Revista Científica de Ciencias Sociales y Humanidades
ISSN: 2307-6100 (Print) | 2706-9559 (Online)

Self-regulated learning in university students: A systematic review of empirical evidence (2015–2025)

Aprendizaje autorregulado en estudiantes universitarios: revisión sistemática de evidencia empírica (2015-2025)

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Received: 15-04-2025
Accepted: 30-06-2025
Online: 17-07-2025

Article available by scanning QR

Cite as
Zenteno Alberto, E. F., y Velásquez Mendoza, A. (2025). Self-regulated learning in university students: A systematic review of empirical evidence (2015–2025). *Desafíos, 16*(2), 160-70. https://doi.org/10.37711/desafios.2025.16.2.9

ABSTRACT

This study aimed to systematically review empirical research (2015–2025) on self-regulated learning among university students. A systematic review methodology was applied following PRISMA guidelines, using a documentary and descriptive design. Thirty-four peer-reviewed studies published in scientific journals indexed in Scopus, Web of Science, SciELO, Redalyc, ERIC, and Google Scholar were analyzed. The findings indicate moderate levels of self-regulation, with differences associated with gender, stress, and academic performance. The most effective interventions were workshops, tutoring, mentoring, and technology-based strategies. A positive relationship with self-efficacy and resilience was also identified. In conclusion, self-regulation stands out as a key factor for academic success and should be promoted through curriculum design, teacher training, and the use of technological resources.

Keywords: *self-regulated learning; higher education; academic self-efficacy; learning strategies; systematic review.*

RESUMEN

Este estudio tuvo como objetivo revisar sistemáticamente investigaciones empíricas (2015-2025) sobre el aprendizaje autorregulado en universitarios. Se aplicó una metodología de revisión sistemática bajo los lineamientos PRISMA, con un diseño documental y descriptivo. Para ello, se analizaron 34 estudios revisados por pares, publicados en revistas científicas indexadas en Scopus, Web of Science, SciELO, Redalyc, ERIC y Google Académico. Los resultados muestran niveles medios de autorregulación, con diferencias según género, estrés y rendimiento académico; se destaca, además, que las intervenciones más efectivas fueron talleres, tutorías, mentorías y tecnologías. Así mismo, se identificó una relación positiva con la autoeficacia y la resiliencia. En conclusión, la autorregulación se consolida como un factor clave para el éxito académico y debe promoverse desde el currículo, la formación docente y el uso de recursos tecnológicos.

Palabras clave: *aprendizaje autorregulado; educación superior; autoeficacia académica; estrategias de aprendizaje; revisión sistemática.*

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INTRODUCCTION

Self-regulated learning (SRL) is an active process through which students plan, monitor, and adjust their cognitions, emotions, and behaviors in order to achieve their academic goals. It is likewise recognized as an essential component of modern educational psychology, since it integrates factors such as self-efficacy, motivation, metacognition, and cognitive strategies (Panadero, 2017). Over the past decade, it has become established as a key predictor of academic achievement at all educational levels (Dent & Koenka, 2016), gaining particular relevance in higher education, where independent and autonomous learning is increasingly required.

Numerous studies indicate that university students with higher levels of SRL tend to obtain better academic results, especially those who master strategies such as time management, planning, progress monitoring, and self-reflection (Broadbent & Poon, 2015). This capacity becomes even more decisive in distance education environments, where self-regulation compensates for the reduction in face-to-face interaction (Anthonysamy et al., 2021). In the context of the COVID-19 pandemic, SRL was identified as a protective factor against dropout and poor academic performance (Faza & Lestari, 2025). Nevertheless, its development faces barriers such as limited teacher training in pedagogical mediation strategies and unequal access to digital resources (Demuner, 2023).

However, the impact of SRL is not limited to the academic sphere; its positive influence on psychological well-being, resilience, and lifelong learning has also been demonstrated (Wang et al., 2022). In addition, contextual factors such as family support, relationships with teachers, and institutional structure significantly shape its development (Latipah et al., 2021; Ruiz Alzate & Roncancio Moreno, 2023). Despite the abundance of literature, there is still a lack of a systematic and up-to-date synthesis of empirical evidence focused exclusively on university students.

