

## Theories and Applications of School Motivation: Exploring the Reciprocal Relationship with Academic Achievement in Latin America

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### Abstract

*The present study provides a comprehensive systematic review of the impact of motivation in educational settings, emphasizing its crucial role in fostering effective learning. Key theories of motivation, such as self-determination theory, the ARCS (Attention, Relevance, Confidence, and Satisfaction) model, social cognitive theory, and expectancy theory, are discussed in detail. Through this review, the reciprocal dynamics between motivation and academic performance are highlighted, suggesting that these interactions are significant but complex. The urgency for further studies that can establish clear and robust causal relationships between these factors is underscored, which could revolutionize current pedagogical strategies. In addition, potential educational interventions based on these findings are proposed and future lines of research are pointed out that could further explore how motivation influences and can be manipulated to improve academic outcomes.*

**Keywords:** *School motivation; Motivational theories; Academic achievement; Self-determination; ARCS model.*

### Introduction

Academic motivation, defined by various authors as the set of internal and external factors that determine the direction, intensity and persistence of effort towards learning, has been a central theme in educational research due to its evident and progressive impact on student performance throughout formal education (Skaalvik & Skaalvik, 2020). Motivation can be intrinsic, where actions are performed for the pleasure inherent in the activity itself, or extrinsic, where actions are performed in order to obtain a result separate from the activity. Globally, a decline in learning motivation has been observed, with significant variations depending on specific motivational factors in different academic domains (Feraco et al., 2022). This worrying trend underscores the need for strategic interventions to sustain or enhance motivation in educational contexts (Rahayu et al., 2021). Although the relationship between motivation and academic performance is widely recognized, existing theories differ in how they describe and explain this complex link. Studies have addressed this reciprocal dynamic for at least the past two decades, revealing the need for further exploration to understand critical aspects such as causality, behaviorally mediated pathways, and the application of these findings to diverse population groups and motivational constructs (Vasalampi et al., 2023).

In Latin America, the study of school motivation is particularly critical given the cultural, economic and social diversity that characterizes the region (Castro et al., 2020). Unique educational challenges, from inequality of access to quality of education, make student motivation an even more essential tool for fostering learning and academic achievement (Lopez et al., 2021). Research in countries such as Mexico, Argentina and Brazil has begun to illuminate how local contexts influence motivation and how, in turn, motivation can be a lever for improving educational outcomes (Feraco et al., 2022). This regional approach allows not only to tailor interventions to the specific needs of Latin American students, but also to contribute to the global discussion on best practices in motivation-based education (De La Vega-Leinert et al., 2023).

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In pertinence to this, the present research paper seeks to deepen the understanding of how motivation influences academic performance and vice versa, focusing on the theoretical and methodological challenges we face in unraveling the elements of this reciprocal relationship. Our goal is to provide an up-to-date overview of the interactions between these two factors, presenting both recent advances and areas that still require research. In addition, this study highlights the importance of designing evidence-based educational interventions that can be effectively applied to improve both motivation and academic achievement. The relevance of identifying the optimal timing, duration, and content of such interventions is discussed, along with the specific variables and contextual factors that maximize their effectiveness

## Methodology

The methodological process implemented in this systematic literature review was based on a descriptive research design. The review sources used are the result of the application of strict selection criteria, where priority was given to the use of own and review articles published in high impact journals in the last 5 years, in Spanish and English languages.

In this sense, 52 primary sources were initially selected. After a detailed analysis, 35 of them were chosen for the writing of this document. This process made it possible to compile a variety of significant studies that contribute to the understanding and analysis of the topic of motivation and its importance in the school environment.

The literature search focused on key words relevant to the topic of study, including "school motivation", "importance of motivation in education", "relationship between motivation and academic achievement" and "motivational interventions in the classroom". This approach made it possible to address the objectives set forth in this review article in an effective and comprehensive manner.

It is important to highlight that the narrative systematic review methodology allows a detailed and critical description of the existing literature, allowing a deeper understanding of the current theories and evidence surrounding motivation and its impact on school performance.

## Results

### *Motivation and learning*

Willpower binds students to academic activities. In addition, students' level of motivation is reflected in their engagement and contribution in a learning environment(Dian et al., 2022). Active and highly motivated students will spontaneously participate in activities without expecting any external reward. However, to motivate a student with low motivation, external rewards are needed to convince students to participate in activities(Vázquez Gama, 2021).

