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School Engagement: A Systematic Review of Cognitive Factors and Theoretical Perspectives

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ABSTRACT

Objective: This study presents a systematic literature review of empirical research on school engagement published between 2014 and 2024, examining engagement-related factors, theoretical perspectives, and intervention approaches reported in recent studies.

Methods and Materials: The review followed the PRISMA guidelines. Literature searches were conducted in Scopus and Google Scholar, and studies were screened using predefined inclusion and exclusion criteria. Two reviewers independently performed the screening and data extraction procedures. Eighteen empirical studies met the inclusion criteria and were analyzed using a structured narrative–thematic synthesis. Study quality was assessed using simplified criteria based on research design, sample characteristics, and analytical rigor, although a formal risk-of-bias assessment was not conducted.

Findings: School engagement is generally conceptualized as a multidimensional construct comprising behavioral, emotional, and cognitive components. Across the reviewed studies, engagement was associated with both individual motivational factors—such as self-efficacy and intrinsic motivation—and contextual influences, including teacher support and classroom climate. The studies drew on diverse theoretical perspectives, most commonly Self-Determination Theory, Social Cognitive Theory, and multidimensional engagement frameworks. Only a small subset of studies examined interventions designed to enhance engagement, and these interventions varied substantially in design and outcomes, limiting the ability to make strong comparisons of their effectiveness.

Conclusion: Overall, the review highlights the diversity of empirical approaches to studying school engagement and suggests that engagement emerges from interactions between motivational processes and learning environments. Further longitudinal and experimental research is needed to understand better how engagement develops and can be supported across educational contexts.

Keywords: School engagement, systematic review, cognitive Factors.

Introduction

Over the past decade, school engagement has become an important focus in educational research due to its association with academic achievement, psychological well-being, and the prevention of risk behaviors among adolescents (Fredricks et al., 2004; Wang & Eccles, 2013). Student engagement is widely regarded as an indicator of the quality of students' learning experiences, reflecting the extent to which students are involved in academic activities and connected to the broader educational environment (Mahrunnisya, 2023). Research on student engagement has been conducted across multiple educational levels, including secondary schools and higher education institutions, where engagement plays a crucial role in sustaining students' participation in learning and academic persistence (Reschly & Christenson, 2022; Sinatra, 2022). The growing scholarly attention to school engagement reflects a shift in educational research from an exclusive emphasis on academic outcomes toward a broader concern with the processes that sustain students' participation in learning.

Conceptually, school engagement is generally understood as a multidimensional construct comprising cognitive, emotional, and behavioral components (Fredricks et al., 2004). Cognitive engagement refers to students' psychological investment in learning, including the use of learning strategies, self-regulation, and efforts to develop a deeper understanding of academic material. Emotional engagement reflects students' affective reactions toward educational experiences, such as interest, enjoyment, or a sense of belonging. In contrast, behavioral engagement is typically expressed through observable participation in academic tasks and learning activities. Although these dimensions are closely related, the literature does not always treat them as equally explanatory, and empirical findings vary in how each dimension contributes to broader engagement processes across different learning contexts.

It is also important to distinguish between school engagement and academic engagement, which are sometimes used interchangeably in the literature. While academic engagement typically refers to students' involvement in specific learning tasks or academic activities, school engagement encompasses a broader connection to the institutional, social, and emotional environment of schooling (Appleton et al., 2008). In studies conducted in higher education contexts, the term student engagement is often used with a similar conceptual meaning, referring to students' active involvement in learning and institutional life. In this review, the term "school engagement" is used to refer to this broader, multidimensional construct.

Previous studies suggest that a range of personal and contextual factors influences students' engagement. Individual characteristics such as motivation, self-efficacy, and beliefs about learning may influence how students interpret academic challenges and regulate their learning behaviors (Bandura & Wessels, 1997; Dweck, 2006). At the same time, contextual factors—including teacher support, peer relationships, and classroom climate—can shape students' emotional experiences and sense of connection to the learning environment (Wang & Eccles, 2013). More recent research also emphasizes the dynamic interaction between individual and contextual influences across different educational settings, suggesting that engagement emerges from the interplay between students' psychological processes and their learning environments (Sinatra, 2022; Skinner et al., 2017).

From a theoretical perspective, several frameworks have been used to explain the processes associated with student engagement. Self-Determination Theory highlights the importance of satisfying students' psychological needs for autonomy, competence, and relatedness in supporting motivation (Ryan & Deci, 2000). Social Cognitive Theory emphasizes the role of self-efficacy and self-regulatory processes in shaping learning behaviors Bandura (1997), whereas Expectancy–Value Theory focuses on students' beliefs about task value and expectations of success (Eccles & Wigfield, 2002). These frameworks have often been used to interpret engagement-related findings in both school and

university learning contexts, although their relative emphases vary across studies.

As research on school engagement has expanded, scholars have also examined various strategies and interventions to enhance students' participation and motivation in learning. These efforts include approaches such as strengthening teacher–student relationships, implementing collaborative learning strategies, promoting self-regulated learning, and integrating digital learning environments (Appleton et al., 2008; Reschly & Christenson, 2022). However, existing studies report mixed findings on the effectiveness and sustainability of these approaches, partly due to differences in research designs, intervention scopes, and contextual conditions across educational settings.

