

Exploring the Correlation between Self-regulated Learning Strategies and Academic Success in Higher Education

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Abstract

This study aims to determine how many Jordanian university students use self-regulated learning strategies, how much these strategies vary by gender and degree of accomplishment, and what the correlation is between students' strategy possession and their degree of academic success. One hundred twenty male and female students made up the sample. The researcher ensured the validity and reliability of the self-regulated learning techniques questionnaire before administering it to them. The results showed that participants were adequately proficient in listening (mean 3.5, SD 0.8), summarizing (mean 3.7, SD 0.6), and arranging (mean 3.6, SD 0.7), among other tactics. There were clear gender differences; men scored higher on the Listening and Arranging tasks, with the former having a significantly higher mean score (p-value 0.042) and the latter having a slightly higher mean score (3.6). Additionally, there was a correlation between academic performance and strategy proficiency. High achievers tended to have better scores across the board. However, they were solid in the areas of summarizing (mean 3.9, SD 0.4) and listening (mean 3.8, SD 0.5), where there were strong correlations between the two and academic success (mean 0.59). These findings demonstrate that self-regulated learning strategies are crucial for academic success and that improving these abilities might substantially impact educational performance.

Keywords: *Self-Regulated Learning Strategies, Academic Achievement, University Students.*

Introduction

One of the most prominent areas of study in educational psychology, self-regulated learning (SRL) is also crucial in the academic setting of universities (Panadero, 2017; Zimmerman, 2002). SRL is more crucial than ever before because of the rapid evolution of learning strategies and the high degree of independence they demand (Li & Zheng, 2018). SRL is relevant to effective learning because it takes an active and deliberate approach to the learning process (Khat, 2019). In this method of deliberate learning, one sets goals for oneself, keeps track of one's progress, and compares one's learning outcomes to those goals. As stated by Zimmerman (2022), the study's theoretical foundations are in SRL theory, which stresses the importance of learners' own goals along with other SRL theories. These goals should direct students to keep tabs on, manage, and control their thoughts, feelings, and actions to achieve their learning objectives.

Learners who can self-regulate do so by actively participating in class and using their metacognitive, motivational, and behavioral abilities. Successful self-regulators take stock of their emotional states, which in turn affect their actions, and work to modify their reactions to new information as they absorb it (Parveen et al., 2023). They monitor their motivation and activities to ensure they achieve their goals (Pintrich, 2000). Assisting with learning has a positive impact on one's development. The ability to control one's learning is associated with more tremendous academic success for students (Brenner, 2022). Students should concentrate on what drives them during this thought process, where they will also choose their objectives and strategies. After that, they go on to the performance phase, when they put their plans into action and maintain control with the help of observational feedback. Assessing what has been learned up to this point is what self-reflection is all about.

Using self-regulatory strategies is crucial for individuals to take charge of their learning. Students' study habits are planned actions and mental routines to stay motivated, focused, and successful (Panadero, 2017). When people use strategies for self-regulated learning, they improve their capacity to learn (SRLS) (Ader,

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2014). However, there needs to be more than the proper strategies to use SRLS. In addition to believing in the strategies' effectiveness, students should be confident in their own abilities to use them successfully (Cerezo et al., 2019). They often need help finding the right strategy when trying to learn anything new. Which SRLS are selected depends on various subjective, objective, situational, and behavioral criteria. Students who believe in themselves and their abilities are more likely to put their strategic knowledge to use in real-world situations.

The Problem of the Study

This study aims to establish whether there are differences in the level of self-regulated learning strategies among university students based on gender and academic achievement. It also aims to measure the level of possession of strategies for listening, summarizing, and organizing, which are important components of effective study for learners. Does the degree of academic success correlate with these tactics?

Questions of the Study

- To what extent do students demonstrate proficiency in self-regulated learning strategies, namely attending, summarizing, and organizing?
- Does gender distinction in the possession of self-regulated learning strategies among university students (male versus female) exhibit any statistically significant characteristics?
- Is there a statistically significant correlation between academic achievement (high, low) and the degree of self-regulated learning strategies university students employ?
- Is there a statistically significant correlation between the degree to which university students employ self-regulated learning strategies and their academic performance?

