

A Review of the Effect of Reading Engagement on Reading Achievement

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Gli effetti del coinvolgimento sui risultati raggiunti nella lettura: una review

For decades, literacy research has placed a great deal of emphasis on reading engagement. It is widely acknowledged as a complex involving cognitive, behavioral, and emotional engagement. Learning engagement is an essential predictor of learning outcomes. It mediates educational intervention and learning outcomes. Although empirical studies proved the effectiveness of engagement on reading success, few studies have comprehensively reviewed the relationship between the subscales of engagement and how these subscales affect learning outcomes. To fill this gap, this review focused on exploring the interaction among subsets of engagement and how they affect reading achievement. The findings revealed that how engagement affects learning outcomes is determined by the intervention and how the outcomes are assessed and reported. The relationship between the engagement subscales is complicated: cognitive and behavioral engagement is a constant predictor of reading outcomes; emotion is the facilitator and affects behavioral or cognitive engagement. Behavioral engagement mediates cognitive engagement. Furthermore, learning outcomes could enhance emotional engagement, forming a natural learning cycle. This model is significant in understanding how learning engagement affects learning outcomes. It also demonstrated how the engagement subscales interacted and worked together to facilitate learning outcomes.

Da decenni la ricerca sull'alfabetizzazione ha posto grande enfasi sul coinvolgimento nella lettura, riconosciuto come frutto dell'interazione complessa di aspetti cognitivi, comportamentali ed emotivi. Il coinvolgimento è un indicatore essenziale degli esiti dell'apprendimento e funge da mediatore tra l'intervento educativo e i risultati. Sebbene studi empirici abbiano dimostrato l'efficacia del coinvolgimento ai fini del successo nella lettura, pochi hanno esaminato esaurientemente la relazione tra sottoscale e come esse influiscano sull'apprendimento. Per colmare tale lacuna, questa review esplora l'interazione tra sottocategorie di coinvolgimento e come esse influenzino le abilità acquisite in lettura. I risultati rivelano che il modo in cui il coinvolgimento condiziona l'apprendimento è determinato dall'intervento e da come gli esiti vengono valutati e riportati. La relazione tra sottoscale di coinvolgimento è complessa: il coinvolgimento cognitivo e quello comportamentale sono predittori costanti degli apprendimenti in lettura; l'emotività è un facilitatore e influisce sul coinvolgimento comportamentale o cognitivo. Il coinvolgimento comportamentale media quello cognitivo. Inoltre, i risultati dell'apprendimento potrebbero potenziare il coinvolgimento emotivo, creando un ciclo di apprendimento naturale. Tale modello è significativo per comprendere come il coinvolgimento abbia effetti sui risultati dell'apprendimento; ha anche dimostrato come le sottoscale di coinvolgimento interagiscano e cooperino nel facilitare gli esiti del processo.

Keywords: Emotional engagement; Cognitive engagement; Behavioral engagement; Social engagement; Learning outcomes.

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1. Background

Learning engagement is widely theorized and researched (Kahu, 2013). It defines learning and constitutes an essential part of learning success. Finn (1989) deemed that participation in school and identification of belongingness and value can effectively avoid withdrawing from school. It could expel burnout in school and improve academic performance, helping students pass exams (Schaufeli, Martínez, Pinto, Salanova, & Bakker, 2002). The relationship between learning engagement and learning outcome is multifaceted and complex. Multiple studies have shown a positive correlation between engagement and achievement (List, 2021; Rosenzweig, Wigfield, Gaspard, & Guthrie, 2018). Scholars sub-categorized engagement and outcomes into measurable and observable items and indicated that these engagement subscales impact outcomes differently (Chen, Zhang, Wu, & Huang, 2022; Wang, Fredricks, Ye, Hofkens, & Linn, 2022). Some also explored the interrelationship between engagement dimensions (Lee, Park, & Davis, 2018; Wei, Saab, & Admiraal, 2023).

