



The Role of Motivation in Self-Regulated Learning: A Comprehensive Review

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Abstract

The aim of the current review was to explore the role of motivation in self-regulated learning and examine its connection to self-regulatory processes. A total of 25 studies were included in this review. The evidence from these studies showed that motivational factors such as self-efficacy, intrinsic goal orientation, task value, and control of learning beliefs had a positive and significant impact on self-regulated learning. On the other hand, test anxiety was negatively related to self-regulated learning, though this relationship was not significant. The findings for extrinsic goal orientation were mixed, as it could either positively or negatively influence self-regulated learning.

Keywords: *Motivation, Self-regulated learning, Self-efficacy, Intrinsic goal orientation, Task value, Control of learning beliefs, Test anxiety, Extrinsic goal orientation.*

Introduction

Self-regulated learning (SRL) is described as an active process in which learners take control of their own learning by setting personal goals. The learners use various strategies to plan, monitor, regulate, and assess their progress, considering factors such as cognitive and metacognitive skills, motivation, and behaviour, all with the aim of achieving their set objectives (Pintrich, 2002; Zimmerman, 1989)

In the realm of academic learning, numerous studies have suggested a positive correlation between academic achievement (AA) and self-regulated learning (SRL). This relationship indicates that students who actively manage and regulate their own learning tend to perform better academically. Furthermore, these beneficial outcomes are evident across various age groups, spanning from preschool and elementary education to secondary school and university, as consistently demonstrated by multiple studies (Cleary & Kitsantas, 2017; Dent & Koenka, 2015)

Despite the positive findings reported in earlier studies, there is also previous research that raises concerns about the practical value of self-regulated learning (SRL). For instance, one study argued that SRL interventions might not substantially enhance the effectiveness of SRL strategies for students outside the specific environments or contexts where the interventions were implemented (Cerezo et al., 2018)

Similarly, some studies suggested that students might not readily apply self-regulated learning (SRL) strategies, even if they know about them. This could be because they are unsure

whether the effort will pay off or find it challenging to implement the strategies effectively (Rabinowitz, Freeman & Cohen, 1992; Zimmerman, 2011).

Regarding the challenges of applying self-regulated learning (SRL) in everyday life, some researchers have pointed out the role of motivation. For example, Bandura argued that since SRL relies on individuals directing their own learning, its effectiveness depends on consistent self-monitoring, which requires motivation as a driving force. Additionally, because people's attention can easily shift due to various competing factors, motivation is crucial to help individuals stay focused on their goals (Bandura, 1986).

In support of this idea, several previous studies have shown that motivation is positively related to cognitive engagement, such as the use of self-regulation strategies. In other words, higher motivation tends to lead to greater use of these strategies (Pressley & McCormick, 1995).

The aim of this review was to identify and examine the motivational constructs most strongly associated with self-regulated learning (SRL) and to understand their relationship with SRL. To achieve this, the study focused on six key motivational constructs: intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, self-efficacy, and test anxiety. These constructs are outlined in the Motivated Strategies for Learning Questionnaire (MSLQ), a widely utilized tool for assessing SRL (Pintrich et al., 1991). Additionally, they are integral to two of the most extensively researched SRL models developed by Pintrich (2000) and Zimmerman (1989), enhancing the robustness of the findings.

Review of Literature

Self-regulated learning (SRL) has become a focal point in educational psychology because of its essential role in determining academic success. At the heart of SRL are various

motivational factors, which critically impact how learners establish goals, adopt strategies, and accomplish their educational objectives. This review delves into the literature concerning motivational factors in SRL, providing a detailed examination of the key constructs and theoretical models that have significantly advanced our comprehension of this intricate interaction. By exploring these foundational elements, the review aims to elucidate how motivational components shape the processes of self-regulation in learning and their implications for educational practice and research.

Motivational factors

Among the various instruments used to measure self-regulated learning (SRL), the Motivated Strategies for Learning Questionnaire (MSLQ) has been the most widely utilized. This is due to its comprehensive approach in assessing key determinants of SRL, thereby offering a detailed understanding of SRL-related behaviours. The MSLQ's motivation scale is particularly notable, comprising six essential components: intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, self-efficacy, and test anxiety. Each of these components plays a crucial role in understanding how motivation influences learning strategies and overall academic performance (Pintrich et al., 1991).

In alignment with the motivational constructs outlined in the Motivated Strategies for Learning Questionnaire (MSLQ), the two most extensively studied models of self-regulated learning (SRL) demonstrate a consistent support for these constructs. Specifically, the Cyclical Phases Model, developed by Pintrich, Zimmerman and Moylan, incorporates four of the six motivational constructs from the MSLQ within its forethought phase. These constructs include self-efficacy, task value, and both intrinsic and extrinsic goal orientations. In contrast, Pintrich's model encompasses all six motivational constructs from the MSLQ: intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, self-efficacy, and test anxiety.