This paper presents a systematic review of empirical research (2015–2025) on self-regulated learning among university students, centered on peer-reviewed studies, preferably indexed in Scopus. In this sense, the objective was to describe the characteristics of self-regulated learning, the factors that influence it, and the most effective strategies for fostering it in higher education.

METHODS

An international systematic review was conducted following PRISMA guidelines, with a descriptive quantitative approach and qualitative elements. The design was documentary in nature, focusing on empirical studies on self-regulated learning (SRL) in university students, published between 2015 and 2025 in peer-reviewed scientific journals. Both observational and intervention studies were included, provided they reported empirical data on SRL.

In this research, the term "peer-reviewed" refers to the academic evaluation process through which specialists in the same scientific field anonymously assess manuscripts prior to publication, examining their methodological validity, theoretical relevance, and the quality of their results. This criterion ensures that the selected studies come from reliable scientific sources and that the findings included in the systematic review meet international standards of rigor and academic credibility.

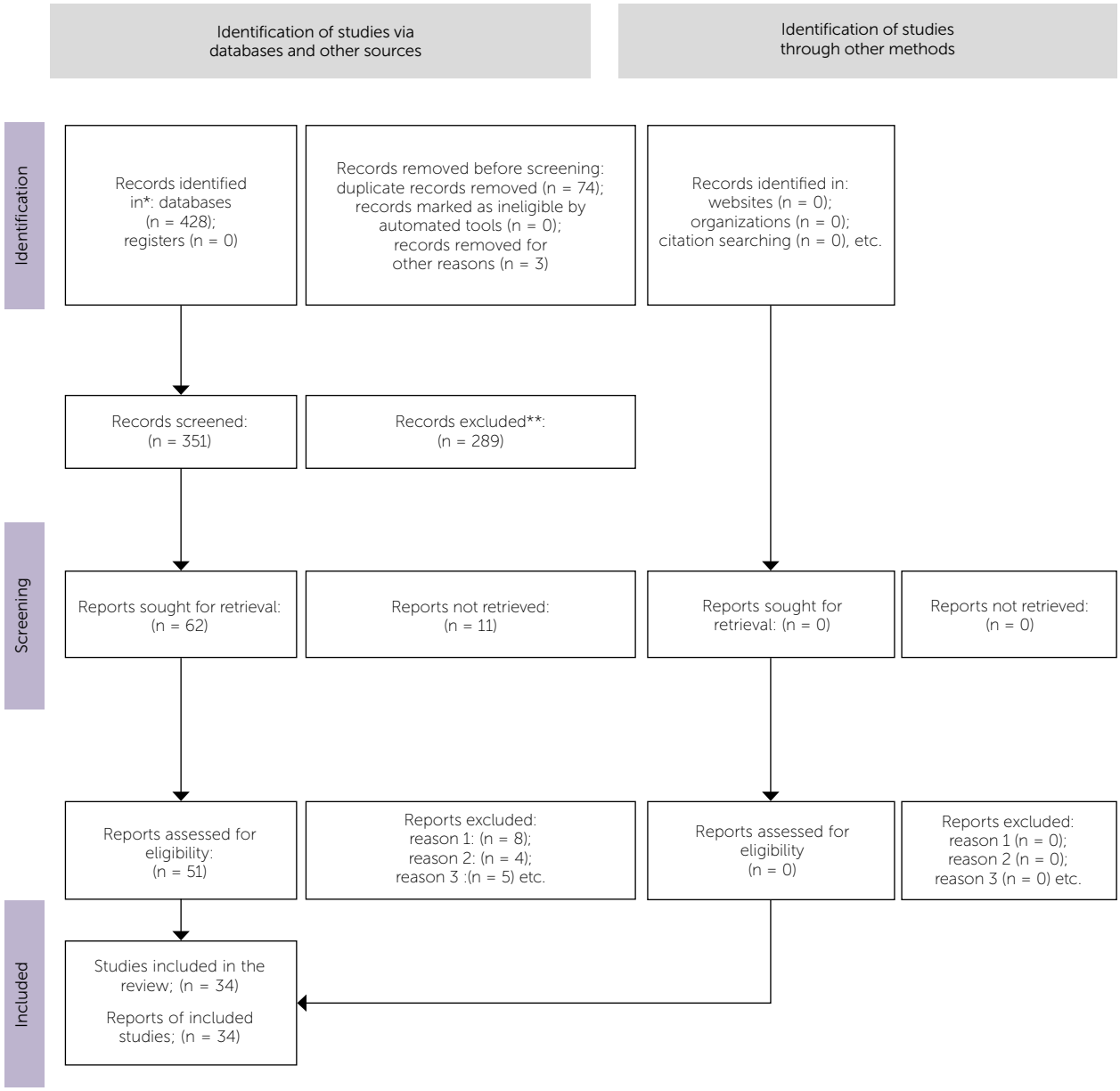
The search for studies was conducted in the scientific literature databases Scopus, Web of Science, SciELO, Redalyc, ERIC, and Google Scholar, prioritizing studies in Spanish and English. Terms such as "self-regulated learning," "aprendizaje autorregulado," and similar expressions were used, combined with Boolean operators and filtered by document type and year.