In language learning, engagement also is frequently researched by scholars. They believe reading engagement is crucial in literacy development and achievement (Afflerbach & Harrison, 2017; Lee, Jang, & Conradi, 2021). Therefore, learning engagement remained a strong interest for reading teachers.

Lee *et al.* (2021) conducted a systematic review on reading engagement in which the following problems were addressed: How do researchers define reading engagement? Which dimensions and findings are the main focus of reading? In brief, the problem of what makes reading engagement was solved in their study. It is currently unclear how the various engagement subscales impact reading achievement or how they interact with one another. These questions have yet to be answered. Up to now, no systematic review of this has been explored. This study aims to investigate empirical research on reading and analyze how reading engagement affects reading achievement. Additionally, it will examine the connection between various aspects of learning engagement. This study aims to investigate empirical research on reading and analyze how reading engagement affects reading achievement. Additionally, it will examine the connection between various aspects of learning engagement.

2. Learning Engagement

Engagement is conceptualized in various ways, such as a quality or trait, a predictor of outcomes, or a disposition in a specific situation (Christenson, Reschly, & Wylie, 2012). It is a prerequisite for active involvement in learning (Mercer, 2019), an ongoing work that a student puts into the learning process to achieve learning objectives. It is also defined as students' effort, such as time and energy spent in achieving the academic requirements set by instructors and schools (Carbonaro, 2005). Scholars categorized learning engagement into different dimensions, ranging from two-dimensional to multi-dimensional.

2.1. Two-Dimensional view

Finn (1989) claimed that learning engagement was a set of emotional and behavioral involvements. These two critical components for attaining success in school can avoid dropout. The positive descriptions of emotional engagement were affiliation, attachment, commitment, and bonding, as these terms helped students create a sense of value and belonging and achieve their academic objectives. The concept of behavioral engagement was based on participation in class. Finn's model suggested that participation in school could impact learning outcomes directly, and the success in learning enhanced students' senses of belongingness and value, which in turn affect students' involvement, forming a self-reinforcing nature of the cycle.

Skinner, Furrer, Marchand, and Kindermann (2008) identified two categories of engagement: inside engagement (emotional and behavioral engagement) and outside engagement (teacher support, self-systems, and engagement itself). Behavioural engagement was described as action initiation, effort, exertion, attempts, persistence, intensity, attention, absorption, and involvement. Emotion engagement was a list of emotional statements: enthusiasm, interest, enjoyment, satisfaction, pride, vitality, and zest. These predictors of learning engagement were differentiated into indicators and facilitators, stating that

behavioral and emotional engagement are indicative engagement. Self-perception and teacher support are the other two predictors facilitating behavioral changes.

Skin's framework seems to be a list of four dimensions of learning engagement, but it is two-dimensional, encompassing behavior and emotional engagement. As Finn listed, outside engagement is intervention or the exterior facilitators, and they should be considered independent variables that influence internal indicators.

2.2. Three-dimensional view

Some scholars define students' engagement from three dimensions. Connell constructed a model of engagement including behavioral, such as persistence, effort, and sustained attention to tasks; emotional states, such as interest and excitement; psychological orientation of preference for challenge, task involvement, and independent mastery (Connell, 1990; Connell, Halpem, Clifford, Crichlow, & Usinger, 1995).

Schaufeli *et al.* (2002) made a scale to measure engagement for university students: Utrecht Work Engagement Scale- Student. They argued that engagement was an emotional-cognitive state distinguished by vigor, dedication, and absorption. It was more pervasive and enduring and was not explicitly focused on any one thing, person, event, or behavior. Vigour was described as the ability and willingness to put effort into one's study, high energy levels, and mental fortitude. Moreover, dedication includes a sense of significance, passion, inspiration, pride, and challenge. Absorption is defined as being completely absorbed and contented with one's work, during which time goes swiftly, and one feels carried away by one's task. Schaufeli's work is widely adopted in the work field, for the description of engagement is more related to working than learning.