This comprehensive inclusion underscores the model's broad scope in addressing various motivational factors that influence self-regulated learning.

Goal orientation theory suggests that students' motivation is shaped by the type of goals they pursue: intrinsic goals, which are centered on personal satisfaction and skill development, and extrinsic goals, which focus on external rewards and recognition. Studies have consistently found that intrinsic goal orientation is associated with higher academic success and more effective self-regulated learning (Pintrich & Groot, 1990). On the other hand, extrinsic goal orientation is often connected to less effective learning strategies and lower academic performance (Elliot & McGregor, 2001).

Task value pertains to the perceived significance and relevance of a task. According to expectancy-value theory, students are more inclined to engage with and persist in tasks they deem valuable (Eccles & Wigfield, 2002). Research has shown that when students assign high value to a task, they tend to exert greater effort and employ more effective learning strategies (Wigfield & Eccles (2000).

Self-efficacy, as defined by Bandura as the belief in one's ability to successfully complete tasks, is a crucial factor influencing self-regulated learning (SRL) (Bandura, 1997). Elevated self-efficacy is linked to heightened motivation, greater persistence, and the adoption of adaptive learning strategies (Schunk, 1989; Zimmerman, 2000). For example, students with strong self-efficacy are more inclined to establish ambitious goals and utilize effective self-regulation techniques (Zimmerman & Kitsantas, 2005)

Control of learning beliefs—how much students think they can affect their learning results—also plays a big role in self-regulated learning (SRL). Students who believe they have strong control over their learning are more likely to take charge of their study habits and bounce

back from difficulties (Schunk & Zimmerman, 1994). These beliefs are closely tied to academic self-efficacy and often share similar predictive power (Schunk, 1992).

Test anxiety—feeling nervous and stressed about exams—can hurt self-regulated learning (SRL). Studies show that high test anxiety can interfere with thinking and lower academic performance (Pekrun, 2006). However, programs designed to reduce test anxiety have been effective in boosting SRL by helping students manage their stress and develop better coping strategies.

Self-Regulated Learning

The MSLQ (Motivated Strategies for Learning Questionnaire) divides learning strategies into three main sections, with a total of nine elements. Four in Cognitive Strategies as explained here. Rehearsal: Repeating information to help remember it. Elaboration: Adding details and linking new information to what you already know. Organization: Arranging information in a clear and structured way. Critical Thinking: Evaluating and analysing information to understand it better.

One Metacognitive Self-Regulation: Keeping track of your own learning progress and adjusting your strategies as needed.

Four Resource Management Strategies namely Time and Study Environment: Planning how to use your time effectively and creating a good place to study. Effort Regulation: Staying motivated and managing your effort to keep up with your studies. Peer Learning: Working with others to enhance your learning. Help-Seeking: Asking for help when you need it.

These categories and their elements are designed to support and improve learning.

A recent meta-analysis reviewed various theories of self-regulated learning (SRL) and suggested that some concepts could be grouped together if they met three criteria: having strong

interconnections, showing similar patterns in their relationships, or being closely related to other learning factors. The analysis identified nine key components that predict SRL namely Goal Level (the goals you set), Self-Efficacy (your confidence in your abilities), Cognitive Strategies (techniques for processing information), Metacognitive Strategies (techniques for managing your learning), Attention (your ability to focus), Time Management (how you organize and use your time), Environmental Structuring (how you arrange your study environment), Motivation (your drive to achieve) , Effort (the energy you invest in your tasks and Attributions (how you explain your successes and failures)

These components were classified based on their predictive strength of SRL: weak, moderate, or strong predictors (Sitzmann & Ely, 2011).

The SRL components proposed above align well with two established SRL models. For example, six out of nine components matched those in the Cyclical Phases model, including goal setting, self-efficacy, motivation, time management, environmental structuring, and metacognitive strategies (such as self-monitoring and self-evaluation) (Zimmerman & Moylan, 2009). Similarly, eight out of nine components were consistent with Pintrich's model, covering goal setting, metacognitive strategies, motivation, self-efficacy, effort regulation, time planning, study environment, and attributions (Pintrich, 2000).

Research Methods and Materials

An extensive literature search was conducted across multiple databases, including SAGE Journals, Scopus, Web of Science, ScienceDirect, and Springer. The comprehensive process is outlined in Flow Chart 1, detailing the keywords utilized, the specific search parameters applied, and the successive stages of the screening process.