Despite the growing body of literature, previous research has often examined engagement-related variables within specific theoretical or empirical perspectives rather than synthesizing them across conceptual, theoretical, and intervention-oriented strands of research. As a result, the literature remains dispersed across different research traditions, making it difficult to obtain a clearer overview of how cognitive factors, theoretical frameworks, and intervention approaches have been examined in relation to school engagement.

Several prior reviews have addressed student engagement in general; however, fewer studies have systematically examined how cognitive engagement is conceptualized and investigated across empirical studies and theoretical perspectives. Moreover, existing research spans both secondary and post-secondary education contexts, which may involve differences in learning environments, instructional practices, and student developmental characteristics. A systematic synthesis is therefore needed to map how these studies collectively contribute to the understanding of engagement processes.

In light of these considerations, the present study conducts a systematic literature review of research on school engagement published between 2014 and 2024. Rather than attempting to provide an exhaustive synthesis of all engagement-related research, this review aims to map key patterns in the literature by examining three main aspects: What cognitive factors are most frequently associated with school engagement in empirical studies? Which theoretical frameworks are commonly used to explain engagement-related processes? What types of educational interventions have been reported in relation to student engagement?

By addressing these questions, this review seeks to provide a structured overview of current research trends across different educational contexts and identify areas that may require further investigation. To ensure transparency in the review process, the study follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. The following section outlines the review methodology, including the literature search strategy, inclusion and exclusion criteria, and analytical procedures used in the synthesis.

Methods and Materials

Study Design

This study employed a Systematic Literature Review (SLR) guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines (Page et al., 2021). The PRISMA framework was adopted to ensure that the review process followed transparent and replicable procedures in identifying, screening, and synthesizing relevant studies on school engagement.

This review was not prospectively registered in a formal protocol database such as PROSPERO. However, the review objectives, eligibility criteria, search procedures, and analytical strategies were defined prior to the literature search to enhance transparency and methodological consistency. The systematic literature review approach enables researchers to identify, evaluate, and synthesize empirical evidence across multiple studies in a structured and transparent manner (Siddaway et al., 2019).

Given the diversity of research designs and conceptual approaches within the school engagement literature, this study used a narrative–thematic synthesis rather than a statistical meta-analysis.

Search Strategy

The literature search was conducted using two major academic databases: Scopus and Google Scholar. Scopus was used as the primary database because of its extensive indexing of peer-reviewed international journals across education, psychology, and social science disciplines. Google Scholar was used as a supplementary search source to capture additional relevant studies that may not be indexed in Scopus and to minimize potential database coverage bias.

To ensure search transparency and reproducibility, database-specific search strategies were constructed using combinations of Boolean operators and phrase searching. The primary search query applied in Scopus was structured as follows:

("school engagement" OR "student engagement" OR "academic engagement")

AND

("cognitive engagement" OR "learning strategies" OR "self-regulation")

AND

("factor*" OR "predictor*" OR "determinant*")

AND

("intervention" OR "program" OR "strategy" OR "educational practice")

Due to platform-specific limitations, the search syntax was simplified for Google Scholar while maintaining the same conceptual keywords. In addition to database searches, backward and forward citation tracking was conducted by examining the reference lists of relevant articles, following recommendations from Cooper et al. (2019). The search was limited to studies published between 2014 and 2024 to capture recent developments in engagement research. Earlier foundational works, e.g., Fredricks et al. (2004); Ryan & Deci (2000), were consulted to provide theoretical background but were not included in the formal review dataset because they fall outside the defined review period.

In this review, the terms school engagement, student engagement, and academic engagement were treated as conceptually related constructs referring to students' involvement in learning activities and school life. Studies focusing on closely related constructs, such as school connectedness or learning engagement, were included when they explicitly addressed engagement processes in educational contexts.

The inclusion criteria were defined prior to the screening process in order to maintain consistency in study selection. Studies were included if they met the following criteria: Published in peer-reviewed journals; Written in English or Indonesian; Reported empirical research findings; Examined school engagement or closely related constructs among students, and Investigated factors, theoretical frameworks, or educational practices associated with engagement.

To ensure methodological consistency, only empirical studies reporting primary research data were included in the final synthesis. Systematic reviews, meta-analyses, and purely conceptual papers were used as background references but were excluded from the formal dataset. Studies were excluded if they:

1. focused on non-educational contexts (e.g., workplace engagement)
2. were purely conceptual without empirical data
3. constituted grey literature such as theses, reports, or unpublished manuscripts

Studies focusing primarily on behavioral engagement were not automatically excluded. Instead, they were retained if they contributed to a broader understanding of engagement processes. The review included studies conducted in both secondary and higher education contexts, as the construct of school engagement has been widely investigated across these educational levels.

Study Selection Process

The article selection followed the four stages recommended in the PRISMA 2020 framework: identification; screening; eligibility; and inclusion.

Two independent reviewers conducted the screening process to enhance reliability. During the identification stage, all records retrieved from database searches and citation tracking were compiled. During the screening stage, titles and abstracts were evaluated for relevance to student engagement research.

Each record was screened independently by both reviewers. Disagreements were resolved

through discussion until a consensus was reached. The eligibility stage involved a full-text assessment of the remaining studies against the predefined inclusion criteria. Inter-reviewer agreement was assessed during the screening phase to ensure consistency in the selection process.