The most widely adopted three-dimensional view in education was proposed by Fredricks, Blumenfeld, and Paris (2004). They defined learning engagement as a meta-construct of behavior, emotion, and cognition. Behavioral engagement entails positive conduct, involvement in learning and academic tasks, and participation in school-related activities. The emotion includes attitude and feelings about the environment, such as teacher, school, or work. Interest and value are also covered. Cognitive engagement stresses the investment of self-regulation or being strategic. Students use metacognitive strategies to plan, monitor, and evaluate their cognition to finish tasks and control their effort in learning. In the study by Fredricks *et al.*, self-regulation was portrayed as a critical feature of cognitive engagement. They declared that cognitive, behavioral, and emotional engagement was not isolated but interconnected, and they also assumed that engagement lay in the interaction of individuals and the learning context. However, how the three dimensions of engagement impact each other and how contextual factors influence engagement were underexplored.

2.3. Four-dimensional view

Appleton, Christenson, and Furlong (2008) proposed and refined a taxonomy entailing four types: academic, behavioral, cognitive, and psychological. Academic engagement is measured by the time spent on tasks; credits earned toward graduation and homework completion; attendance, suspensions, voluntary classroom participation, and extracurricular activities indicate behavioral engagement. These types of engagement were more observable compared with cognitive and psychological, which are more internal and less intangible. Cognitive engagement comprises self-regulation, personal objectives, and autonomy, while psychological engagement involves identification, belonging, and social bonds with teachers and peers.

In a recent study with teenagers, Fredricks and colleagues added a fourth component, the social dimension, to the notions of engagement and the three previously described dimensions (Wang, Fredricks, Ye, Hofkens, & Linn, 2016). The level of social interaction and the desire to establish or maintain relationships with peers and adults are referred to as social engagement. This categorization soon gains popularity in education. Lambert, Philp, and Nakamura (2017) highlighted that social engagement was special in language learning. Because it emphasized the connection between students by affiliation and their willingness for conversational involvement, it was shown in reciprocity and mutuality between peers and supported peer participation and collaboration.

Social engagement was defined explicitly as rational in nature to interact with and support others. It underlined the connections among learners in the classroom or community and their connection with environments (Hiver, Al-Hoorie, Vitta, & Wu, 2021).

Learning engagement presumed to be is malleable, responsive to contextual elements, and adaptable to environmental change (Fredricks, Blumenfeld, & Paris, 2004). It needs to be contextualized in a specific domain. Researchers used different dimensions to delineate reading. Considering its domain-specificity attribute, reading engagement differs from speaking engagement, which requires more interaction among peers and teachers. Different models have been adopted. However, the systematic review of Lee *et al.* (2021) showed that the most frequently used dimensions are behavioral, affective, and cognitive. Especially students' behavioral engagement. Few studies have focused on the social aspect of reading. Based on the qualitative research of this systematic review, articles focusing on behavioral, affective, and cognitive engagement are adopted in this research.

3. Method

3.1. Literature search

The publications searched were written in English. Two major databases were selected: Scopus and WOS core journals. The timeline was set within ten years.

3.2. Criteria for Literature Selection

As aforementioned, reading engagement was conceptualized in the education field in three: emotional, behavioral, and cognitive social engagement. Hence, only studies that used these conceptualizations were included. Studies based on other categories, such as Appleton *et al.* (2008) and Schaufeli's models were excluded. The following criteria were added to the literature selection: (a) research should be empirical concerning the correlation between learning engagement subsets and outcome; (b) articles focused only on engagement or outcomes were excluded; (c) articles that empirically explain the relationship between engagement subscales are included.

3.3. Appraisal

Two researchers analyzed the selected literature in terms of (a) correlational pattern between learning engagement and outcomes; (b) correlational pattern between different dimensions of engagement. The data retrieval consisted of reading the title, abstract, and full article in depth to determine relevant data or content with this study. In case of uncertainty, the two coders read the paper and met to discuss until an agreement was reached.

