221-x>
- Mishra, N. (2023). Constructivist approach to learning: An analysis of pedagogical models of social constructivist learning theory. *Journal of Research and Development*. <https://doi.org/10.3126/jrdn.v6i01.55227>
- Muhyiddin, I. I., Syuhadak, S., & Rochman, T. (2025). Persepsi murid terhadap Model Pembelajaran Konstruktivisme dalam Meningkatkan Kemampuan Maharah Kitabah. *Jurnal Dedikasi Pendidikan*, 9(2), 1049–1058. <https://doi.org/10.30601/dedikasi.v9i2.6590>
- Nasution, I. Z., & Hasanah, U. (2025). APLIKASI TEORI PEMBELAJARAN KONSTRUKTIVISME PADA MATA PELAJARAN PENDIDIKAN AGAMA ISLAM DI SMP MUHAMMADIYAH 1 MEDAN. *INSIS International Seminar of Islamic Studies*, 6(1), 2304–2310. <https://doi.org/10.3059/insis.v0i0.23687>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>
- Prabawati, P. L. S., Suarni, N. K., & Margunayasa, I. G. (2024). Implementasi Pembelajaran dengan Kurikulum Merdeka pada murid SD Ditinjau dari Teori Konstruktivisme. *Ideguru: Jurnal Karya Ilmiah Guru*, 9(1), 432–438. <https://doi.org/10.51169/ideguru.v9i1.864>
- Romdhon, J., Masrifah, M., Shiyama, N. M., & Suharyati, H. (2024). Applying constructivist learning theory to enhance student learning outcomes in elementary schools. *International Journal of Sustainable Development & Future Society*. <https://doi.org/10.62157/ijstdfs.v2i2.73>
- Siregar, H., Salim, A., Jannah, M. R., Nurkhayati, A., & Hidayati, N. (2025). Development of constructivism-based learning models to improve student learning outcomes. *Gateway for Understanding Research in Education*. <https://doi.org/10.69855/guru.v1i2.335>
- Suganda, A., Hasanuddin, & Hardjo, S. (2026). Pengaruh Self Regulated Learning terhadap Student Engagement melalui Scholl Well Being sebagai Mediasi. *Jurnal Manajemen Pendidikan Dan Ilmu Sosial*, 7(3), 2106–2123. <https://doi.org/10.38035/jmpis.v7i3.7869>
- Theobald, M. (2021). Self-regulated learning training programs enhance university students' academic performance, self-regulated learning strategies, and motivation: A meta-analysis. *Contemporary Educational Psychology*. <https://doi.org/10.1016/j.cedpsych.2021.101976>

- Țepordei, A., Labar, A.-V., Leonte, R.-E., Frumos, F. V., & Curelaru, V. (2025). Achievement goals, academic engagement and performance: The mediating role of self-regulated learning strategies. *British Educational Research Journal*. <https://doi.org/10.1002/berj.4213>
- Tohari, B., & Rahman, A. (2024). Konstruktivisme Lev Semonovich Vygotsky dan Jerome Bruner: Model Pembelajaran Aktif dalam Pengembangan Kemampuan Kognitif Anak. *Nusantara: Jurnal Pendidikan Indonesia*, 4(1), 209–228. <https://doi.org/10.14421/njpi.2024.v4i1-13>
- Waheed, Z., Tham, J., & Keat, O. B. (2025). The impact of self-regulated learning strategies on academic performance: A systematic review. *Social Science and Human Research Bulletin*. <https://doi.org/10.55677/sshrb/2025-3050-0803>
- Wang, Q., Ge, S., Yahya, A. N., Khalid, N., & Li, J. (2024). Exploring engagement and efficacy in secondary English education in China: A problem-based social constructivism approach. *Journal of Language Teaching and Research*. <https://doi.org/10.17507/jltr.1503.23>
- Xu, J., Li, J., & Yang, J. (2024). Self-regulated learning strategies, self-efficacy, and learning engagement of EFL students in smart classrooms: A structural equation modeling analysis. *System*. <https://doi.org/10.1016/j.system.2024.103451>
- Yang, Y., Chen, J., & Xin, Z. (2025). Self-determination theory and the influence of social support, self-regulated learning, and flow experience on student learning engagement in self-directed e-learning. *Frontiers in Psychology*, 16. <https://doi.org/10.3389/fpsyg.2025.1545980>