Initially, 486 references were identified. After removing duplicates and applying selection criteria in two phases (title, abstract, and full text), 358 were excluded due to thematic irrelevance. Finally, 128 full-text articles were assessed. The inclusion criteria were: university student population, explicit focus on SRL or related constructs, empirical design, publication between 2015 and 2025, and full text available in Spanish or English. On the other hand, theoretical studies, reviews, research conducted at other educational levels, gray literature, and duplicate reports were excluded (Sáez-Delgado et al., 2022).

After applying these criteria, the final review sample consisted of n = 34 empirical studies. Figure 1 shows the flow diagram of the selection process (identification, screening, eligibility, and inclusion of studies), in accordance with PRISMA.

From each included study, relevant information was extracted using a standardized data-recording form: author(s), year, country where the study was

Figure 1
PRISMA flow diagram



*Consider, if feasible, reporting the number of records identified from each database or register searched (rather than the combined total number across all databases/registers). **If automation tools were used, indicate how many records were excluded by human review and how many by automated tools.

Source: Page et al. (2021)

conducted, design/methodology, sample size and characteristics, measurement instruments used (e.g., SRL questionnaires, motivation scales, academic records), and principal findings related to SRL. When available, effect measures were also collected (correlations, mean differences, coefficients from statistical models, etc.), and it was noted whether the results were statistically significant (using the conventional threshold of $p < 0.05$).

Study limitations and projections

Although this systematic review provides an updated and rigorous synthesis of self-regulated learning among university students, several limitations must be acknowledged. First, the bibliographic search was restricted to the 2015–2025 period and to publications indexed in specific academic databases (Scopus, Web of Science, SciELO, Redalyc, ERIC, and

Google Scholar). While this delimitation ensures the quality of the sources, it may have excluded relevant studies that were not indexed or were published in institutional repositories.

Second, the methodological heterogeneity among the reviewed studies—in terms of design, sample size, instruments, and sociocultural contexts—prevented statistical comparisons or a quantitative meta-analysis of effects from being carried out. In addition, most of the identified studies were cross-sectional in nature, which limits the possibility of establishing firm causal relationships between self-regulation, academic achievement, and psychological variables such as stress or resilience.

Nevertheless, the findings offer a solid starting point for expanding the empirical and theoretical field of self-regulated learning. Future research should incorporate longitudinal or experimental designs that make it possible to observe the evolution of self-regulation strategies throughout the university trajectory. Likewise, it is recommended to evaluate psychoeducational intervention programs that integrate the teaching of self-regulation strategies with components of emotional well-being, stress coping, and personalized academic tutoring. Finally, it is suggested that further attention be given to gender differences and to the influence of the Latin American cultural context, with the aim of formulating more inclusive and sustainable educational policies that strengthen students' autonomy and mental health.

RESULTS AND DISCUSSION

General characterization of the studies

Table 1 summarizes the 34 empirical studies included, showing a broad geographic distribution encompassing Europe, Latin America, Asia, Africa, North America, and Oceania. This reflects a global interest in self-regulated learning (SRL) in higher education, with approaches adapted to different cultural contexts.

Most studies were non-experimental quantitative in nature (70%), followed by quasi-experimental and experimental studies (20%), focused on educational interventions. Qualitative and mixed-methods approaches were also included, allowing for a broader understanding of self-regulated learning.

