

# EDUCATIONAL RESILIENCE AND THE ART OF SELF-REGULATED LEARNING: THE INTERDEPENDENCE

<sup>1</sup>Priya Jaiswal, <sup>2</sup>Jaya Srivastava, <sup>3</sup>Rohit Bansal

**Abstract-** The disruption caused by the pandemic has called upon a restructuring of the educational system across the globe. The new normal era stressed the significance of self-regulation of learning for learning resilience, proactive behavior, time management, organizing, and self-management that leads to educational resilience. Self-regulated learning leads to educational resilience, a crucial approach to achieving the sustainable development goal of promoting life-long learning (goal no. 4). This paper explores the intricate relationship between educational resilience and self-regulation of learning shedding light onto the interdependence of these constructs, suggesting that practicing self-regulated learning for academic accomplishments mitigates variety of learning limitations and challenges, especially post-pandemic. The opinion paper offers insight for stakeholders and policymakers, educationalists, and students to better comprehend the factors that contribute to student's ability to overcome a multiplicity of learning challenges. The art of self-regulated learning is an asset to adaptability and academic success in the post-pandemic world.

**Keywords:** educational resilience; sustainable development goals; self-regulated learning; COVID-19 pandemic.

## 1. Introduction

For attaining the sustainable development goal four (4) of 'ensuring inclusive and equitable quality education and promote life-long learning opportunities for all', educational resilience is very crucial. Life-long learning induces progress, growth, and development (*Education Resilience Approaches*, 2016). An increase in demand for promoting lifelong learning resulted in enormous research focusing on self-regulated learning (Dignath & Büttner, 2008). The self-regulation of learning encompasses a wide range of skills comprising cognitive, metacognitive, and motivational, that enable an individual to control, monitor, and adapt to their learning processes and behavior to achieve a desired learning goal (Zimmerman, 1989, 2013; Zimmerman et al., 1992). Educational resilience on the other hand refers to the capacity of a person to not only withstand adversities but simultaneously thrive in their educational journeys, despite obstacles and setbacks (Wang & Gordon, 93 C.E.). Resilience ensures continuity and manages the learning process irrespective of the challenges. Thus, it is termed a productive construct (Wang & Gordon, 93 C.E.). Self-regulated learning is important for availing lifelong learning opportunities, it is important to master the strategic art of learning to mitigate a variety of learning challenges (Magno, 2010). 'The European Framework of Lifelong Learning' advised students to be able to learn in a self-regulated manner throughout their entire working life (EU Council, 2002).

Educational resilience is not achieved by memorizing or calculating something but, it is achieved by certain patterns of learning strategy involving a high amount of cognitive and metacognitive activity and motivations (Wang & Gordon, 93 C.E.). Educational resilience leads to engagement and is an essential requirement for adolescents to succeed (Anghel, 2015). Resilience is important not just for battling the aftermath of COVID-19 but also for ensuring learning continues in future adversities like climate change or any other natural or man-made disasters (Aleghfeli, 2021). Learning adaptability also enhances general capabilities, willingness, and readiness to learn and to make better educational decisions in challenging times (Anthonysamy et al., 2020a; Hsu et al., 2021; Tani et al., 2021; Zalazar-jaime & Medrano, 2020)

Every sector in the social and personal domain is affected by the pandemic. One of the most affected sectors is the educational sector. The disruption caused by the pandemic has called for the reformation of the whole educational system across the globe (Junastikova, 2023). The time is emphasized over the importance of competency-based learning to overcome several types of difficulties (Okagbue et al., 2023). It is the utmost responsibility of a nation to minimize and manage educational adversities to promote the physical, social, and economic well-being of its people (*Education Resilience Approaches*, 2016). The pandemic has dramatically altered the background of education worldwide, necessitating a profound restructuring of educational systems (Okagbue et al., 2023). To overcome the disruption caused by pandemic to the traditional education, research suggests that practicing self-regulated learning will take care of the learning process and has the potential to improve educational outcomes (Hadwin et al., 2022; Okagbue et al., 2023). The new normal era brought into sharp focus the paramount significance of practicing self-regulated learning (Ulfatun et al., 2021). A series of changes and challenges arising out of COVID-19 is supposed to

persist for very long (Junastikova, 2023). The multifaceted skill of self-regulation of learning encompasses learning resilience, proactive behavior, time management, organization, and self-management (Brown et al., 2006; Lapan et al., 2002; Rashid & Asghar, 2016; Schraw et al., 2006; Skedsmo & Huber, 2023; Zimmerman & Martinez-Pons, 1986, 1988).