The final inclusion stage resulted in the selection of studies suitable for synthesis. The initial search yielded 1,240 records. After removing 310 duplicates, 930 articles remained for title and abstract screening. During the screening stage, 640 articles were excluded because they were not directly related to student engagement in educational contexts. Of the 290 full-text articles assessed for eligibility, 272 were excluded for reasons including non-empirical study design, focus on unrelated contexts, and insufficient analysis of engagement constructs.

Reasons for exclusion were systematically documented and categorized to improve transparency in PRISMA reporting. Ultimately, 18 studies met the inclusion criteria and were included in the final synthesis. The study selection process is illustrated in the PRISMA flow diagram (Figure 1).

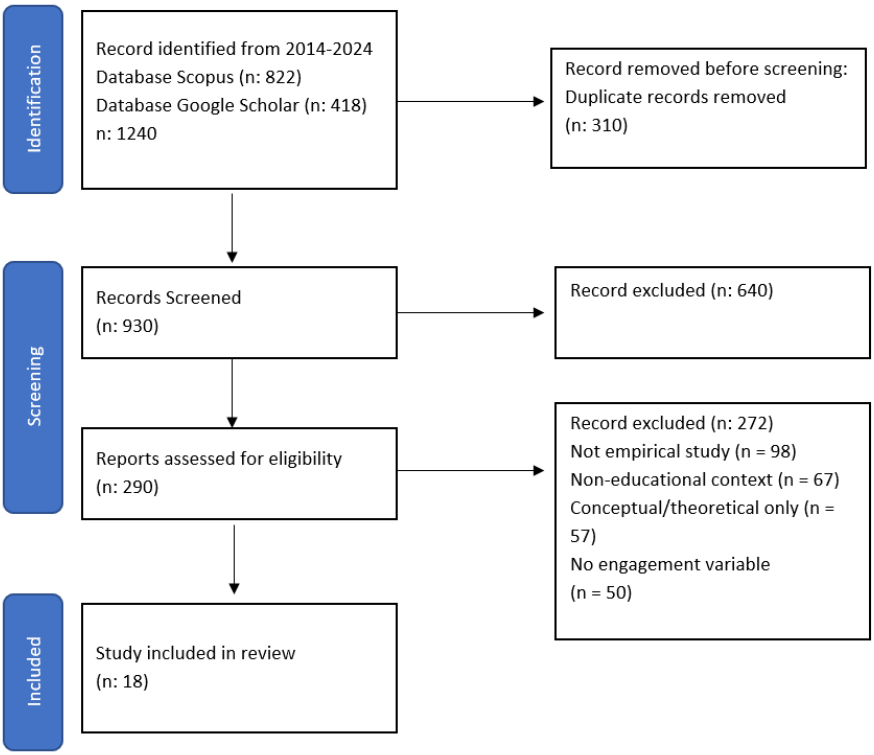

Figure 1

Workflow of the Planning, Identification, and Feasibility Process

Quality Appraisal

To strengthen methodological transparency, the included studies were evaluated using a simplified quality appraisal procedure adapted from criteria commonly applied in educational systematic reviews (Varker et al., 2015).

Each study was assessed based on the clarity of the research design, the adequacy of data collection procedures, the transparency of analytical methods, and the relevance to engagement constructs.

The quality appraisal was used to inform the interpretive synthesis rather than to exclude studies from the dataset. The results of the quality appraisal were reflected in the classification of studies presented in Table 1 (e.g., strong and moderate evidence).

Data Extraction

Data from each included study were extracted into a structured synthesis matrix. The extraction process was conducted independently by two reviewers to enhance reliability and reduce potential bias. The following information was recorded: author(s) and publication year; country and educational level (e.g., primary, secondary, higher education); sample characteristics (e.g., number of participants); research design; key variables related to school engagement (including cognitive, emotional, and behavioral aspects, where applicable); intervention characteristics (if applicable); main empirical findings and methodological quality of the study (categorized as strong or moderate based on predefined appraisal criteria)

In addition, theoretical frameworks identified in the studies were extracted and analyzed as part of the thematic synthesis rather than presented in the summary table.

Data Analysis and Synthesis

The extracted data were analyzed using thematic synthesis based on the framework proposed by Braun & Clarke (2006). The analysis followed three coding stages:

1. Initial coding – identifying key concepts related to engagement factors, theoretical frameworks, and interventions
2. Theme development – grouping related codes into broader thematic categories
3. Interpretive synthesis – examining patterns across studies to identify research trends and gaps

Theoretical frameworks identified in the studies were classified according to their dominant explanatory orientation, including motivational theories (e.g., Self-Determination Theory), cognitive-behavioral perspectives, and socio-contextual models. Both intervention and non-intervention studies were synthesized descriptively within the same thematic framework. Intervention studies were analyzed in terms of program objectives, research design, and reported outcomes. Non-intervention studies were examined for patterns of engagement-related factors and theoretical explanations of engagement processes.

To address conceptual overlap across related constructs, studies using terms such as academic engagement or school connectedness were examined in relation to the broader concept of school engagement. Only studies demonstrating clear conceptual relevance to engagement processes in educational contexts were retained in the synthesis. The results of the synthesis are summarized in Table 1.