With regard to samples, most studies worked with young undergraduate students (typically 18–25 years old). Sample size varied considerably: some national descriptive studies surveyed large samples (e.g., Tekkol and Demirel [2018] surveyed 2,600 university students), whereas others—especially intervention-based or qualitative studies—involved smaller groups (e.g., an intervention with groups of 60 to 100 students).

The instruments used to measure SRL also varied. Many studies employed standardized self-regulated learning questionnaires that had been culturally adapted. For example, in Peru, a Self-Regulated Learning Inventory was used, with high reliability ($\alpha = 0.82$) (Arratia, 2024), while in Turkey, Tekkol and Demirel (2018) developed their own scale of self-directed learning skills. Likewise, classical scales based on the models of Zimmerman or Pintrich were used, measuring cognitive, metacognitive, motivational, and behavioral strategies. In addition, several studies measured associated variables such as study habits, academic stress (e.g., the SISCO Academic Stress Inventory), resilience, self-efficacy (general and academic), as well as performance indicators (grade point averages, academic performance indexes, course pass rates) (Arratia, 2024).

Level of self-regulated learning and individual differences

A consistent finding is that most university students fall within medium levels of self-regulation, with notably high or low subgroups. For example, Arratia (2024) found that 67.1% of the 164 nursing students studied showed a medium level of SRL, with only minorities at very low or very high levels (Arratia, 2024). However, significant individual differences associated with various variables were identified.

a) Gender: Several studies indicate that women tend to self-regulate their learning better than men, showing greater use of metacognitive and organizational strategies. Tekkol and Demirel (2018) found that, in a large Turkish sample, female students obtained higher scores in self-directed learning, although this gender difference is not consistent across all studies.

b) Previous academic performance: In a related finding, Arratia (2024) found a moderate positive correlation between the level of SRL and academic success, measured through course completion and final grades; that is, more self-regulated students tend to pass their courses and obtain higher grades. Although directionality cannot be established in cross-sectional studies, it is plausible that a virtuous cycle exists.

c) Year of study: Results regarding differences by academic year or stage in university are mixed. Some studies found no significant variations between first-year and final-year students; in this regard, Tekkol and Demirel (2018) report that year of study did not affect SRL scores. In addition, students planning to pursue graduate studies were found to show higher levels of SRL. Although age and socioeconomic level did not show consistent effects, cultural context and social goals emerged as relevant factors in certain countries, such as China, influencing self-regulation (Faza & Lestari, 2025), which indicates that cultural values may shape motivation for self-regulation.

In summary, high-achieving female students with clearly defined academic goals tend to stand out in self-regulated learning, although the differences are not always large. In Cuba, deficiencies were identified in organization, time management, information seeking, and self-motivation for study (Faza & Lestari, 2025), all of which are fundamental aspects of the self-regulatory cycle. These shortcomings may translate into suboptimal study habits and higher levels of stress.

Self-regulated learning, academic performance, and well-being

Nearly all the studies reviewed corroborate a positive association between the student's degree of self-regulation and academic performance. The magnitude of this association varies, and in certain contexts it is very high. For example, Terry Advíncula and Tucto Aguirre (2021) found an extremely high correlation (ρ = 0.89) between study habits scores and SRL scores in business administration students in Peru; however, in other contexts it is more modest. For example, Dent and Koenka (2016) report average correlations of r = 0.20 at pre-university levels, and Broadbent and Poon (2015) found that, in online environments, relationships with grades are usually small to moderate in size. Nevertheless, the direction of the effect is consistent: greater use of SRL strategies is associated with better grades, higher course completion rates, and lower dropout.

Several Latin American studies reinforce this conclusion. Arratia (2024) not only demonstrated the positive correlation mentioned above, but also identified which component of self-regulation had the greatest impact; cognitive processing (deep cognitive strategies) was the dimension with the strongest association with academic performance. This suggests that teaching students techniques such as summarizing, elaborating, and organizing information, as well as monitoring their understanding, may yield positive results in their grades. In Chile, Sáez Delgado et al. (2023) found that, during emergency remote education, students who used SRL strategies more frequently obtained better semester grades.