There are seven factors that support motivation, namely challenge, curiosity, control, fantasy, competition, cooperation, and recognition, many of which are present in games. Today's approach to learning not only pays attention to cognition, but also motivation and learner preferences are critical factors for effective and useful learning and achievement. Motivation is able to initiate success in our choices and at the same time, lack of motivation can trigger a major barrier that prevents success(Huang et al., 2020).

Due to lack of motivation, the feeling of frustration and annoyance can hinder productivity and well-being. There are several reasons that influence the level of motivation in learning, such as the ability to believe in the effort, lack of knowledge of the value and characteristic of academic tasks(Manzano Vela & Cuichán Bravo, 2023). The following section discusses intrinsic and extrinsic motivation and other theories related to learning motivation in detail(Bui & Nguyen, 2024).

### *Theories of motivation in learning*

There are several theories of motivation, such as the instinct theory, which considers that the root of all motivation is survival. According to this theory, biological or genetic programming is the cause of motivation and all human beings share the same motivation, since we all have similar biological programming. Next, incentive theory is one of the main theories of motivation. This theory illustrates the desire to motivate behaviors for enrichment or incentives, meaning that we are motivated to perform actions due to internal desires, and at other times, our behaviors are impassioned by a desire for external rewards. In addition, arousal theory illustrates the peak level of enthusiasm or arousal (Cáceres et al., 2021). People with high optimal levels of arousal will perform very enthusiastic behaviors, such as diving. While the rest of us are happy with less exciting and less dangerous activities, we may be less excited and less dangerous than the rest of us (Engin, 2020).

Motivation can be categorized as intrinsic motivation, extrinsic motivation and amotivation. There are several theories that could be implemented, especially in the domain of education. These are the theory of intrinsic and extrinsic motivation, self-determination theory (SDT), the ARCS model (Attention, Relevance, Confidence and Satisfaction), social cognitive theory and expectancy theory (Vasalampi et al., 2023).

Intrinsic motivation describes an activity performed only for one's own satisfaction without any external anticipation. Challenge, curiosity, control and fantasy are the key factors in triggering intrinsic motivation. In education, a lot of will power and a positive attitude are required to maintain motivation (Faicán Juca & Manzano Vela, 2024). It is claimed that intrinsic motivation and academic performance have a significant and positive relationship. Intrinsic motivation directs an individual to engage in academic activities just to experience the fun, challenge and uniqueness without any external pressure or compulsion rather than expecting external rewards, gifts or under any compulsion or pressure (Gabriel Azogue-Punina & Marcell Barrera-Erreyes, 2020).

In contrast, extrinsic motivation describes external activities such as reward, compulsion, and punishment. An individual is extrinsically motivated if he or she receives some reward or is under some pressure or compulsion. Motivation can be cultivated extrinsically in the initial stage and transformed into intrinsic motivation as the learning process deepens. This type of motivation provides a high level of willingness and commitment, but could not be sustained for longer than intrinsic motivation. If continuously motivated through the use of external rewards or compliments, it could be habitual for learners to act only to obtain the rewards and not for themselves or to master skills or knowledge (Vaquero-Solís et al., 2020).

Self-determination theory (SDT) evolves from intrinsic and extrinsic motivations. In this case, intrinsic motivation illustrates the natural tendency of human beings to embrace various characteristics in the learning process; whereas extrinsic motivation represents a different consideration in its relative sovereignty. Therefore, it can only reflect its external control or true self-regulation (Bui & Nguyen, 2024).

The ARCS model is a systematic way of determining and addressing learning motivation. ARCS is derived from the attributes of Attention, Relevance, Confidence, and Satisfaction. First, capturing students' attention is very crucial to gain and maintain students' engagement in learning. Second, students' experiences and needs are related to relevance. Next, confidence is related to students' excitement and anticipation. Finally, the positive feeling about the learning process and the acquired knowledge leads to satisfaction in completing the whole learning process (Fierro-Suero et al., 2019).

Social cognitive theory (SCT) has been implemented in various domains such as education, psychology and health to determine human behavior. SCT holds that the acquisition and retention of new behavioral patterns occur in social contexts and are produced through the observation of the behavior of others. In the context of education, SCT explains how students learn in a social environment through observation and imitation of peers and teachers. This could explain the role of motivation in the learning process of students and how effective learning experiences can be designed to promote motivation (Gutiérrez Lugo et al., 2022).

Expectancy-valence theory or expectancy theory (such as Vroom's or Eccles') is another theory of motivation that has been applied in the context of education. According to these theories, individuals are

motivated to perform a certain action or behavior based on the expectation that the behavior will result in a certain outcome and the value that the individual assigns to that outcome. In the context of education, students are motivated to learn and put effort into their studies if they expect that their efforts will lead to valuable outcomes, such as good grades, praise from teachers and parents, or the acquisition of skills and knowledge that will be useful to them in the future (Santamaría & Jisson, 2022).