Previous Studies

The study by Zare et al. (2024) investigates the relationship between SRL tactics and work engagement. Three hundred sixty-one Iranian undergraduates majoring in English language teaching or English language and literature and taking English as a foreign language (EFL) courses with a Common European Framework of Reference for Languages (CEFR) proficiency level of B1 participated. Data was obtained remotely during the COVID-19 pandemic using narrative frames, questionnaire surveys, and semi-structured interviews. The quantitative data analysis revealed that task participation was strongly predicted by the use of SRL methods. The qualitative research also showed that SRL approaches, which comprise (meta)cognitive, (meta)affective, (meta)motivational, and (meta)social tactics, are important for task engagement. The results of this study might be useful for a wide range of people, including academics, teachers, and developers of English language resources and evaluation instruments.

Karlen & Hertel's (2024) research begins by presenting the INSPIRE model, which outlines the professional competencies needed by teachers to carry out their various roles in helping students develop the ability to self-regulate their learning. In this model, teachers are seen as instructors, navigators, strategists, promoters, innovators, role models, and encouragers. The second part is that it promotes SRL in regular classrooms and devotes four papers to investigating instructors' SRL skills. The papers underline the significance of trained and competent teachers in helping students become self-regulated learners and address specific parts of the INSPIRE model. This special issue provides a holistic view of SRL in regular schooling by bringing together studies on SRL professional capabilities and SRL classroom promotion. It lays the groundwork for its practical use.

Abdala and Alemu (2023) set out to determine whether there was a connection between first-year students' motivational beliefs, SRL methods, and their academic achievement. A total of 97 first-year students, 64 of whom were male and 33 of whom were female, were surveyed using the Motivated Strategies for Learning Questionnaire (MSLQ). The results were evaluated using structural equation modeling and hierarchical multiple regression. About 12.8% of the variation in students' performance in psychology courses was explained by cognitive and metacognitive learning processes, whereas students' motivated beliefs explained 23.4%. There was no discernible mediating influence of cognitive and metacognitive learning procedures between intrinsic motivating beliefs and performance in the classroom. The conviction in one's abilities had the most excellent beta weight, followed by the belief in the value of the work at hand. The study found that students who are enthusiastic about learning and secure in their talents are more likely to succeed academically. Hence, first-year students' academic performance will improve significantly if they receive self-efficacy training.

Villareal's (2023) research delves into COVID-19 pandemic scenarios involving the factors above. We utilized a descriptive correlational causal strategy to examine the variables' relationship. Using proportionate stratified random sampling, 258 seniors from high schools were chosen to participate in the survey. The participants' responses were collected using modified versions of the SRLS and PI questionnaires for Selfregulated Learning Strategies and Parental Involvement, respectively. Results showed two important parenting characteristics and three important SRLS features. Involvement is high across the board for selfregulated learning and learning at home. Academic success is unrelated to learning styles (i.e., whether a student seeks aid or prefers to learn independently). Homeschooling, goal setting, and other home-based education significantly impact academic performance. These findings highlight the value of parental involvement in their children's middle school education. Schools need to take note of this and work towards increasing parental involvement in their children's education, as well as fostering self-regulated learning at home. More structure in the school-home relationship would help raise consciousness about the need for coaching and teaching self-regulation at home, which would make learning more alive.

Ha et al. (2023) research set aimed to illuminate the connections between sixth graders' usage of selfregulated learning strategies and their performance in the classroom in South Korea. We ran a series of 2level hierarchical linear models (HLM) on an existing database, the Korean Educational Longitudinal Study (KELS), which contains information on 7,065 sixth graders from 446 different schools. We were able to examine potential differences in the association between students' use of self-regulated learning strategies and their academic accomplishment at the individual and school levels by using this huge dataset. Results showed that across educational contexts, students' ability to self-regulate their efforts and engage in metacognition were favorable predictors of their performance in reading and mathematics. Private schools outperformed public schools in terms of average math and literacy scores. Even after accounting for differences in behavioral and cognitive approaches to learning, urban schools' math performance still outpaced that of non-urban schools. In light of prior research on the effects of self-regulated learning (SRL) on adult learners' academic performance, this study delves into how sixth graders' SRL methods differ from those of successful adults, providing a fresh understanding of the evolution of SRL in primary school curricula.

Xu et al. (2022) research aimed to examine the impact of students' self-regulated learning techniques on their success in distance education. The researchers looked into how the SRL practices of college students varied by GPA. Students from one Chinese institution offering online courses (n=1,163) participated in the research. Two online surveys were utilized to gather data on how people used SRL in virtual environments. To evaluate academic prowess, GPAs were pulled from the school's exam database. Findings indicated wide variation in the self-regulated tactics employed and the students' level of acceptance of online learning. Self-evaluation, metacognitive self-regulation, and effort regulation were all significant predictors of academic success; furthermore, the study revealed that self-evaluation and effort regulation mutually influenced the enhancement of GPA in distance education. These findings will aid educators, policymakers, and administrators in making decisions about adopting and implementing online learning services to raise student achievement.