Another related factor is academic stress and well-being. Tomas and Poroto (2023) described a concerning situation by observing that more than half of the Cuban students sampled showed moderate to high levels of academic stress, exhibiting reactions such as anxiety, hopelessness, concentration problems, drowsiness, and sleep disturbances. In this regard, previous research has suggested that good self-regulation may function as a protective factor against academic stress by enabling students to manage workloads more effectively and maintain motivation under pressure (Gaxiola & González, 2019). In fact, there are studies combining the variables of resilience, social support, and resilient coping, which propose models in which perceived support, both from family and teachers, is associated with higher levels of resilience and more adaptive coping with difficulties, which in turn translates into lower dropout intentions and better emotional adjustment among students (Gaxiola & González, 2019).

With respect to psychological well-being, the study by Faza and Lestari (2025) has already been mentioned. They conducted a weekly follow-up study with university students, in which they found that the practice of self-recording goals and progress contributed significantly to improving psychological well-being.

Interventions and strategies to improve self-regulation

Recently, many studies have moved from correlational analysis to the implementation of pedagogical interventions aimed at strengthening self-regulated learning at the university level. The main types of strategies applied are described below:

a) Workshops and training programs in SRL: According to a systematic review by Simón-Grábalos et al. (2025), which analyzed 23 intervention studies involving first-year university students, the most frequent form of intervention (12 out of 23 cases) consisted of workshops or courses specifically focused on training in SRL strategies. These workshops generally teach students techniques for planning, metacognitive monitoring, time regulation, and resource management. For example, Blanco

et al. (2022) implemented an SRL training program in Chile with first-year students and found a favorable impact: after the intervention, participants showed significant improvements in their self-regulatory skills and a notable reduction in their intention to drop out of their studies. Along the same lines, a recent meta-analysis reported that SRL interventions in higher education have a medium to high effect on academic performance (effect size = 0.69) (Xu et al., 2023), quantitatively confirming the effectiveness of such programs.

b) Tutoring and mentoring: Another successful approach has been to incorporate self-regulation into academic tutoring schemes. Tise et al. (2023) examined a mentoring program for university students from underrepresented groups in the United States and found that SRL strategies acted as a critical link between mentor support and students' educational achievement. Likewise, Simón-Grábalos et al. (2025) note that, after workshops, group tutoring (6 out of 23 studies) and individual tutoring (4 out of 23) were common methods for reinforcing SRL.

c) Technology and digital tools: The use of virtual platforms and learning analytics has opened new avenues for supporting self-regulation. Ten of the 23 studies analyzed by Simón-Grábalos et al. (2025) employed innovative virtual tools. For example, Van Alten et al. (2020), in the Netherlands, integrated self-regulatory support into educational videos in a flipped classroom, finding that this improved students' learning outcomes compared with a control group. Similarly, in online environments, learning analytics systems can guide students. Tzimas and Demetriadis (2024) demonstrated that providing automated feedback based on analytics had a positive impact on SRL skills, academic performance, and the satisfaction of online students in an experimental course. Osakwe et al. (2023) implemented machine learning algorithms capable of automatically detecting effective SRL strategies based on students' interactions with an educational platform.

d) Self-regulatory pedagogical designs: Some interventions are not additional activities, but rather adjustments to course instructional design intended to foster SRL. Another strategy is the promotion of individual reflection as an assessed task; in this regard, several studies (5 of 23 in the review by Simón-Grábalos et al., 2025) included reflective journals or periodic self-assessments as part of course grading, thereby enabling students to practice self-regulation in a way integrated into the course itself.

e) Teacher training and role: One cross-cutting point identified is the importance of also training teachers (Medrano Gallegos et al., 2025); it is emphasized here that teacher training is key to promoting self-regulated learning (SRL). In addition, research shows that teaching styles that promote autonomy and personal leadership, such as "super-leadership," significantly enhance student self-regulation (Faza & Lestari, 2025).

The most effective interventions combine multiple components: direct training in strategies, follow-up through tutoring or technology, and learning environments that promote autonomy. The importance of a holistic and continuous approach was also identified (Simón-Grábalos et al., 2025). Table 1 summarizes each intervention study (type, sample, details) and its findings, showing that practically all of them reported significant improvements, whether in SRL skills (measured through pre-post questionnaires) or in associated indicators (grades, success rate, etc.).