4. Results

After applying the criteria of appraisal and analysis, eleven articles were retained. Thematic analysis was conducted.

Regarding the impact of engagement on reading achievement, varying results were observed in response to question 1. Some scholars held a one-dimensional view, which means only one subset plays a leading role. Some deemed that different dimension impact learning in different ways.

4.1. One Dimension

Bråten, Brante, and Strømsø (2018) investigated engagement among 127 Norwegian upper-secondary school students. The practice used in their research is to ask students to select texts they want to use to write a letter to the editors about a socio-scientific topic. Students were assigned two different topics: climate and nuclear power. Results indicated that behavior engagement substantially contributed to

their reading comprehension, topic knowledge, and interest. The time, effort, and persistence invested matter more than emotional and cognitive dispositions.

In their study, no intervention is conducted. In a simple task assignment, students' behavior engagement affects their performances. However, the presumption that behavior engagement uniquely predicts reading performance cannot be generalized in other contexts, especially when an intervention is carried out.

However, Braten is not the only scholar that takes behavioral engagement as the direct mediator of learning outcomes. Other studies also presumed the same results (Guthrie & Klauda, 2014; McGeown, Duncan, Griffiths, & Stothard, 2015). To test this hypothesis, Troyer *et al.* (2019) conducted a large sample survey (N=4529) among fourth and fifth graders in high-poverty U.S. schools. Results indicated that reading motivation predicted both reading achievement and behavioral engagement manifested by the amount of reading. However, the reading amount could not predict achievement above and beyond the effect of intrinsic motivation.

4.2. Multi-Dimensions

Unlike the unidimensional view above, evidence also demonstrates that reading gains are affected by different dimensions of engagement, which are subordinated to different interventions.

Lin, Li, Sun, Huang, and Zheng (2021) investigated how different dimensions of engagement affect reading comprehension among Chinese secondary school students. The results indicated that only emotional engagement (manifested by interest) and cognitive engagement (manifested by strategies) played important roles in supporting students' reading comprehension. Especially among students possessing strong engagement styles, a high level of comprehension was merely supported by cognitive engagement.

Similarly, Ronimus, Eklund, Pesu, and Lyytinen (2019) investigated the effectiveness of digital games on the reading skills of second-grade students who have reading difficulties in Finland. Students are awarded an avatar on their engagement. Word-level decoding, sentence reading fluency, spelling, and reading comprehension were indicators of reading achievements. Results indicated that students' emotional engagement directly affects their time devoted to the game. However, only cognitive engagement is significantly related to learning gains, suggesting that children who are more focused and persistent have a better chance of higher game success rates which in turn contributed to their growth of reading fluency, but not word decoding.

Ronimus, Tolvanen, and Hautala (2022) investigated whether engagement mediates motivation and reading comprehension among Grade 3 and 4 Finnish speakers. Two studies were conducted. One with fluent readers, and the other combined both fluent and disfluent readers. Both studies suggested that cognitive engagement mediated reading enjoyment on reading comprehension, while cognitive and behavioral engagement mediated reading efficacy on reading achievement.

Ronimus *et al.* (2022) used self-efficacy, reading enjoyment, and extrinsic motivation as indicators of motivation; they also used time-on-task and response strategy as indicators, as the writer asserts that one limitation in their study is the overlap of concepts. Their study is more of an exploration of different interactions of subsets of engagement rather than the mediating role of engagements and intervention. However, Ronimus' study contributes to articulating the interactions among engagements.

Antúnez, Pérez-Herrero, Rosário, Vallejo, and Núñez (2020) designed a SPIRALS program (School program of intercultural promotion, learning regulation, reading comprehension, and study habits) to encourage students' engagement and reading comprehension in a Spanish elementary school. This program focused on providing students with different forms of content, action, and expression so that they could be more strategic and motivated. Results showed that students made substantial improvement in terms of behavioral and emotional engagement, academic self-concept, the perceived climate of support, reading comprehension, and academic performance, but not cognitive engagement, as the writers stated that this might be caused by the short duration of the program and insufficient training in cognitive skills in the process. Hence, how the program is implemented affects its impact on learning engagement and outcomes.