This paper discusses the reciprocal relationship between educational resilience and self-regulated learning, emphasizing the disruption and change caused by the pandemic. By nurturing self-regulatory skills in the students and promoting an environment conducive to educational resilience we can achieve various other sustainable development goals. Understanding this interdependence is essential for educators, researchers, and policymakers aiming to promote student success, improve educational outcomes, and contribute to the overall well-being of learners in diverse educational settings. The study fills the gap in the research on how the mechanism of self-regulation can contribute to educational resilience. The paper seeks to provide a comprehensive and in-depth exploration of the multifaceted factors, contributing to the development of educational resilience through self-regulated learning. The study aims to shed light on the mechanism through which educational involvement is nurtured and pursued. Practicing self-regulation of learning is expected to offer insights into the complexities and challenges the young generation faces post-pandemic.

## 2. Educational resilience

The driving force of creativity and innovation for every nation is its education system. To promote learning, and life skills and to meet sustainable development goals every country needs a strong and resilient education system (*Education Resilience Approaches*, 2016). Quality education alone can encourage the achievement of various sustainable development goals. The sustainable developmental goals are not isolated objectives rather they are closely linked and mutually reinforcing. For eg. better educational outcomes induce the reduction of gender inequalities (goal no.5) (Beaman et al., 2012), which is essential in reducing overall inequalities (goal no.10) (Closson et al., 2022), which further has a positive impact on social and economic development (Kumar et al., 2021). The better socio and economic conditions offer improved livelihoods that will help in reducing poverty (goal no. 1) and hunger (goal no. 2) and further that will promote good health and psychological well-being (goal no. 3) (Anghel, 2015). Education can raise awareness about the importance of clean water, sanitation (goal no.6) environmental sustainability, and community development (goal no 11). It can also make people aware of peace and justice (goal no,16). Education can also protect vulnerable children and youth by ensuring their psychosocial well-being (*Education Resilience Approaches*, 2016). Thus because of the interconnectedness between sustainable goals, we assume that education is a prerequisite for effective attainment and collaboration among other sustainable developmental goals. Addressing one goal will have a positive spillover effect on others, while failure to address educational resilience can hinder progress toward achieving other goals. Education is the foundational and transformative goal that has the potential to positively impact various other aspects of sustainable development. Educational resilience is both a means of achieving many other goals and an end in itself. Thus, to achieve the sustainable goals it is crucial to prioritize and invest in continued quality education for all.

The advent of the COVID-19-pandemic has called for immediate attention to reorganize the educational system to sustain learning activity for a life-long period (Hadwin et al., 2022; Okagbue et al., 2023). The multifaceted skill of self-regulation of learning encompasses learning resilience, proactive behavior, time management, organization, and self-management (Zimmerman, 1986, 2000; Zimmerman & Martinez-Pons, 1986, 1988). By emphasizing the reciprocal relationship between educational resilience and self-regulated learning, the study aims to equip individuals with the tools they need, not only, to adapt but also to thrive in the face of adversities (Aleghefi, 2021). This seeks to unravel the underlying factors that empower students to surmount the trials they encounter in their educational journeys (Zimmerman & Martinez-Pons, 1986). Understanding the synergy between these two is not merely related to academic pursuit but to a strategic imperative (Magno, 2010). The paper seeks to provide a roadmap for navigating the educational challenges of our time, offering hope, guidance, and actionable strategies for a brighter and more resilient future.

Educational resilience is important for several reasons, as it plays a pivotal role in helping individuals and the educational system navigate challenges and achieve long-term success. For example, a resilient individual always perceives a situation positively, views challenges as opportunities, appropriately expresses and regulates emotion, and focuses on control. It is also important for overcoming personal, academic, and environmental adversities. This equips them with the mental and emotional strength to persevere through difficult times and continue their educational journey (Anghel, 2015). Resilient individuals are more likely to embrace learning as a lifelong pursuit. Resilience also enhances self-efficacy beliefs (Bandura, 1986). A strong positive self is a vital factor responsible for decision-making, and people act accordingly (Sunaina, 2017). A bulk of research suggests that individuals with higher self-efficacy beliefs often tend to set higher academic/career goals and work more persistently to achieve them (Ali et al., 2005; Bandura et al., 2001; Zimmerman & Martinez-Pons, 1990). Resilience also promotes problem-solving skills and critical thinking (Yang & Wu, 2012), and ensures emotional well-being by managing stress, anxiety, and other

emotional challenges (Anghel, 2015). Educational resilience is not only beneficial for academic achievement but also for future career success (Lent et al., 1994).