Synthesis of key findings

Self-regulated learning is consistently associated with academic performance at the university level. Students who actively plan, monitor, and adjust their learning tend to achieve better grades, higher course completion rates, and a lower risk of dropout (Arratia, 2024; Sáez et al., 2023). Although the exact magnitude of the correlation varies—from moderate to very high depending on the context—no study found a negative relationship; on the contrary, SRL emerges as a positive predictor of academic success across cultures and disciplines.

Many students exhibit suboptimal levels of SRL, especially in specific components. The weakest areas tend to be metacognitive monitoring (continuous tracking and evaluation of one's own learning) (Tekkol & Demirel, 2018), effective time management (Vizcaíno et al., 2024), and the ability to self-reinforce motivation during autonomous study (Tekkol & Demirel, 2018).

Individual and contextual factors shape SRL. Advantages for women have been observed in several studies, though not in all of them (Tekkol & Demirel, 2018); students with stronger academic records also tend to be more self-regulated, perhaps forming a positive feedback loop. Family and social environment also exert influence:

Table 1
Main studies

Author(s) and year	Country	Study design	Sample	Main instruments	Main findings
Broadbent & Poon (2015)	Australia	Systematic review (12 online studies)	Studies with samples of several hundred participants	Correlations between self-regulation and online performance	Time management and metacognition improve online performance.
Dent & Koenka (2016)	United States	Meta-analysis (2 integrated meta-analyses)	272 studies (school and higher education levels)	Measures of metacognitive and cognitive strategies	Self-regulation is weakly associated with performance, with variation by strategy.
Díaz et al. (2017)	Chile/Spain	Quasi-experimental (pre-post with control group)	120 first-year university students	Self-regulation and academic dropout scales	Self-regulation training improves skills and reduces academic dropout.
Artuch et al. (2017)	Spain	Cross-sectional correlational	281 university students (education)	Self-regulation, resilience, and grades scales	Resilience improves self-regulation and academic performance.
Tekkol and Demirel (2018)	Turkey	Descriptive-correlational (survey)	2,600 students (1st and 4th year, various majors)	Self-directed and lifelong learning scales	Women, students in social sciences, and those with good grades show higher self-regulation.
Cerezo et al. (2019)	Spain	Predictive correlational (mediation models)	227 university students (multidisciplinary)	Strategy, use, and self-efficacy tests	Self-efficacy and perceived usefulness enable the application of self-regulation strategies.
Van Alten et al. (2020)	Netherlands	Experimental (control group)	67 students (university course)	Videos with self-regulatory support and tests	Videos with self-regulatory support improve learning.
Anthonysamy et al. (2021)	Malaysia	Correlational (cross-sectional study)	250 postgraduate students (online)	Online self-regulation and social interaction	Good self-regulation compensates for the lack of face-to-face interaction in virtual education.
Latipah et al. (2021)	Indonesia	Correlational (predictive model)	324 university students	Family, social, and teacher support, and self-regulation	Family, social, and teacher support improve student self-regulation.
Terry Advíncula and Tucto Aguirre (2021)	Peru	Correlational (cross-sectional design)	90 students (8th semester, Business Administration)	Study habits and self-regulation	Good study habits predict high levels of self-regulation.
Burbano-Larrea et al. (2021)	Ecuador	Descriptive (cross-sectional study)	233 students (public university, various majors)	Local self-regulation scale	Most students show medium self-regulation; weaknesses in reflection and time management stand out.
Turan et al. (2022)	Turkey	Correlational (online survey)	447 students (distance university)	Effort, flexibility, and satisfaction	Effort and flexibility increase satisfaction in distance learning.
Demuner (2023)	Mexico	Descriptive (survey during the pandemic)	611 students (various majors, virtual)	Self-regulation strategies and teacher support	Self-regulation is key in virtual education; teacher training is needed.
Ruiz Alzate and Roncancio Moreno (2023)	Colombia	Qualitative (theoretical-empirical analysis of the teacher's role)	28 university teachers (interviews)	Interviews with teachers about motivational support	Teacher support strengthens self-regulation, but there are training gaps.
Tise et al. (2023)	United States	Mediational model (correlational study)	250 underrepresented students (mentoring program)	Strategies, mentoring, and performance	Academic mentoring improves performance by developing self-regulation.
Omar et al. (2023)	Malaysia	Correlational (cross-sectional study)	120 undergraduate students (studying Arabic online)	Self-efficacy and self-regulation in language learning	Self-confidence improves the use of self-regulation strategies in language learning.
Núñez et al. (2023)	Multi-Latin America	Correlational (cross-sectional design)	320 students (4 universities)	Emotional intelligence, self-regulation, and grades	Emotional intelligence enhances performance when self-regulation is strong.
Fan et al. (2023)	South Korea	Correlational (structural modeling)	208 students (online nursing)	Teacher leadership, self-regulation, and self-efficacy	Empowering teacher leadership increases self-regulation and confidence.
Osakwe et al. (2023)	Multinational	Technological study (educational data mining)	Dataset of thousands of student interactions on an online platform	Automated detection of strategies	Artificial intelligence makes it possible to monitor and guide online self-regulation.
Vizcaíno et al. (2024)	Cuba	Descriptive (cross-sectional study)	96 students (multiple majors: Engineering, Veterinary Medicine, Architecture)	Self-regulation, academic stress, and performance	Low self-regulation is associated with higher stress and lower performance.
Arratia (2024)	Peru	Correlational (cross-sectional design)	164 students (Nursing, public university)	Self-regulation inventory and final grades	Self-regulation predicts academic success; deep processing stands out.
Simón et al. (2025)	Spain	Systematic review (23 interventions)	Studies with approximately 1,500 students in total	Comparison of self-regulation interventions	Workshops, tutoring, and virtual tools improve self-regulation and academic performance.