The purpose of the study by Pérez-González et al. (2022) was to determine the predictive power of the individual differences and self-regulated learning (SRL) frameworks for university students' grade point averages at three distinct points in their degree programs: three years, one year, and one semester. In this study, we looked at a sample of Spanish undergraduates and compared their cognitive (i.e., their ability to learn and retain information) and non-cognitive SRL techniques with their trait emotional intelligence, motivation, personality, and academic performance. Previous academic achievement (defined as high school GPA + college admission exam score) was also associated with GPA, as were academic self-efficacy, involvement, SRL methods, and conscientiousness. Over the course of three years, hierarchical regression analyses found that noncognitive factors (such as academic engagement, academic self-efficacy, context regulation, and conscientiousness) explained 17-25% of the variation in GPA. When combined with prior academic performance, these factors explained up to 50% of the variance. This is especially true when comparing academic engagement and context regulation to other cognitive determinants such as inductive reasoning, prior academic success, and regulation of cognition and metacognition. Success seemed to be less dependent on emotional intelligence than on logical intelligence. Two layered structural equation models, which are novel and promising, confirmed its strong criterion validity by explaining, on their own, about 27-29% of the variance in a latent GPA component using a global variable of non-cognitive traits as a latent predictor. We offer some recommendations and implications for future research.

Al-Dawood (2022), in his study, used a 27-item survey derived from many SRL versions for their analysis. One hundred sixty-five students were polled about using SRL techniques within Blackboard-based online learning environments. Students' adoption of these techniques was ultimately linked to their overall performance in school. Students who perform well academically use a wider variety of SRL methods. Not all strategies are created equal, either. The research team attributes these results to the capabilities provided by Blackboard, which, when used properly, lead to SRL. Therefore, instructors are urged to employ LMSs to disseminate and instruct students on SRL methods. These findings are significant since most prior studies have concentrated on the SRL idea rather than its effect on academic achievement. It is advised, however, that more empirical studies be conducted on the properties of LMS and their effects on the growth of SRL.

Methodology

The Population of the Study

The study sample comprised all students enrolled in the English language and literature program at Al-Salt College for Human Sciences / Al-Balqa Applied University for 2022/2023. The total number of students is 600, with 290 males and 310 females.

The Sample of the Study

Researchers used a purposive sample of students majoring in research writing methods from the English Language and Literature department, who were chosen at random. Twelve students were included in the sample, with sixty men and sixty females represented according to their gender and averages.

Research Tool

The appropriate research instrument for the "Exploring the Correlation between Self-regulated Learning Strategies and Academic Success in Higher Education" questionnaire assesses self-regulated learning approaches. This questionnaire was carefully examined and verified before being given to the 120 college students who made up the study's sample to ensure it was a good indicator of how well students managed their learning by listening, summarizing, and organizing. Five academics with extensive knowledge of educational psychology, curriculum development, and teaching methodologies reviewed the questionnaire to confirm its validity and reliability.

The Validity of the Tool

The paragraphs of the instrument were examined by a panel of five arbitrators from the faculty of Al-Balqa Applied University. Among these individuals were five professors with specialized knowledge in educational psychology, curricula, and teaching methods. A modification was implemented to phrasing several paragraphs by replacing the term "course" with an alternative word. The questionnaire's dimensions were assessed for validity by computing the correlation between the score of each dimension and the overall score on the learning methods tool. The correlation coefficient for the listening strategies component was 0.79; for the summarization strategies dimension, it was 0.92; and for the ranking strategies dimension, it was 0.70. These parameters were determined to have statistical significance at the 10.0 significance level.

The Reliability of the Scale

To determine the reliability of the present study's sample (n = 120), the internal consistency approach (Cronbach_alpha) was used for all three dimensions and the instrument. *Results of the Study*

In response to the research questions, the researcher found:

Results Related to The First Question: To what extent do students demonstrate proficiency in self-regulated learning strategies, namely attending, summarizing, and organizing?