### 3. The art of self-regulated learning

Self-regulated learning is neither a mental ability nor a performance skill, but it should better be classified as a procedure through which abilities are transformed into task-related skills (Pothukuchi et al., 2014). The process of self-regulation comprises self-monitoring and self-control, making the practitioner independent (Eun et al., 2013). The SRL is governed by the three main components of self-regulation i.e. cognitive, metacognitive, and motivational. Cognitive and metacognitive include all necessary skills (like memorizing, recalling an important piece of information, etc.) and perception and understanding of the requirement (like identifying needs, planning, etc.), respectively. Metacognition keeps track of cognitive activity. The motivational construct is the most powerful and affects the use and development of metacognition and cognition (Schraw et al., 2006). The motivational construct comprises several elements, one being goal orientation, the cornerstone of any action.

Practicing self-regulation of learning, according to Pintrich (2000), offers four main benefits to the learner; first, they make comprehensive use of the information given to them; second, they direct their actions regardless of the biological, contextual, and individual differences, in a better way. Third, when engaged in self-regulated learning, students evaluate their performance using standards and adjust them as per the requirement. Fourth, to enhance academic performance and achievement, these students employ self-regulating mechanisms to balance the impact of external context and personal characteristics (Lapan et al., 2002; Pintrich, 2000). The art of self-regulated learning is supposed to be a very crucial skill for students for educational achievements or accomplishments of desired educational goals (Anthonysamy et al., 2020a; Puustinen & Pulkkinen, 2010). Zimmerman and his colleagues described three crucial approaches that initiate self-regulation in the learning process; 'Metacognitive', 'Motivational', and 'Behavioral'. Metacognition enables planning, organizing, self-instruction, and self-evaluation. Self-efficacy, independence, and internal motivation are from a motivational perspective, whereas the behavioral approach allows them to structure the environment that would facilitate and optimize acquisition (Zimmerman & Martinez-Pons, 1988).

Practicing self-regulation of learning benefits the learner by promoting learning resilience, proactive behavior, time management skills, organizing skills, and with the skills of self-management (Zimmerman, 1986, 2000). All these skills constitute educational resilience for several reasons:

First, learning resilience leads to adaptation to challenges (Aleghfeli, 2021): learning resilience enables students to bounce back, remain motivated and continue their educational journey (Anthonysamy et al., 2020a; Hsu et al., 2021; Tani et al., 2021; Zalazar-jaime & Medrano, 2020). It assists students to persevere through adversity, especially the unexpected challenges, and disruption caused by the covid-19 pandemic (Hadwin et al., 2022; Hsu et al., 2021).

Second, proactive behavior leads to proactive problem-solving behavior (Zimmerman & Martinez-Pons, 1988). Proactive individuals are more likely to identify issues or obstacles early and take steps to address them (Brown et al., 2006). The proactive approach helps a person to stay ahead of the problems in rapidly changing and uncertain educational environments (Magno, 2010).

Third, efficient and effective use of time is essential for optimizing the use of limited educational opportunities and resources (Wolters et al., 2017). People who manage their time well can balance and manage educational time with any challenge and conditions, ensuring that they don't fall behind (Holzer et al., 2021; Lee & Durksen, 2017; Wolters et al., 2017).

Fourth, the organization promotes effectiveness in learning. A well-organized environment and strategies lead to better learning outcomes (Zimmerman & Martinez-Pons, 1988). Organizing involves accessing, managing, and synthesizing information and easily retaining course material (Magno, 2010; Zimmerman, 1986).

Fifth, the skill of self-management ensures self-discipline and independence (Wolters et al., 2017). In contemporary times self-management in learning is of paramount importance (Ulfatun et al., 2021). Self-discipline helps to stay focused on the task and overcome distractions, key factors in maintaining progress (Zimmerman, 2000). It also helps them to manage a variety of stress, anxiety, and other emotional challenges (Rashid & Asghar, 2016). A person who can regulate their emotions is strong enough to navigate several uncertainties and disruptions (Mega et al., 2014). All these skills empower a person to take ownership of their learning process and extend it beyond the classroom setting. These skills equip students for lifelong learning and adaptability in their educational and personal development process. Educational resilience relies on these components to reach educational objectives. The art of self-regulated learning enables a person to set their learning goals, monitor their progress and adapt to the strategies as required (McWhaw & Abrami, 2001). This sense of control and consistency fosters resilience in challenging situations.