Note. Self-regulation improves academic performance.

parental support, institutional culture, teaching quality, and classroom climate may either facilitate or hinder the development of SRL (Medrano Gallegos et al., 2025).

Self-regulation also benefits student well-being and resilience. Conversely, a lack of SRL often intensifies stress; in this regard, it is noteworthy that, in contexts such as Cuba, students with poor study management showed very high levels of stress and anxiety symptoms (Vizcaíno et al., 2024). This reinforces the idea that teaching students how to self-regulate is also a form of preventive mental health intervention.

Deliberate interventions to foster SRL are effective. Diverse approaches—including training workshops, academic mentoring, course redesign, and technological applications—have achieved significant improvements in how students regulate their own learning (Simón-Grábalos et al., 2025). First-year experiences are particularly noteworthy: providing students with early support and SRL training reduces dropout rates and facilitates the transition from school to university (Blanco et al., 2022).

The role of the teacher is crucial, but often underestimated. Many studies indicate that university professors do not always integrate the teaching of SRL strategies into their classes, sometimes due to lack of knowledge about them (Medrano Gallegos et al., 2025).

The results of this systematic review confirm and expand previous findings in the literature on SRL, providing updated evidence from diverse contexts. In general terms, the importance of SRL as a predictor of academic performance in higher education is reaffirmed (Broadbent & Poon, 2015). However, some nuances and novel contributions derived from this review should be highlighted.

First, the review shows that the relationship between SRL and academic performance, although robust, is not uniform in magnitude across all contexts. In more flexible environments (online education, self-directed methodologies, research projects), SRL becomes absolutely critical, and its absence is quickly reflected in poor performance (Blanco et al., 2022; Broadbent & Poon, 2015). This is consistent with the findings of Broadbent and Poon (2015), who note that although the same effective study strategies used in face-to-face classes remain relevant online, their effect is weaker if they are not accompanied by adaptations to the digital environment (Blanco et al., 2022).

Second, the advantages of intervening early to promote SRL emerge clearly. Several quasi-experimental studies in the first university years (Arratia, 2024) showed tangible benefits in academic continuity and performance when SRL support was provided from the outset. University orientation programs and introductory courses could therefore integrate SRL modules (time management, study techniques, use of bibliographic resources, etc.), given that many students arrive from school environments in which self-regulation may not have been systematically fostered (Díaz Mujica et al., 2017).

Another point for discussion is the role of culture and psychosocial resources in SRL. The studies by Faza and Lestari (2025) in Asia and by Medrano Gallegos et al. (2025) in Latin America (social support, resilience) show that learning does not occur in a vacuum: factors such as family dynamics, social expectations (Asian students may self-regulate out of motivation linked to family honor), and the personal qualities of the environment (empathetic vs. authoritarian teachers) shape the student's self-regulation ecosystem.