Table 1

Summary of Included Studies on School Engagement (2014–2024)

No.	Author (s), Year	Country	Level	Sample	Design	Variables	Intervention	Main Empirical Finding	Quality
1	(Shukor et al., 2014)	Malaysia	Higher Education	n = 20 undergraduate students	Quantitative predictive study (content analysis & data mining)	Online participation; cognitive engagement; discussion messages	None	Information sharing and high-level discussion messages were significant predictors of students' cognitive engagement in online learning.	Moderate
2	(Nurttila et al., 2015)	Finland	Higher education	n = 785 university students	Cross-sectional quantitative study (cluster analysis)	Sense of competence; optimism; academic engagement	None	Students with higher competence beliefs and optimism demonstrated significantly higher academic engagement.	Strong
3	(Dolzan et al., 2015)	Italy	Secondary education	n = 250 high school students	Cross-sectional quantitative study (mediation analysis)	School engagement; self-efficacy; health risk behaviors	None	Higher school engagement was associated with lower health risk behaviors, with self-efficacy partially mediating this relationship.	Moderate
4	(Mih et al., 2015)	Romania	Secondary education	n = 183 high school students	Cross-sectional quantitative study (structural equation modeling)	Autonomous motivation; proactive coping; engagement in learning; deep processing; school adjustment	None	Autonomous motivation predicted proactive coping and engagement in learning, which in turn promoted deep processing and academic adjustment.	Moderate
5	(Singh et al., 2022)	India	Higher education	n = 693 undergradu	Cross-sectional	Adaptive cognition; maladaptive	None	Adaptive cognitive and behavioral motivation positively predicted	Strong

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No.	Author (s), Year	Country	Level	Sample	Design	Variables	Intervention	Main Empirical Finding	Quality
				ate and graduate students	quantitative study (structural equation modeling)	cognition; student motivation; student engagement		student engagement, while maladaptive motivation negatively predicted engagement.	
6	(Grégoire et al., 2018)	Canada	Higher education	n = 144 university students	Multisite randomized controlled trial	Psychological flexibility; mental health; school engagement	ACT group workshops (4 sessions)	Students receiving the ACT intervention reported significantly higher psychological flexibility, well-being, and school engagement, along with lower stress, anxiety, and depression, compared to the control group.	Strong
7	(Perry & Steck, 2015)	United States	Secondary education	n = 110 high school students	Quasi-experimental comparative study	Student engagement; self-efficacy; metacognitive self-regulation; academic achievement	iPad-supported geometry instruction	Students in the iPad classroom showed lower achievement in geometry and more off-task behavior, while self-efficacy and metacognitive regulation were similar to those of the non-iPad group.	Moderate
8	(Fredricks et al., 2019)	United States	Secondary education	n = 611 students (survey) + 22 students (interviews)	Mixed-methods sequential exploratory design	School engagement; teacher support; peer support; disciplinary climate; autonomy support	None	Teacher and peer support, as well as a mastery-oriented classroom climate, significantly increased student engagement, whereas harsh discipline and an irrelevant curriculum predicted disengagement.	Strong
9	(Al-Alwan, 2014)	Jordan	Secondary education	n = 671 high school students (Grade 9–10)	Cross-sectional quantitative study (path analysis)	Parental involvement; school engagement; academic performance	None	Parental involvement positively predicted school engagement and indirectly improved academic performance through its influence on engagement.	Strong
10	(McKeering et al., 2021)	Singapore	Secondary education (international school context)	n = 178 international school students (age 10–14)	Cross-sectional quantitative study (MANOVA and correlational analysis)	Wellbeing; student engagement; resilience; demographic mobility factors	None	Wellbeing, resilience, and student engagement were positively associated, whereas recent school mobility and older age were associated with lower engagement levels.	Moderate
11	(Shernoff et al., 2016)	United States	Secondary education	n ≈ 2,000 classroom observations across multiple high school students	Experience sampling method (ESM) observational study	Student engagement; environmental complexity; instructional activities; perceived challenge and skill	None	Student engagement increased when classroom activities presented an optimal balance between challenge and students' perceived skill (environmental complexity).	Strong
12	(Ciric & Jovanovic, 2016)	Serbia	Secondary education	n ≈ 120 secondary school students	Cross-sectional survey study	Cognitive engagement, emotional engagement, and behavioral engagement	None	Student engagement is best understood as a multidimensional construct comprising cognitive, emotional, and behavioral components that jointly influence learning, participation, and achievement.	Moderate
13	(Fang & Ding, 2020)	China	Secondary education	n = 35 junior high school students	Randomized controlled pilot study (pre-test–post-test)	Psychological capital; psychological flexibility; school engagement	ACT group intervention (10 workshops across 5 weeks)	ACT significantly improved students' psychological capital, psychological flexibility, and school engagement compared with the control group.	Moderate
14	(Froiland & Worrell, 2016)	United States	Secondary education	n = 1,575 high school students	Cross-sectional quantitative study (structural equation modeling)	Intrinsic motivation; learning goals; behavioral engagement; academic achievement	None	Intrinsic motivation predicted academic achievement indirectly through behavioral engagement, while learning goals had a direct positive relationship with academic performance.	Strong
15	(Salmela-Aro & Upadyaya, 2014)	Finland	Secondary education	n = 1,709 adolescents	Longitudinal study (four-wave panel design; path analysis)	Study demands; study resources; self-efficacy; school engagement; school burnout; life satisfaction	None	Study resources predicted higher school engagement, whereas study demands predicted later school burnout. Engagement was positively associated with life satisfaction, while burnout predicted depressive symptoms.	Strong
16	(Rautanen et al., 2021)	Finland	Primary education	n = 2,400 fourth-grade students	Cross-sectional quantitative study (structural equation modeling)	Teacher support; peer support; parental support; study engagement	None	Teacher support and peer support showed stronger positive effects on study engagement than parental support.	Strong