Table 1. The Degree to Which College Students Use Self-Regulated Learning Strategies

| Strategy | Mean Score | Standard Deviation |
|-------------|------------|--------------------|
| Listening | 3.5 | 0.8 |
| Summarizing | 3.7 | 0.6 |
| Arranging | 3.6 | 0.7 |

Table 1 displays statistical information about students' abilities in three critical areas of self-regulated learning: listening, summarizing, and arranging. Students' intermediate proficiency with some perceptual variances was indicated by an average proficiency score of 3.5 for the listening approach, with a variability of 0.8. With an average score of 3.7 and a standard deviation of 0.6, students' ratings of their summarizing abilities were marginally higher, indicating that they are more comfortable with and reliable in this task. With an average score of 3.6 and a standard deviation of 0.7, the organizing method was more proficient than listening but less consistent than summarizing. Students generally have a modest confidence level in their ability to use these learning techniques, with the most significant variation seen in their listening abilities and the highest confidence level in their ability to summarize.

Results Related to The Second Question: Does gender distinction in the possession of self-regulated learning strategies among university students (male versus female) exhibit any statistically significant characteristics?

Table 2. Gender Variations in Strategies for Self-Regulated Learning

| Strategy | Gender | Mean Score | Standard Deviation | T-value | Significance (pvalue) |
|-------------|--------|------------|--------------------|---------|-----------------------|
| Listening | Male | 3.6 | 0.7 | 2.05 | 0.042 |
| | Female | 3.4 | 0.8 | | |
| Summarizing | Male | 3.8 | 0.5 | 1.75 | 0.083 |
| | Female | 3.6 | 0.6 | | |
| Arranging | Male | 3.7 | 0.6 | 2.21 | 0.029 |
| | Female | 3.5 | 0.7 | | |

In Table 2, we can see how different genders approach self-regulated learning. Listening, Summarizing, and Arranging are the methods that were evaluated. Each strategy was evaluated using standard deviations, t-values, p-values, and mean scores. When it came to the Listening approach, the average proficiency score for male students was 3.6 (standard deviation: 0.7), female students, on the other hand, averaged 3.4 (standard deviation: 0.8). A t-value of 2.05 and a p-value of 0.042 suggest a statistically significant difference, suggesting that students' gender may influence their listening abilities. Men outperformed women in the Summarizing method (3.6 vs. 0.6 standard deviations) with an average score of 3.8. In this skill, the t-value is 1.75 and the p-value is 0.083, which are both far from the generally recognised 0.05 level of significance, indicating that there is no statistically significant difference between the sexes in terms of summarizing abilities.

There was a 0.6 standard deviation for men's scores and a 3.7 standard variance for women's scores when it came to the Arranging strategy. Gender differences in organizational abilities are statistically significant ($t=2.21$, $p=0.029$). From what we can see, male and female students rate their own competence in these domains of self-regulation differently. Men reported slightly higher levels of listening and organizing skills, even though all three strategies were statistically indistinguishable.

Results Related to The Third Question: Is there a correlation between academic achievement (high, low) and the degree of self-regulated learning strategies employed by university students that is statistically significant?

Table 3. Distinct Approaches to Self-Regulated Learning Based on Academic Performance

| Strategy | Academic Achievement | Mean Score | Standard Deviation | F-value | Significance (pvalue) |
|-------------|----------------------|------------|--------------------|---------|-----------------------|
| Listening | High | 3.8 | 0.5 | 4.32 | 0.015 |
| | Low | 3.2 | 0.6 | | |
| Summarizing | High | 3.9 | 0.4 | 5.10 | 0.007 |
| | Low | 3.1 | 0.7 | | |
| Arranging | High | 3.7 | 0.6 | 3.88 | 0.022 |
| | Low | 3.3 | 0.8 | | |

Results for students in the high and low accomplishment categories are shown in Table 3, which also shows the correlation between students' use of self-regulation tools and their grades. Analyzing each approach using standard deviations, F-values, p-values, and mean scores sheds light on the correlation between academic achievement and the ability to listen, summarize, and organize. Students who performed well in school reported an average score of 3.8 on the Listening strategy (standard deviation=0.5), with a standard deviation of 0.6, pupils who did poorly scored 3.2. With an F-value of 4.32 and a p-value of 0.015, there is a statistically significant difference between the two groups. This suggests that higher academic achievers possess more vital listening abilities. A mean score of 3.9 and a lowered standard deviation of 0.4 were recorded by high achievers in the Summarizing method. On the other hand, low achievers followed a comparable pattern, reporting a score of 3.1 with a standard deviation of 0.7. This approach showed the most notable skill difference between the two groups; a p-value of 0.007 and an F-value of 5.10 indicate that there is a strong correlation between good summarization skills and higher test scores.