Kim *et al.* (2017) used a strategic adolescent reading intervention (STARI) for 6–8 grade students who scored below proficient in reading performance in the USA. Word recognition, basic reading

comprehension, and morphological awareness were used as indicators of reading proficiency. A web-administered reading assessment was adopted to test students' reading proficiency. Teachers' perception was collected to observe students' cognitive and emotional engagement, and a workbook completion was used as indicators of behavioral engagement. Findings proved that behavioral engagement substantively influences reading outcomes; emotional and cognitive engagement also predicted reading skills.

Sun and Batra (2022) investigated how adults' questions in English-Mandarin affect preschoolers' Mandarin word learning, comprehension, and engagement in Singapore. Three groups were assigned to different conditions: reading with contextualized questions, decontextualized questions, and reading without questions. The study's findings indicate that employing contextualized questions, such as those involving labeling and description, yielded more favorable outcomes in terms of explaining the meaning of target words, enhancing story comprehension, and promoting improved social-cognitive engagement. Conversely, decontextualized questions, such as those involving inference, primarily facilitated children's social-cognitive engagement. The questions posed by the experimenters did not positively impact sustaining children's behavioral and affective engagement. These questions resulted in a more rapid decline in children's behavioral and affective engagement during repetitive readings. Furthermore, the questions did not contribute to children's receptive and productive word-learning acquisition.

Learning engagement affects reading achievement; in turn, learning gains can affect engagement. Mikami (2020) proved that students' sense of achievement and realization of growth could improve their intrinsic motivation and self-efficacy, stimulating their new reading goals and engagement.

4.3. Interactions Among Subsets of Engagement

To answer question 2, interactions among subsets of engagement were identified, providing a further explanation for reading improvement.

Braten, Latini, and Haverkamp (2022) investigated the effects of behavioral engagement on text comprehension. Students were assigned ten passages about phobia; after that, students were required to write a passage on the topic. Writing time and the length of reports were used to measure comprehension performance. Results showed that the behavioral engagement components of writing time and the written responses' length significantly impacted comprehension performance. Results also indicated that behavior engagement mediates cognitive and emotional engagement in reading comprehension. Without cognitive engagement, learners may fail to plan what is necessary for their report and how to appraise the materials. Behavior engagement in the studies of Braten (2018, 2022) is a combination of cognitive and behavioral since, in a single task completion; observable learning activities may evoke a cognitive process (Chi & Wylie, 2014).

The serial study of Ronimus proved that emotional engagement could predict other dimensions of engagement. Ronimus *et al.* (2019) explained that emotional engagement enhanced their cognitive engagement, improving reading achievement. Although Ronimus *et al.* (2022) used self-efficacy and reading enjoyment as motivation indicators, they affected both cognitive and behavioral engagement. These concepts of motivation overlap with emotional engagement regarding value (Fin, 1989). To some extent, motivation and emotional engagement are synonymous (National Research Council, 2004). However, the relation between cognitive engagement and behavioral engagement is not parallel. Although both impact learning outcomes, behavioral engagement mediates cognitive and learning outcomes (Ronimus *et al.*, 2022).

5. Discussion

The studies above presented different findings: the one-dimensional view that behavior or cognitive engagement is the unique predictor of reading outcomes. For example, some scholars think behavioral engagement is the only predictor of reading success (Bråten *et al.*, 2018; Guthrie & Klauda, 2014; McGeown *et al.*, 2015). However, the belief that only behavioral engagement is significant has been challenged.