No.	Author (s), Year	Country	Level	Sample	Design	Variables	Intervention	Main Empirical Finding	Quality
17	(Wang & Fredricks , 2014)	United States	Secondary education	n = 1,272 adolescents (Grades 7–11)	Longitudinal study (growth modeling and path analysis)	Behavioral engagement; emotional engagement; cognitive engagement; delinquency; substance use; school dropout	None	Declines in behavioral and emotional engagement predicted increases in delinquency and substance use, and lower engagement increased the likelihood of school dropout.	Strong
18	(Lee, 2014)	United States	Secondary education	n = 3,268 students (15-year-olds from 121 schools)	Cross-sectional quantitative study (multilevel analysis using PISA data)	Behavioral engagement; emotional engagement; academic performance (reading literacy)	None	Behavioral engagement and emotional engagement significantly predicted reading performance, and behavioral engagement partially mediated the effect of emotional engagement on achievement.	Strong

Findings and Results

Overview of the Reviewed Studies

The final dataset comprised 18 empirical studies published between 2014 and 2024 that examined school engagement across diverse educational contexts. The studies were conducted across multiple geographical regions, including North America (n = 6), Europe (n = 6), Asia (n = 4), and the Middle East (n = 2), indicating that school engagement has been investigated within diverse educational systems. However, the geographical distribution remains uneven, with relatively few empirical studies conducted in Southeast Asia and Africa.

The reviewed studies also varied in terms of educational level. Eleven studies focused on secondary education (Dolzan et al., 2015; Fredricks et al., 2019; Mih et al., 2015; Wang & Fredricks, 2014), five examined higher education contexts (Nurttila et al., 2015; Shukor et al., 2014; Singh et al., 2022), and one study investigated primary education (Rautanen et al., 2021), while one study included participants across multiple educational levels. This distribution reflects the strong research interest in adolescent engagement within secondary schooling environments.

In terms of research design, the majority of studies employed cross-sectional quantitative approaches (n = 10), typically using survey instruments to assess engagement and its associated variables (Dolzan et al., 2015; Froiland & Worrell, 2016; Lee, 2014). Three studies applied longitudinal designs (Salmela-Aro & Upadyaya, 2014; Wang & Fredricks, 2014), while three studies used experimental or intervention-based designs (Fang & Ding, 2020; Grégoire et al., 2018; Perry & Steck, 2015). One study employed mixed methods (Fredricks et al., 2019), and one used an experience sampling methodology (Shernoff et al., 2016).

Quality appraisal indicated that ten studies were categorized as strong evidence (e.g., Nurttila et al., 2015; Shernoff et al., 2016; Singh et al., 2022), while eight were categorized as moderate evidence (e.g., Mih et al., 2015; Shukor et al., 2014).

Factors Associated with School Engagement

Across the reviewed studies, school engagement was associated with a range of individual and contextual factors. To clarify their analytical roles, the identified variables can be grouped into predictors, mediators, and correlates.

Predictors of engagement

Several studies identified motivational variables as direct predictors of engagement. Self-efficacy was examined in multiple studies and consistently demonstrated positive associations with engagement (Dolzan et al., 2015; Salmela-Aro & Upadyaya, 2014). For instance, Dolzan et al. (2015) reported that self-efficacy mediated the relationship between engagement and health-risk behaviors.

Intrinsic and autonomous motivation also emerged as significant predictors. Froiland & Worrell (2016) found that intrinsic motivation predicted academic achievement indirectly through behavioral engagement, while Mih et al. (2015) showed that autonomous motivation predicted proactive coping and engagement in learning.

In higher education contexts, Singh et al. (2022) reported that adaptive cognitive and behavioral motivation positively predicted student engagement, whereas maladaptive cognition negatively influenced engagement.

Mediating mechanisms

Fewer studies examined mediating processes. Dolzan et al. (2015) found that self-efficacy partially mediated the relationship between engagement and health-risk

behaviors. Similarly, Mih et al. (2015) identified proactive coping as a mediator linking autonomous motivation and engagement-related outcomes.

Contextual correlates

Contextual influences were also consistently reported. Teacher support, peer relationships, and classroom climate were associated with engagement across several studies (Fredricks et al., 2019; Rautanen et al., 2021). For example, Rautanen et al. (2021) found that teacher and peer support had stronger effects on engagement than parental support. In addition, Fredricks et al. (2019) reported that supportive classroom environments increased engagement, while harsh disciplinary climates predicted disengagement.