There is a glaring difference between the academically successful and the less successful when it comes to the Arranging approach. Scores of 3.3 out of a possible 3.8 are typical for the second group, but scores of 3.7 out of a possible 0.6 are typical for the first. A statistically significant difference ($F=3.88$, $p=0.022$) indicates that students who are good at organising and structuring their ideas and thoughts are more likely to succeed academically. There is a robust correlation between successful self-regulated learning methods and academic achievement, as our results show. Students that do better in listening, summarising, and organising techniques have significantly different academic outcomes.

Results Related to The Fourth Question: Is there a statistically significant correlation between the degree to which university students employ self-regulated learning strategies and their academic performance?

Table 4. Academic Success and the Use of Self-Regulated Learning Strategies

| Strategy | Pearson Correlation Coefficient | Significance (p-value) |
|-------------|---------------------------------|------------------------|
| Listening | 0.61 | <0.001 |
| Summarizing | 0.59 | <0.001 |
| Arranging | 0.55 | <0.001 |

Table 4 shows the Pearson correlation coefficients and p-values for the association between academic achievement and the three levels of self-regulated learning techniques (Listening, Summarizing, and Arranging) among university students. A p-value lower than 0.001 indicates a Pearson correlation coefficient of 0.61 for the Listening approach. Pupils' academic success positively correlates with their listening skills, implying that pupils with superior listening skills tend to score higher academically. The summarizing approach also observed a Pearson correlation coefficient of 0.59 and a p-value lower than 0.001. Because of this, we can deduce that pupils who are good at summarizing also tend to do well in school since there is a robust positive relationship between the two. A p-value lower than 0.001 indicates a correlation coefficient 0.55 for the Arranging approach. Like the others, this tactic demonstrates a robust positive association, suggesting that proficiency in the art of information arrangement is substantially linked to superior performance in the classroom. The findings highlight the importance of self-regulated learning techniques in academic achievement, including listening, summarizing, and organizing. There are statistically substantial links between academic accomplishment and these tactics, suggesting that students who do well in these areas would also do well in school. This highlights the significance of honing these abilities to improve academic results.

Discussion of the Results

According to the study's findings, college students demonstrate modest ability in three areas of self-regulated learning: listening (mean score of 3.5), summarizing (mean score of 3.7), and arranging (mean score of 3.6). These findings are in line with those of Villareal (2023), who also emphasized the significance of self-regulated learning techniques for academic achievement; however, Karlen and Hertel (2024) vary in that they place more emphasis on the function of teacher competency in fostering these strategies. According to the results of further research, there are notable gender disparities when it comes to the presence of these learning methods. Specifically, males scored higher in Listening and Arranging. This finding agrees with Abdala & Alemu (2023) that gender variations in SRL methods exist, but it differs from Ha et al. (2023), who showed no significant gender differences. Cultural differences or disparities in sample size could cause this mismatch.

In addition, there was a clear relationship between academic performance and SRL strategy proficiency; students who scored higher overall also had more vital skills in each strategy. This lends credence to the findings of Xu et al. (2022), who highlighted the efficacy of self-regulated learning in different educational settings by showing that it was a predictor of success in distant education settings. Nevertheless, this goes against the findings of Pérez-González et al. (2022), who found that SRL techniques were less associated with academic achievement than non-cognitive skills.

There were statistically significant associations between SRL strategies and academic performance; the relationship was most vital for Listening (Pearson et al. = 0.61). Al-Dawood (2022) found that SRL strategies had a beneficial effect on students' academic performance in e-learning settings. Therefore, our results agree with that. Educational institutions should make concerted efforts to foster SRL methods because of their critical importance to students' academic performance.

While the study's results generally corroborate those of other studies that have found SRL strategies to be necessary for student's academic performance, they do call attention to the fact that gender and other individual differences, as well as the impact of teaching methods and environmental factors, should be taken into account when evaluating SRL strategies' efficacy.

Conclusion

This study examined the association between self-regulated learning practices and academic achievement among Jordanian university students, shedding light on the effects of these activities on academic performance. The results demonstrated that students demonstrate a modest level of proficiency in employing critical methods for self-regulated learning. These techniques include listening, summarizing, and organizing. There were gender differences in the efficacy of these strategies, with men generally doing better. In academic settings, self-regulated learning is crucial, and this study confirms that students who are more proficient in these strategies have higher academic achievement. This is especially true in listening and summarizing, where students' strengths are strongly correlated with their grades. More specifically, the results demonstrated that men were more proficient in listening and arranging strategies than females, indicating a possible area for educational interventions to promote gender equality in skill development. Taken together, the study highlights the importance of encouraging self-regulated learning strategies to improve academic achievement. This implies that gender disparities in adoption approaches could be addressed by personalized assistance.