Linked to the above, a significant finding is that many teachers are unaware of how to integrate SRL into their practice (Medrano Gallegos et al., 2025). Traditionally, in higher education, professors focus on disciplinary content and assume that students already arrive with developed "study skills." This review contradicts that assumption: many university students do not possess advanced self-regulation strategies and instead require explicit guidance. In an ideal world, universities would invest in pedagogical training for faculty focused on student-centered strategies, precisely what the literature on super-leadership and learning-centered teaching suggests (Faza & Lestari, 2025).

Another interesting aspect is the incorporation of technology into SRL support. More recent studies (2020 onward) have begun to explore learning analytics, algorithms, and personalized environments to sustain self-regulation (Faza & Lestari, 2025; Osakwe et al., 2023).

Some authors have already proposed terms such as "socially shared self-regulation" in collaborative contexts, which aligns with findings from studies such as Núñez et al. (2023), where SRL mediated international collaborative environments.

Most of the studies reviewed are cross-sectional and correlational, which limits causal inference between SRL and academic performance. Although

some experimental studies suggest a direct relationship, more longitudinal research is needed to understand its evolution over time. In addition, there are geographic gaps, with limited representation from regions such as sub-Saharan Africa, the Middle East, and Eastern Europe. There may also be publication bias, as studies with positive results tend to be prioritized. Finally, the focus on databases such as Scopus may have excluded local non-indexed research, although this was partly mitigated through other sources.

Taken together, the results allow for a deeper understanding of three key dimensions identified in the abstract: gender, academic performance, and stress. First, the advantage observed in women could be explained by greater internalization of metacognitive and planning strategies, consistent with socialization patterns that promote academic self-responsibility (Tekkol & Demirel, 2018). This finding invites the promotion of differentiated interventions aimed at strengthening self-regulation in men, especially in monitoring and learning-organization skills.

Second, the positive relationship between self-regulation and academic performance shows that planning, self-monitoring, and self-reinforcement strategies are consistent predictors of academic success (Arratia, 2024; Broadbent & Poon, 2015). Thus, self-regulation not only describes an individual ability, but also a competence that can be developed through institutional programs oriented toward university support and tutoring.

Finally, the reviewed studies show that a low level of self-regulation is associated with higher levels of academic stress (Tomas & Poroto, 2023; Vizcaíno et al., 2024), whereas self-regulated practice acts as a protective factor by allowing students to manage workload more effectively, regulate emotions, and sustain intrinsic motivation. This finding reinforces the need to integrate self-regulated learning with well-being strategies and preventive mental health support within university settings.

CONCLUSIONS

Self-regulated learning (SRL) has become established as an essential competence for the twenty-first-century university student, given its positive impact on academic performance, psychoeducational adaptation, and general well-being. The evidence analyzed indicates that students who plan, monitor, regulate, and reflect on their learning process tend to obtain better results and cope more effectively with university challenges. Although most students display medium levels of SRL, there are vulnerable subgroups that require specific interventions, such as those with poor study habits or high levels of stress.

The review also shows that, despite individual differences by gender, discipline, or cultural context, all students have the potential to strengthen their self-regulation if they receive adequate support. SRL not only improves grades and reduces dropout, but also increases motivation, self-efficacy, and the ability to manage academic stress. Likewise, various pedagogical strategies, such as workshops, mentoring, tutoring, and educational technologies, have proven effective in developing these skills. This reinforces the idea that SRL is not an innate trait, but rather a set of competencies that can be taught and strengthened.

A key aspect identified is the role of the teacher and the institution. Universities that promote a culture of autonomy, with trained faculty and support policies, achieve more self-regulated students. In this sense, fostering SRL must be an institutional commitment and not merely an individual one. Educating self-regulated students means preparing citizens capable of lifelong learning, which is crucial in a world characterized by uncertainty and constant change. Although much progress has been made, a gap still persists between what research recommends and what actually takes place in many university classrooms.

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Authorship contribution
EFZA: literature search, formal analysis and systematization of information, writing – original draft.
AVM: methodological validation, revision, and writing – review & editing.

Funding sources
This research received no external funding.

Conflict of interest statement
The authors declare that they have no conflicts of interest.

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