Engagement Dimensions in the Reviewed Studies

The reviewed studies conceptualized engagement as a multidimensional construct consisting of behavioral, emotional, and cognitive components (Ciric & Jovanovic, 2016; Wang & Fredricks, 2014). Behavioral engagement was the most frequently measured dimension, often operationalized through participation, effort, and persistence (Froiland & Worrell, 2016; Lee, 2014). Emotional engagement was commonly assessed through belonging and affective responses to school (Fredricks et al., 2019). Cognitive engagement was examined less frequently and was typically operationalized through self-regulation and deep learning strategies (Shukor et al., 2014). Only a limited number of studies explicitly compared dimensions (Ciric & Jovanovic, 2016; Wang & Fredricks, 2014). Overall, differences across engagement dimensions appeared to reflect variations in measurement approaches rather than consistent empirical hierarchies.

Theoretical Frameworks in the Reviewed Studies

The reviewed studies drew on diverse theoretical perspectives. The multidimensional engagement model was most frequently applied (e.g., Ciric & Jovanovic, 2016; Fredricks et al., 2019). Self-Determination Theory-informed constructs such as autonomy and competence were reflected in studies examining motivation (Mih et al., 2015; Nurttila et al., 2015), while Social Cognitive Theory-informed constructs such as self-efficacy appeared in several studies (Dolzan et al., 2015; Salmela-Aro & Upadyaya, 2014). However, few studies directly compared theoretical frameworks within a unified analytical model, indicating a fragmented theoretical landscape.

Intervention Studies Targeting Engagement

Only three studies examined interventions. Two studies implemented Acceptance and Commitment Therapy (ACT) interventions (Fang & Ding, 2020; Grégoire et al., 2018), both reporting improvements in engagement and psychological outcomes.

Another study examined technology-supported instruction (Perry & Steck, 2015), which did not consistently improve engagement or academic outcomes.

Given the diversity of designs and outcomes, the evidence does not support strong conclusions regarding comparative effectiveness.

Outcomes Associated with School Engagement

Several studies linked engagement to academic performance (Froiland & Worrell, 2016; Lee, 2014). For example, Lee (2014) found that behavioral engagement mediated the relationship between emotional engagement and reading achievement. Other studies linked engagement to psychosocial outcomes, including well-being and life satisfaction (McKeering et al., 2021; Salmela-Aro & Upadyaya, 2014). Importantly, constructs such as belonging and well-being were treated as outcomes or correlates rather than components of engagement.

Summary of Evidence

Taken together, the reviewed studies indicate that a combination of motivational predictors, self-regulatory mechanisms, and contextual influences within the school environment shapes school engagement. While cross-sectional studies dominate the literature, a smaller number of longitudinal and intervention studies provide additional insight into the developmental and causal processes underlying engagement. However, the limited number of intervention studies and the diversity of research designs suggest that further empirical research is needed to understand better how engagement can be effectively enhanced in educational settings.

To provide a structured synthesis of the relationships identified across the reviewed studies, a conceptual model was developed to illustrate how individual and contextual factors are associated with different dimensions of school engagement and related outcomes. This model is derived from the thematic patterns observed in the included empirical studies and reflects the analytical categories used in this review, including predictors, correlates, and mediating processes. Rather

than proposing a causal framework, the model aims to summarize how engagement has been conceptualized and examined across diverse research contexts (Fredricks et al., 2004; Reschly & Christenson, 2022) (Figure 2).