References

- Villareal, K. (2023). Self-regulated learning strategies and parental involvement: Predictors of academic achievement. **Psychology and Education: A Multidisciplinary Journal**, 15(10), 1106-1119. https://scimatic.org/show_manuscript/2366
- Ha, C., Roehrig, A. D., & Zhang, Q. (2023). Self-regulated learning strategies and academic achievement in South Korean 6th-graders: A two-level hierarchical linear modeling analysis. *PLoS ONE*, 18(4), Article e0284385. <https://doi.org/10.1371/journal.pone.0284385>
- Xu, L., Duan, P., Padua, S. A., & Li, C. (2022). The impact of self-regulated learning strategies on academic performance for online learning during COVID-19. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.1047680>
- Pérez-González, J.-C., Filella, G., Soldevila, A., Faiad, Y., & Sanchez-Ruiz, M.-J. (2022). Integrating self-regulated learning and individual differences in predicting university academic achievement across a three-year degree. *Metacognition and Learning*, 17(3), 1141–1165. <https://doi.org/10.1007/s11409-022-09315-w>
- Al-Dawood, I. (2022). Correlation of Self-regulated Learning on Blackboard and Academic Achievement of Islamic Studies Students. *International Journal of Learning, Teaching and Educational Research*, 21(9), 370–388. <https://doi.org/10.26803/ijlter.21.9.21>
- Zare, J., Delavar, K. A., Derakhshan, A., & Pawlak, M. (2024). The relationship between self-regulated learning strategy use and task engagement. *International Journal of Applied Linguistics*. Portico. <https://doi.org/10.1111/ijal.12535>
- Karlen, Y., & Hertel, S. (2024). Inspiring self-regulated learning in everyday classrooms: Teachers' professional competencies and promotion of self-regulated learning. *Unterrichtswissenschaft*, 52, 1–13. <https://doi.org/10.1007/s42010024-00196-3>
- Abdala, U., & Alemu, Y. (2023). Assessing the relationship between motivational beliefs, self-regulated learning strategies, and academic performance of first-year students. *International Journal of School and Cognitive Psychology*, 10, 313. <https://www.longdom.org/open-access/assessing-the-relationship-between-motivational-beliefs-self-regulated-learning-strategies-and-academic-performance-of-freshmen-st-103203.html>
- Panadero, E. (2017). A Review of Self-regulated Learning: Six Models and Four Directions for Research. *Frontiers in Psychology*, 8. <https://doi.org/10.3389/fpsyg.2017.00422>
- Zimmerman, B. J. (2002). Becoming a Self-Regulated Learner: An Overview. *Theory Into Practice*, 41(2), 64–70. https://doi.org/10.1207/s15430421tip4102_2
- Li, S., & Zheng, J. (2018). The Relationship Between Self-efficacy and Self-regulated Learning in One-to-One Computing Environment: The Mediated Role of Task Values. *The Asia-Pacific Education Researcher*, 27(6), 455–463. <https://doi.org/10.1007/s40299-018-0405-2>
- Khiat, H. (2019). Using automated time management enablers to improve self-regulated learning. *Active Learning in Higher Education*, 23(1), 3–15. <https://doi.org/10.1177/1469787419866304>
- Zimmerman, B. J. (2022). Dimensions of Academic Self-Regulation. *Self-Regulation of Learning and Performance*, 3–21. <https://doi.org/10.4324/9780203763353-1>
- Parveen, A., Jan, S., Rasool, I., Waseem, R., & Bhat, R. A. (2023). Self-Regulated Learning. *Advances in Educational Technologies and Instructional Design*, 388–414. <https://doi.org/10.4018/978-1-6684-8292-6.ch020>
- Pintrich, P. R. (2000). The Role of Goal Orientation in Self-Regulated Learning. *Handbook of Self-Regulation*, 451–502. <https://doi.org/10.1016/b978-012109890-2/50043-3>
- Brenner, C. A. (2022). Self-regulated learning, self-determination theory and teacher candidates' development of competency-based teaching practices. *Smart Learning Environments*, 9(3). <https://doi.org/10.1186/s40561-02100184-5>
- Panadero, E. (2017). A Review of Self-regulated Learning: Six Models and Four Directions for Research. *Frontiers in Psychology*, p. 8. <https://doi.org/10.3389/fpsyg.2017.00422>