The study by Troyer, Kim, Hale, Wantchekon, and Armstrong (2019) proved that emotional engagement played a significant role in reading success. It defies the commonly accepted view that behavior engagement predicts reading achievement. One should be aware that Troyer focused on students from lower social status families whose reading proficiency is closely related to their social background; reading amount may not be a salient predictor of reading comprehension. Hence, instruction design should consider students' backgrounds and existing reading proficiency in contextualized settings. For students at lower or middle-proficiency levels, reading interventions that boost students' emotional engagement is at least as important as their behavioral engagement.

The study from Ronimus *et al.* (2019) study does not support emotional engagement in learning gains, as the authors stated that the design of game-based learning mostly affected students' experiences of fun through rewards and avatars, which could not contribute to learning content. Students are more emotionally engaged in games instead of learning. Besides, behavioral engagement measured by exposure time is also not a predictor of learning, suggesting that the amount of time may not be sufficient for improving learning if their mind is not in the learning content. Therefore, in the digital game intervention, cognitive engagement uniquely mediated learning gains.

The multi-dimensional view is that behavioural, cognitive, and emotional engagement could also improve learners' reading.

Challenging the belief that only behavioural engagement matters, Lin, Li, Sun, Huang, and Zheng, (2021) argued that behavioural engagement does not predict reading achievement. Only emotional and cognitive engagement matters. However, one should be aware of the specific context of this study in Chinese secondary schools, where students face fierce competition for admission to senior high schools. High scores are the learning goals instead of high-level or deep-level reading in such a special learning stage. In other words, students may master the skills of reading and tests, thus achieving high test scores, but they are not reading at a high level. Simply using the score as learning achievement may cover the misconception of "high score but low literacy" in Chinese exam-oriented education (Liu & Feng, 2016). The study conducted by Antúnez *et al.* (2020) found that the SPIRALS program had a positive impact on students' emotional and behavioral involvement but failed to promote cognitive engagement. As the writers stated, this may be caused by the short duration of the program and insufficient training in cognitive skills in the process. Hence, how long an intervention lasts will affect learning engagement and outcomes. Therefore, the length of time and implementation approach should be considered when designing an instructional intervention. Otherwise, the results would be affected. The study of Kim *et al.* (2017) proved that STARI could improve all dimensions of engagement, which mediated reading success.

The results seemed to differ depending on whether the instruction was focused on cognition, emotion, or behavior. Designed in a specific context and with unique characteristics, different interventions might affect the learning process and outcomes differently. To unveil the truth between intervention, engagement, and learning outcomes, attention should be directed toward different elements of interventions and how learning outcomes are delineated and assessed. This is typical in the study of Henschel, Meier, and Roick (2016). They proved how the instruction design significantly determined engagement. Text-based (TB) and reader-oriented (RO) tasks were designed for 9th graders in low academic tracks. Results indicated that TB tasks improved cognitive engagement, and RO boosted emotional engagement. These two types of design enlightened that teachers' instructional practices should be based on evaluating what is deficient for students. And in game-based reading (Ronimus *et al.*, 2019), cognitive engagement improved reading achievement. The behavior engagement failed to predict learning success in Ronimus's study. Nevertheless, this does not mean behavioral engagement cannot predict reading outcomes, but how engagement is assessed matters.

In summary, the impact of different levels of engagement on reading achievement is influenced by how the achievement is defined and evaluated, as well as how the instruction is planned and executed. This aligns with the study of Cantrell *et al.* (2017). According to their argument, various reading strategies impact cognitive and behavioral engagement. Additionally, value and self-efficacy play a role in behavior and motivation engagement, while relevant texts affect behavior, motivation, and social engagement. Lastly, classroom relationships are important for motivation and social engagement. When the design is motivation-oriented, like goal setting, it will foster students' overall engagement to achieve

goals.

Based on the literature discussed it can be concluded that various educational interventions impact engagement subsets differently. Guthrie, Wigfield, and You (2012) constructed a model by citing experiments from different research. They claimed that classroom practice and conditions affected students' motivations and behavioral engagement in reading, while motivations directly affect behavioral engagement and reading competence; both motivation and behavioral engagement affect reading competence. Guthrie's study highlighted the interaction between behavior engagement and motivation, which is often considered a synonym of emotional engagement (Skinner, Kindermann, Marchand, & Furrer, 2008; National Research Council, 2004). However, their interaction between behavior and cognition is under-illustrated.