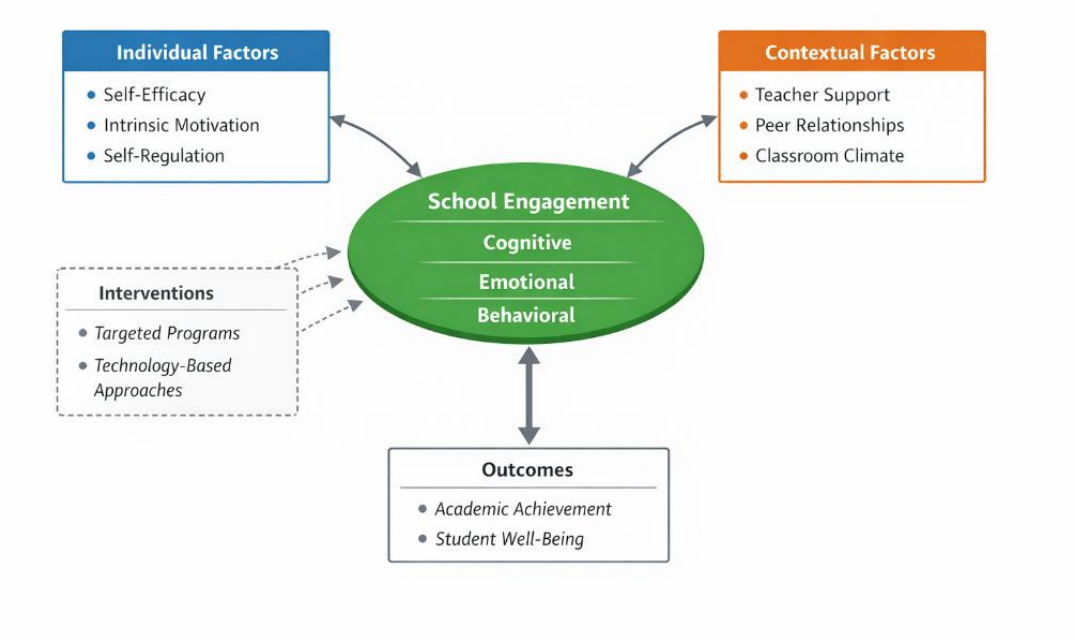

Figure 2

Conceptual Model of Factors Influencing School Engagement

Discussion and Conclusion

The findings of this systematic review indicate that school engagement is most commonly conceptualized as a multidimensional construct encompassing behavioral, emotional, and cognitive components. These dimensions are frequently examined together in empirical studies, particularly those drawing on the multidimensional engagement model (Fredricks et al., 2004; Fredricks et al., 2019). Rather than treating these dimensions as independent constructs, the reviewed studies generally treat them as related yet analytically distinct aspects of students' involvement in learning activities and educational environments. This perspective is consistent with established frameworks that conceptualize engagement as a combination of behavioral participation, emotional connection, and cognitive investment in learning.

However, the reviewed studies do not consistently establish a hierarchical relationship among these dimensions. While several studies have examined cognitive engagement using indicators such as self-regulated learning and learning strategies (Schunk & DiBenedetto, 2020; Zimmerman, 2002), the available evidence does not support firm conclusions about whether any one engagement dimension is inherently more central than the others. Instead, differences across engagement dimensions appear to reflect variation in measurement approaches, research design, and educational context rather than stable empirical patterns.

Building on this multidimensional perspective, the findings further highlight the role of individual-level factors, particularly motivational constructs, in shaping engagement. Across the reviewed studies, variables such as self-efficacy, intrinsic motivation, and academic motivation were most frequently identified as predictors or correlates of engagement. This interpretation is supported by empirical evidence indicating that self-efficacy, achievement goals, and metacognitive processes function as key predictors of academic motivation, which is closely associated with student engagement (Ghaleb et al., 2015). Similarly, several studies found that students with stronger academic self-

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beliefs or autonomous motivation tend to demonstrate higher levels of engagement in learning activities (Dolzan et al., 2015; Mih et al., 2015; Singh et al., 2022). Nevertheless, the predominance of cross-sectional designs limits the extent to which causal relationships between motivational factors and engagement can be inferred.

These findings are also consistent with broader research emphasizing the interplay between cognitive, motivational, and emotional processes in engagement. Prior studies have shown that self-efficacy, achievement goals, and metacognitive processes play a central role in shaping students' academic motivation and engagement-related behaviors (Ghaleb et al., 2015; Sedaghat et al., 2011). In addition, emotional processes are closely linked to engagement, as academic emotions influence both cognitive investment and behavioral participation in learning (Pekrun & Linnenbrink-Garcia, 2012). Longitudinal research further suggests that engagement develops dynamically across adolescence and is associated with important academic and psychosocial outcomes, including achievement, delinquency, and well-being (Li & Lerner, 2011). Similarly, emotional and cognitive engagement have been shown to jointly contribute to students' academic success and school-related well-being (Pietarinen et al., 2014).

In addition to individual factors, the findings of this review emphasize the importance of contextual influences in shaping student engagement. Teacher support, peer relationships, and classroom climate were among the most frequently reported correlates of engagement (Skinner et al., 2017; Wang & Eccles, 2013). Recent empirical evidence further suggests that students' emotional experiences are closely linked to behavioral outcomes, as the interplay between positive and negative academic emotions may influence maladaptive behaviors such as procrastination (Gadosey et al., 2024). These findings indicate that engagement is not solely an individual psychological attribute but is also shaped by students' experiences within their learning environments.

The importance of contextual factors identified in this review is further supported by prior research highlighting the role of school environment and classroom dynamics in promoting engagement (Wang & Holcombe, 2010). In diverse classroom contexts, factors such as cultural diversity and social interaction have also been shown to contribute to students' engagement and learning experiences (Setiyowati et al., 2018). Moreover, in technology-mediated learning environments, engagement has been conceptualized as a multidimensional construct involving behavioral, cognitive, and emotional participation, with digital tools facilitating interactive and personalized learning experiences (Henrie, 2016). Intervention-oriented studies also suggest that culturally responsive and counseling-based approaches may enhance students' meaning-making processes and engagement, particularly when grounded in local contexts (Hidayah & Ramli, 2017).

Despite these insights, the theoretical perspectives applied across the reviewed studies remain diverse. Self-Determination Theory (Ryan & Deci, 2000), Social Cognitive Theory (Bandura, 1997), and multidimensional engagement frameworks (Fredricks et al., 2004) were among the most frequently referenced approaches. However, these frameworks are rarely compared within a unified analytical model, making it difficult to determine whether any single perspective provides a more comprehensive explanation of engagement processes. Instead, these theories appear to offer complementary insights into motivation, self-regulation, and social interaction.

Another important finding concerns the limited number of intervention-based studies. Only a small subset of the reviewed studies implemented interventions to enhance engagement. Two studies using ACT interventions (Fang & Ding, 2020; Grégoire et al., 2018) reported improvements, whereas one technology-based study (Perry & Steck, 2015) showed mixed results. This finding is consistent with research on technology-enhanced learning environments, which suggests that interactive digital platforms may support engagement by facilitating active participation and personalized learning experiences (Hidayah et al., 2022). However, the diversity of intervention designs, durations, and outcome measures limits the ability to draw strong conclusions regarding their comparative effectiveness.