Additionally, inclusion criteria were defined for this review as

1. Only studies published between 2000 and 2023 were included to ensure coverage of the most recent research trends.
2. only studies focused on self-regulated learning (SRL) in school settings were considered.
3. The review included only research that examined the relationship between motivational constructs and SRL.
4. Studies from all educational levels, from elementary to higher education, across different global contexts, were included to allow for broader generalization to academic learning.
5. Only published articles, journals, conference proceedings, and papers were included in this review.

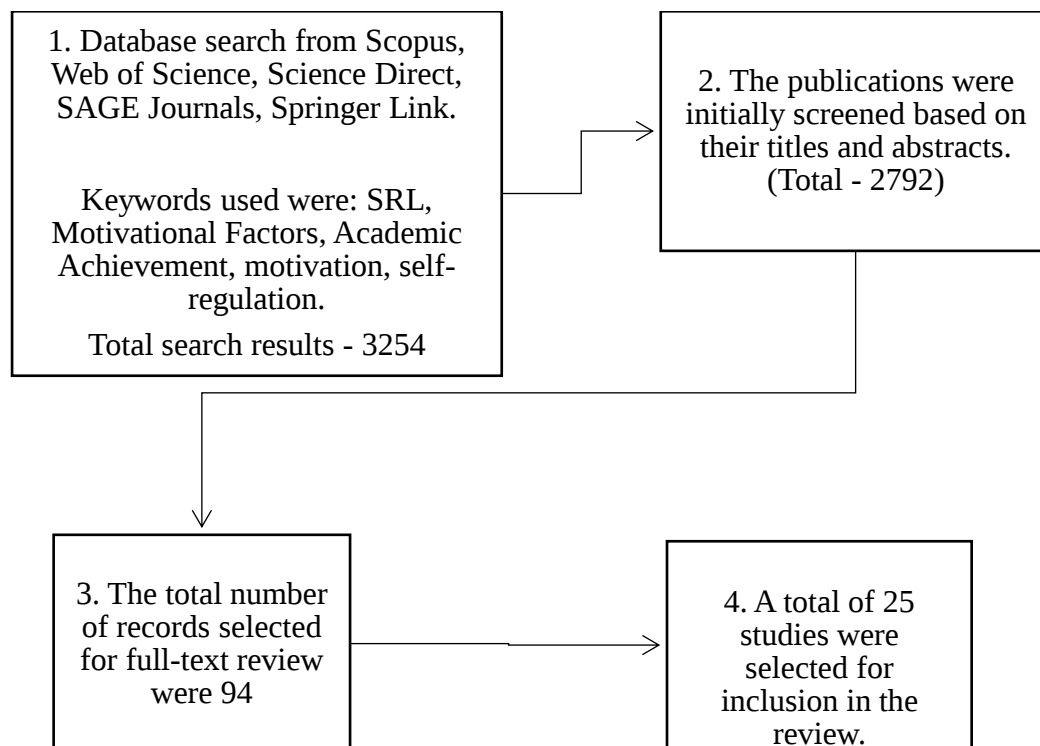


Figure 1 :Successive stages of screening process.

Results

The various motivational factors were studied and compared in relation to their impact on self-regulated learning, highlighting how each factor influences student's ability to manage their own learning process. Furthermore, the connections between these motivational factors and different elements of self-regulated learning were also explored, providing a comprehensive view of how motivation shapes key aspects of learner's self-guided efforts.

In the comparison of various motivational factors following the screening process, a total of twenty-five studies were selected for inclusion in this review. Despite the variation in the specific motivational factor explored across these studies, several consistent themes emerged. Six key motivational constructs were frequently associated with self-regulated learning (SRL): Self-efficacy, Task value, Intrinsic goal orientation, Extrinsic goal orientation, Control of learning beliefs and Test anxiety

These factors were repeatedly linked to SRL in the findings from the reviewed studies.

Among these motivational factors, self-efficacy stood out as the most thoroughly examined, with researchers devoting significant attention to understanding its role in self-regulated learning. This suggests that the belief in one's ability to succeed in specific tasks is considered a critical factor influencing student motivation and performance.

Intrinsic goal orientation, which refers to the internal drive to engage in learning for personal satisfaction or interest, was the second most frequently explored construct. This highlights the importance of student's internal motivations in driving their engagement with learning activities.

Task value, which pertains to the perceived importance or usefulness of the task at hand, and extrinsic goal orientation, which involves motivation driven by external rewards or recognition, were also studied extensively, although not as much as self-efficacy and intrinsic

motivation. These constructs reflect the broader spectrum of both internal and external factors influencing student's motivation.