Finally, it is important to note that these theories are not mutually exclusive and can work together to provide a more complete understanding of motivation in learning. For example, teachers can design learning experiences that promote both intrinsic motivation (making learning interesting and relevant to students) and extrinsic motivation (providing rewards and recognition for good academic performance) (Manzano Vela et al., 2024). They can also create a social learning environment that facilitates observation and imitation of positive learning behaviors (social cognitive theory) and set clear expectations and provide feedback on learning progress to increase students' confidence in their ability to succeed (expectancy theory).

### *Relationship Between Theories of Academic Motivation*

Individual differences in academic performance are partly the result of differences in motivation to learn. This robust finding has generated numerous theories on academic motivation and how to stimulate it. These theories differ in both substance and approach, yet they also share many common elements (Sevilla-Sánchez et al., 2023). Motivation is often viewed as a condition that energizes (or de-energizes) behaviors. In many theories, motivation arises from what might be termed an evaluation of the behavior one is motivated to perform. This evaluation combines two elements: the value associated with the behavior and its outcomes, and the expectation of the likelihood of certain outcomes of the behavior. These two aspects, expectation and value, are explicit in the expectancy-value theory, attribution theory, control-value theory, and Dweck's integrative theory (Delgado Marín et al., 2022).

Other theories focus on the value associated with behavior or on expectations. Value-focused theories concentrate on interest, goals, relational needs, competence, and autonomy. Expectation-focused theories, such as self-efficacy theory, control theories, socio-cognitive self-regulation theories, and process-oriented metacognitive models, center on how students' beliefs about their competence and efficacy affect motivation (Miñan Aguacón et al., 2020).

A frequently used construct to study the reciprocal relationship between motivation and performance is the academic self-concept (ASC), which is how individuals evaluate their ability specifically in an academic domain. ASC is a distinct component of the physical, social, and emotional self-concepts within the multidimensional hierarchical model of self-concept (Cobeña Napa & Moya Martínez, 2019).

Several theories assert that beliefs about the self (including self-concept and self-esteem, and the implicit theory/mindset of personal attributes) are significant causes of behavior and human learning. Although the idea that ASC or other self-beliefs affect performance has been challenged, there has also been considerable empirical research supporting it (León-Moreno Daniel Musitu-Ferrer & León-Moreno, 2019).

The assessment of values and expectations leads to the decision to commit. According to the self-regulation approach to motivation, students first identify the values and expectations of learning activities, then engage in self-regulation processes. The assessment of values and expectations can also trigger academic emotions such as pride in achievement, hope, boredom, and enjoyment. The control-value theory describes how such emotions co-determine what are called achievement behaviors: behaviors conducive to achieving academic goals. For example, if a student values an academic outcome and believes it is somewhat under their control, they may feel the emotion of hope (Gutiérrez-De-Rozas & Carpintero Molina, 2021).

Emotions are generally more transient than motivation, but this is a blurry distinction. Emotions and motivation can also interact. Emotions can cause a learner to assign more or less value to academic activities or can change the student's expectations about their chances of success or failure, which in turn changes the evaluation underlying the motivation (Vázquez-Toledo et al., 2021).

### *Pathways of Motivation for Goal Achievement*

While it is generally accepted that motivation impacts performance, it is not entirely clear how it does so. Theoretically, two paths can be discerned. The first is the quantity (frequency and intensity) of achievement-oriented academic behaviors (such as effort, persistence, etc.). On a second path, higher levels of motivation may also be associated with higher quality of academic behaviors; for example, adopting effective learning strategies, adaptive metacognitive strategies, spaced practice, elaboration, retrieval practice, interleaving, and dual coding. Various theories of academic motivation support the idea that greater motivation leads to higher quality behaviors. Both intrinsic motivation and interest have been linked with deeper learning. Positive academic motivations have also been suggested to facilitate creative learning strategies, and incremental beliefs (growth mindset) to facilitate mastery-oriented strategies (Gómez, 2021).