Consequently, the current evidence base does not support definitive conclusions about whether interventions targeting behavioral participation, cognitive processes, or motivational mechanisms are more effective than others. Instead, the findings suggest that engagement interventions may operate through

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multiple pathways, including changes in classroom participation, psychological flexibility, and learning motivation.

An additional issue emerging from the review concerns variation in educational level. While school engagement is traditionally associated with primary and secondary education, several included studies examined engagement among university students (Reschly & Christenson, 2022). Although this broadens the scope of the review, it also introduces conceptual variability, as engagement processes may differ between adolescent and adult learners. Future research may therefore benefit from more clearly distinguishing engagement processes across educational levels.

The review also highlights several methodological considerations that may influence the interpretation of the findings. First, the dominance of cross-sectional survey designs limits causal inference (Siddaway et al., 2019). Second, reliance on a limited number of databases may introduce database bias, while publication bias may also be present due to the tendency to publish statistically significant findings.

From a practical perspective, the findings suggest that efforts to support student engagement may benefit from addressing both motivational and contextual factors. However, the available evidence does not support highly specific prescriptions regarding particular intervention strategies. Instead, supportive teacher–student relationships, active learning opportunities, and the development of students' self-regulatory capacities appear to be consistently associated with stronger engagement (Wang & Eccles, 2013). At the same time, caution is warranted when translating these findings into practice, given the heterogeneous nature of the evidence base and the limited number of experimental studies.

To further integrate these findings, Figure 2 presents a conceptual model illustrating how engagement emerges from the interaction between individual and contextual factors. Individual variables such as self-efficacy, intrinsic motivation, and self-regulation are positioned as key contributors to engagement, consistent with Social Cognitive Theory (Bandura, 1997; Schunk & DiBenedetto, 2020). Contextual factors—including teacher support, peer relationships, and classroom climate—are represented as environmental conditions that shape students' emotional and behavioral engagement (Skinner et al., 2017; Wang & Eccles, 2013).

The model also highlights the multidimensional nature of engagement, consisting of cognitive, emotional, and behavioral components (Fredricks et al., 2004). These dimensions are frequently examined together but are not consistently treated as hierarchically ordered. In addition, the model illustrates the association between engagement and both educational and psychosocial outcomes, including academic achievement and student well-being (Salmela-Aro & Upadyaya, 2014; Wang & Fredricks, 2014).

Intervention components are included in the model to reflect the limited number of studies examining strategies to enhance engagement. These interventions, including ACT-based programs and technology-supported learning, appear to influence engagement through both motivational and contextual pathways. However, due to the heterogeneity of intervention designs, firm conclusions regarding their effectiveness remain limited.

Overall, the conceptual model represents a synthesis of patterns identified across the reviewed studies. It provides a structured overview of how engagement has been examined in relation to individual, contextual, and outcome variables, and highlights the need for more integrative and methodologically rigorous research. The relationships illustrated in the model are further supported by prior research indicating that engagement is shaped by interactions among motivational, emotional, and contextual factors (Henrie, 2016; Hidayah & Ramli, 2017; Pietarinen et al., 2014; Wang & Holcombe, 2010).

Finally, this systematic review contributes to the literature by synthesizing empirical evidence on school engagement across multiple research traditions and educational contexts. Rather than proposing a single explanatory model, the review highlights the diversity of theoretical perspectives and empirical approaches in engagement research and identifies directions for future research.

The findings of this systematic review suggest that school engagement is most commonly conceptualized as a multidimensional construct encompassing cognitive, emotional, and behavioral dimensions that interact in shaping students' learning experiences. However, the reviewed studies do not provide sufficient evidence to

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establish a clear hierarchical relationship among these dimensions. Variations in findings appear to reflect differences in measurement approaches, research design, and educational context rather than consistent empirical patterns.

The synthesis further indicates that both individual and contextual factors are associated with engagement. Motivational variables such as self-efficacy, intrinsic motivation, and self-regulation are frequently identified as predictors or correlates. At the same time, contextual influences—including teacher support and classroom climate—are consistently reported as relevant environmental conditions. At the same time, the limited number of intervention-based studies and their substantial heterogeneity in design, duration, and outcomes restrict the ability to draw firm conclusions regarding the comparative effectiveness of different intervention approaches targeting cognitive, behavioral, or motivational processes.

This review also acknowledges several methodological limitations, including the reliance on a limited number of databases, the inclusion of studies with diverse designs and conceptualizations, and the predominance of correlational evidence, all of which may affect the interpretation and generalizability of the findings. Despite these constraints, the review provides a structured synthesis of recent empirical research on school engagement across educational contexts. Future research would benefit from more rigorous longitudinal and experimental designs, as well as clearer differentiation of engagement constructs across educational levels, in order to support a more precise and evidence-informed understanding of engagement processes.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Declaration of Helsinki, which provides guidelines for ethical research involving human participants. Ethical considerations in this study were that participation was entirely optional.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contribute to this study.

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