In contrast, test anxiety and control of learning beliefs received less attention in the reviewed studies. Test anxiety, which relates to the stress and apprehension experienced during testing situations, and control of learning beliefs, which involve student's perceptions of their ability to influence their learning outcomes, were the least investigated constructs. This might suggest that while these factors are recognized as part of the motivational landscape, they have not been as widely explored as others, possibly due to the more specific nature of their influence on self-regulated learning.

In summary, self-efficacy and intrinsic goal orientation emerged as the two motivational pillars most strongly linked to self-regulated learning (SRL). These two factors consistently stood out as key drivers, shaping how effectively students manage their own learning processes.

Coming to the connections between these motivational factors and different elements of self-regulated learning an active role of these factors was seen in SRL as summarized below.

Self-efficacy

Several studies found a positive relationship between self-efficacy and SRL (Abdullah, 2016; Baaras & Wijnia, 2018; Fadlelmula, Cakiroglu & Sungur, 2014; Jakesova, Kalenda & Gavora, 2015; Liu et al., 2014). Self-efficacy had a significant positive effect on SRL in various studies (Zimmerman 2000, Zimmerman & Kitsantas, 2005, Schunk & Zimmerman 1994, Schunk 1992, Pekrun 2006). Some research reported that SRL influenced self-efficacy (Lavassani et al., 2011) , and one study suggested a reciprocal relationship between the two (Roicjk & Ringeisen, 2018) Additionally, self-efficacy acted as a mediator for grade goals, and grade goals mediated between self-efficacy and SRL. Effort regulation was also found to

partially mediate the relationship between self-efficacy and GPA (Chatzistamatiou et al., 2015; Lee, Lee & Bong, 2014; Komarraju & Nadler, 2013).

Intrinsic Goal Orientation

Most studies observed that intrinsic goal orientation positively affected SRL.(Ocak & Yamac 2013, Stolk & Harari 2014, Tanriseven & Dilmac 2013 ;Lee & Bong 2014, Komarraju & Nadler 2013, Bhattacharya et al. 2016). In some research, SRL was found to influence academic motivation, including intrinsic goal orientation (Lavasani et al., 2011). A few studies also indicated a positive correlation between intrinsic goal orientation and SRL.(Baars & Wijnia 2018, Baird et al. 2014, Karlen 2016)

Task Value

Task value was a significant predictor of SRL in multiple studies (Berger & Karanbenick 2011, Stolk & Harari 2014, Chatzistamatiou et al.2015, Komarraju & Nadler 2013). It also played a mediating role between self-efficacy and SRL in one study, while another study found SRL mediated the relationship between task value and control of learning beliefs (Li & Zheng 2018, Muwonge et al. 2019). A study noted a positive correlation between task value and SRL (Liu et al., 2014).

Extrinsic Goal Orientation

The relationship between extrinsic goal orientation and SRL was mixed, with some studies explaining effect of extrinsic goal orientation on SRL indicated a negative relationship .(Ocak & Yamac 2013, Bhattacharya et al. 2016) while some showed positive associations Stolk & Harari 2014, Komarraju & Nadler 2013, Eom 2015). In certain research, when extrinsic goal orientation and SRL were correlated a study found that extrinsic goal orientation was negatively associated with SRL (Baars & Wijnia, 2018) , while another study reported a positive association between the two (Karlen, 2016). A study which was studied for effect of

SRL on extrinsic goal orientation, SRL positively and significantly influenced academic motivation, including extrinsic goal orientation (Lavasani et al., 2011).

Test Anxiety

Research generally found that on correlating Text anxiety and SRL, test anxiety was either negatively or insignificantly associated with SRL (Abdullah, 2016; Liu et al.2014; Ocak & Yamac 2013; Stolk & Harari 2014; Komarraju & Nadler 2013). Most studies did not find a significant effect of test anxiety on SRL, though one study identified a positive link between the two (Tanriseven & Dilmac, 2013).

Control of Learning Beliefs

In some studies examining the effect and correlation of control of learning beliefs on SRL reported that control of learning beliefs positively influenced SRL(Elliot & McGregor, 2001; Schunk 1992; Jakesova, Kalenda & Gavora 2015) though one study found no significant effect.(Ocak & Yamac 2013) In a study SRL was found to mediate the relationship between control of learning beliefs and task value. (Ocak & Yamac 2013)

Discussion

This research aims to identify the motivational factors and components of self-regulated learning (SRL) that contribute to a more inclusive understanding of SRL, as well as how these two groups of variables interact. Based on a systematic review of existing studies, several key findings were highlighted.