The effects of performance on motivation can also follow two paths. The first is through perceived performance. Many theories, such as self-efficacy theory, expectancy-value theory, control theories, and attribution theory, explicitly suggest that past performance leads students to experience feelings of self-efficacy and perception of control (Márquez-Barquero, 2019). What matters most in this respect is the student's own evaluation of this outcome, for which we use the term perceived performance. High perceived performance will thus change students' expectations (i.e., make them confident that good results are achievable), but it can also alter the value attributed to learning activities. For example, in the self-determination theory, the feeling of competence (reinforced by positive perceived performance) is a basic need that increases the intrinsic value of learning (Rivera et al., 2020).

The second path from performance to motivation is central to the flow theory. An activity in which the learner is holistically immersed can generate a sense of flow, which is rewarding in itself and alters the value attributed to academic behaviors (Trujillo & Bermúdez, 2020).

### *Factors Influencing Motivation*

A positive feedback cycle is proposed, in which motivation drives achievement, and achievement in turn fuels motivation. This concept is mentioned in several theories. One of the most explicit approaches is the self-regulatory approach to motivation, which posits a cyclical feedback between self-regulation and achievement (Cristina et al., 2021). An iterative process between perceived progress, self-efficacy, and pursuit of goals is also proposed. Bandura's social cognitive theory highlights the reciprocity in interactions between behavioral, environmental, and personal factors. This dynamic raises the question of how such a positive feedback cycle could be initiated and, once started, how it could lead to any other outcome than perfect motivation and achievement, or negative motivation and failure (De Jesús Moronta Tremols et al., 2019).

The answer to these questions might lie in external influences on motivation and achievement. Among them are extrinsic rewards and requirements linked to achievement, such as schools or parents, which can change the value attributed to academic behavior, and therefore change motivation (Cabello et al., 2019). While it has been described that these factors can diminish intrinsic motivation, they can also stimulate a motivation-achievement cycle that otherwise would not be initiated. Promoting autonomy and creating relationships are other ways in which external actors can increase the value assigned to learning, boosting motivation and achievement.

Cultural norms, social learning, and verbal persuasion from others can alter students' expectations, values, and attribution processes, thereby keeping a motivation-achievement cycle going that might otherwise falter or not be initiated (Marieta et al., 2019).

Effort is not only a result of student motivation but also of external requirements, such as deadlines and exams set by the educational institution. These external requirements can lead to achievement in the absence of strong motivation. The quality of learning is not only affected by motivation but also by students' skills and the quality of teaching, instructions, and study materials. Therefore, achievement can increase in the absence of stronger motivation due to better support for learning (Nieto-Márquez et al., 2021).



Perceived achievement is not only determined by true achievement but also by elements of educational design, such as how feedback is provided. This means that truly high achievement can still fail to support motivation, or that low achievement can be perceived in such a way that it is not detrimental to motivation. These external factors are important not only for a complete causal understanding of the interactions between motivation and achievement but also because they offer points of entry for interventions that improve motivation, achievement, or both (Ojeda Reto, 2020).

## Conclusions

This systematic review article has discussed various theories of motivation applicable to the school environment, including self-determination theory, the ARCS model, social cognitive theory, and expectancy theory. Although these models are widely recognized in the discipline of learning, their practical implementation is still in its early stages.

Motivation theories are essential for guiding the learning process, directing efforts toward proposed goals. Without a solid theoretical foundation, efforts might deviate from the established objective. Thus, the conceptual models developed by researchers provide a guide to effectively channel these efforts.

The synthesis of motivation theories presented in this work offers an interactive view of how motivation and performance can mutually influence each other. However, additional research approaches are needed that consider multiple constructs of motivation, behavioral mediators, network approaches, and a measurement frequency aligned with the expected rate of change in the constructs under study.

A significant challenge in studying motivation in the school setting is the lack of studies that allow for firm causal inferences. Many researches present advanced statistical analyses of longitudinal data, but the underlying data are often correlational in nature and susceptible to explanations by the presence of variables not considered in the model.

To demonstrate causal relationships between motivation and performance, studies would be required that manipulate motivation or performance at a specific point in time and then study the effects on motivation-performance interactions at subsequent points in time.

The review of various motivation theories in education reveals how motivation and performance are densely interconnected, functioning as a cycle of mutually reinforcing relationships. While practical interventions such as support for autonomy and training in useful attributions have been proposed, there remain promising areas for future research.

Finally, although the idea of a cycle between motivation and performance is intuitively appealing and fits well with theories of academic motivation, empirical evidence of such a cycle is still incomplete. The proposed research agenda contains significant challenges for future research aimed at clarifying exactly how motivation and performance interact. Since academic motivation often significantly decreases during adolescence and may be lower for certain groups, this evidence is necessary to gain insights on how to best intervene in the cycle and achieve each student's maximum potential.

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