Adding the interaction between these dimensions, the relation between educational intervention, engagement, and reading achievement can be conceptualized through the following model. As seen from Figure 1, regardless of the nature of the interactions, one consistent finding is that emotional engagement plays a crucial role in enhancing cognitive and behavioral engagement, ultimately leading to improved learning outcomes (Ronimus, Tolvanen, & Hautala, 2022). Single emotional engagement could not lead to learning gains without cognitive or behavioral engagement. When students are behaviorally engaged, it helps to improve their cognitive engagement and enables them to develop adaptive strategies and gain a deeper understanding (Lau, Liem, & Nie, 2008).

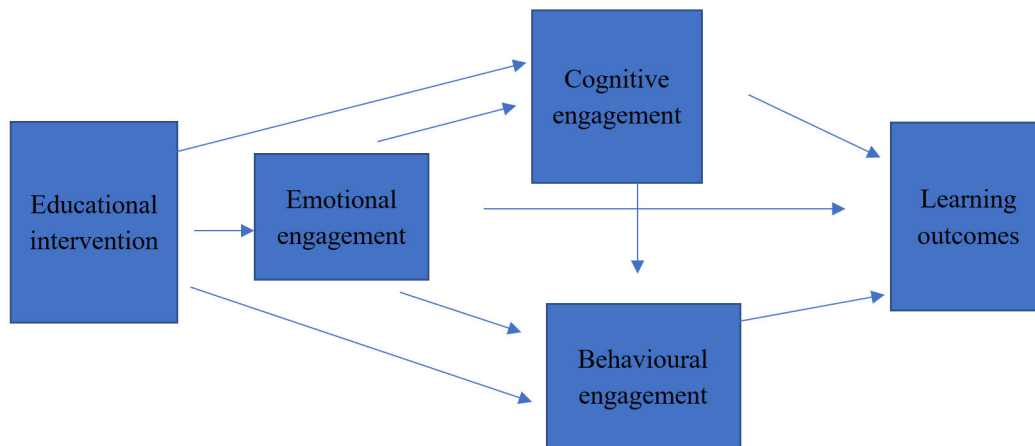


Figure 1 – Interaction Model of learning engagement and learning outcomes

It is important to note that the connection between learning engagement and academic outcomes is not a one-way street. In fact, achieving academic success can enhance a student's motivation to engage in more reading activities, creating a positive learning cycle (Mikami, 2020). Active participation in school can have a direct impact on learning outcomes. Success in learning can enhance students' sense of belonging and value, which in turn can positively affect their engagement. This creates a self-reinforcing cycle that promotes academic success (Fin, 1989). Improved learning can lead to enhanced emotional engagement, which in turn can boost behavior and cognitive engagement. This forms another learning cycle, as seen in Figure 1.

6. Conclusion

This study reviewed the relationship between reading engagement and achievement. It also explored the interaction between the subsets of engagement. Although reading engagement mediates educational intervention and achievement, the interrelation among these facets is complicated. The design of the instruction determines which dimensions directly affect reading achievement. In order to create an effective educational intervention, teachers must first identify the problems that learners are facing, whether

it be a lack of interest, motivation, cognitive abilities, or persistence in learning. Their demographic status, such as family income, learning style, and culture, should also be considered. This study shed some light on the selection of education interventions for teachers. However, this study has some limitations, for it only covered engagement indicators; facilitators such as social interaction, learners' experience, and existing knowledge or proficiency are excluded. Further models entailing a panoramic view of the facilitator and indicator should be conducted. Another limitation is the number of empirical studies. Few studies investigated the interaction among subsets of engagement. The model is based on the few existing empirical studies on reading engagement. However, it still needs to be tested in future research, and more evidence should be used as supportive.

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