Self-Efficacy and SRL

Most studies (Abdullah, 2016; Baaras & Wijnia, 2018; Fadlelmula, Cakiroglu & Sungur, 2014; Jakesova, Kalenda & Gavora, 2015; Liu et al., 2014). showed that self-efficacy

(the belief in one's own ability to succeed) is positively and significantly related to SRL. It also plays a strong role in predicting how well students will engage in SRL, despite some inconsistencies in the research. There is also some weaker evidence (Berger, Karabenick 2011; Li & Zheng 2018; Ocak & Yamac 2013; Stolk & Harari 2014; Tanriseven & Dilmac 2013) suggesting that SRL could positively impact self-efficacy. Additionally, some studies (Chatzistamatiou 2015; Lee, Lee & Bong 2014) propose that self-efficacy, along with grade goals, can act as mediators, influencing the relationship between SRL and these motivational factors.

Intrinsic Goal Orientation and SRL

Strong evidence (Ocak & Yamac 2013; Stolk & Harari 2014; Tanriseven & Dilmac, 2013; Lee, Lee & Bong 2014; Bhattacharya et al. 2016; Eom 2015) suggests that intrinsic goal orientation (the motivation to engage in a task for its own sake, rather than for external rewards) is positively and significantly related to SRL. It also plays a role in predicting SRL. However, another study (Lavasani et al., 2011) indicates that SRL can also positively influence academic motivation, including intrinsic goal orientation.

Task Value and SRL

Many studies (Berger, Karabenick 2011; Stolk & Harari 2014; Chatzistamatiou 2015; Komarraju & Nadler 2013) agree that task value (the importance an individual places on a task) is positively and significantly related to SRL. It is also a good predictor of SRL. Some research (Li & Zheng 2018; Muwonge et al. 2019) further shows that task value can serve as a mediator, influencing the relationship between different motivational constructs.

Extrinsic Goal Orientation and SRL

The relationship between extrinsic goal orientation (motivation driven by external rewards like grades) and SRL is less clear, with conflicting evidence. Some studies (Ocak &

Yamac 2013; Stolk & Harari 2014; Komarraju & Nadler 2013; Bhattacharya et al. 2016; Eom 2015) show that extrinsic goal orientation can be either positively or negatively associated with SRL. There is also weak evidence (Lavasani et al., 2011) suggesting that SRL can positively impact academic motivation, including extrinsic goal orientation.

Test Anxiety, Control of Learning Beliefs, and SRL

Two less-studied motivational factors in relation to SRL are test anxiety and control of learning beliefs. Strong evidence (Abdullah, 2016; Liu et al. 2014; Ocak & Yamac 2013; Stolk & Harari 2014; Komarraju & Nadler 2013) shows that test anxiety (the fear of failing or underperforming on tests) is negatively associated with SRL, meaning that higher test anxiety tends to predict lower engagement in SRL.

Regarding control of learning beliefs (the belief in one's ability to control their own learning outcomes), most studies (Stolk & Harari 2014; Komarraju & Nadler 2013) found a positive relationship with SRL, despite some inconsistencies. There is weak evidence (Ocak & Yamac, 2013) that suggests SRL could act as a mediator between control of learning beliefs and other motivational factors.

Overall the research consistently highlights that self-efficacy and intrinsic goal orientation are the two most significant motivational factors linked to SRL. This is supported by Social Cognitive Theory (SCT), particularly the Triadic Analysis model proposed by Zimmerman (1989). Self-efficacy, which refers to an individual's confidence in their ability to perform a specific task, is seen as a key determinant influencing emotions, performance, persistence, learning, and effort (Bandura, 1997; Schunk, 1989). Similarly, Bandura argues that since SRL is a self-directed process, it depends on consistent and timely self-monitoring, which requires motivation to maintain. Intrinsic goal orientation is crucial in motivating learners, especially for tasks that they find difficult or uninteresting, as suggested in several studies

(Sansone et al., 1992; Wolters, Yu & Pintrich, 1996). Other motivational constructs showed moderate links to SRL based on the studies reviewed.

Conclusion

This research clearly showed how different motivational factors are connected to self-regulated learning (SRL). It detailed the strength and direction of these connections, offering valuable insights for future studies. Specifically Self-efficacy, intrinsic goal orientation, task value, and control of learning beliefs were all positively related to self-regulated learning and helped predict it. Whereas, Test anxiety had a negative but insignificant effect on self-regulated learning. Also, The relationship between extrinsic goal orientation and self-regulated learning was inconsistent, showing either a positive or negative connection.

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