### 4. The relationship between self-regulated learning and educational resilience

In the context of COVID-19 and its aftermath, where remote learning, hybrid models, and disruptions to traditional education have become common, self-regulated learning can serve as a lifeline for students (Al Mulhim, 2021;

Anthony et al., 2020b, 2020a). It empowers them to take ownership of their education, adapt to new learning environments, and persevere in the face of challenges (Anthony et al., 2020a; Hsu et al., 2021; Tani et al., 2021; Zalazar-jaime & Medrano, 2020). The skills acquired through self-regulated learning not only enhance academic achievement but also equip students with the diverse and dynamic tools they need to thrive in a dynamic and evolving educational landscape. This can play a crucial role in fostering learning resilience, proactive behavior, time management, organization, and self-management, particularly in the context of education during and post-COVID-19 pandemic. Here is how self-regulated learning can lead to these essential skills and qualities for attaining educational resilience:

*4.1. Learning resilience:* the strategy of self-regulation involves setting clear and achievable learning goals (Zimmerman, 2000). This approach helps the learner to stay motivated and focused on their educational objectives, even in challenging circumstances. Learners who are motivated and focused assess their progress and make adjustments as per the requirements for achieving a desired goal (Puustinen & Pulkkinen, 2010). These adaptability traits are the key components of resilience, as it enables students to navigate unexpected disruption in their education (Aleghfeli, 2021).

*4.2. Proactive behavior:* the metacognitive awareness involved in the process of self-regulated learning involves assessing one's thinking and learning processes (Hadwin et al., 2022). This awareness enables the learner to anticipate potential challenges and take proactive steps to address them (Magno, 2010; Zimmerman & Martinez-Pons, 1988). The learners seek out all available resources, inquire and actively engage with their education, which is a proactive approach to acquiring knowledge and skills (Anthony et al., 2020b, 2020a; Brown et al., 2006; Jiang et al., 2022; Zalazar-jaime & Medrano, 2020).

*4.3. Time management:* Effective planning, managing, and organizing the learning task are the most crucial set of strategies required for the accomplishment of any type of goal. The pandemic has called upon a fundamental change in the learning system and demands for practicing self-regulation for continuous learning irrespective of place, and time (Holzer et al., 2021; Okagbue et al., 2023). These strategies include making adequate schedules, setting priorities, and breaking down complex tasks into manageable steps. All these strategies collectively represent time-management skills. The literature suggests that the ability to manage one's time is invaluable in online and remote learning environments where students have more control and autonomy over their schedules (Broadbent & Poon, 2015; Ulfatun et al., 2021).

*4.4. Organization:* self-regulated learning involves effective information processing and organization (Broadbent & Poon, 2015). Students learn to shift through a vast amount of information, discern relevant from irrelevant, and synthesize key concepts (Magno, 2010). This organization of knowledge aids in retaining and applying what is learned. Managing learning resources from textbooks and digital materials to online tools and study aids to educational achievements and resilience (Puzziferro, 2008). The ability to organize augments performance and achievement levels (Mau & Bikos, 2000; Mega et al., 2014). This ability to organize and access resources efficiently enhances the learning outcomes and experience.

*4.5. Self-management:* self-regulated learning fosters self-discipline, as learners must regulate their behavior, stay on track, focus on tasks, and avoid distractions (Zimmerman, 1986). The self-management skill is particularly important in virtual and remote learning environments (Hadwin et al., 2022; Junastikova, 2023). The art of self-management also triggers emotional resilience. They can manage stress, anxiety, and frustration effectively, which is crucial in coping with uncertainties and disruptions of the post-pandemic educational landscape across the globe.

## 5. Discussion

The study offers valuable insights for stakeholders, including policymakers, students, and researchers. The study suggests that educational resilience and self-regulated learning have a mutual influencing relation. Self-regulated learning is a learning adaptation that enhances student's resilience, indicating the importance of the integration of self-regulated strategies into the education system. The study underscores the importance of self-regulated learning as a life-long learning skill because it goes beyond formal education and is vital for people to adapt and thrive in a rapidly changing world. It empowers a person giving them full control of their learning process with an effective strategy of learning resilience, time management, proactive approach, organizing, and ability to self-manage things. Education not only caters to a person's livelihood and academic needs, but it prepares them to be resilient, active, and knowledgeable throughout their life. It can contribute to the preparedness for unforeseen challenges in education in the future. Educational resilience and self-regulated learning positively influence academic participation and achievement and aid in building a quality workforce. Quality human capital is generated by the educational and learning opportunities that are provided to a country's young generation, thus these constructs shape the future workforce and contribute to the socio-economic development of a nation.

The paper concludes that the components of self-regulated learning of learning resilience, proactive behavior, time management, organization, and self-management collectively underpin educational resilience. Self-regulation of their learning enables a person to navigate the complexities of modern education, especially in the disruption caused

during and post-pandemic. Self-regulated learning empowers individuals to adapt, persist, and thrive in a changing educational landscape. Various international agencies like ILO, UNESCO, and UNICEF promote educational resilience post covid to deal with present and future adversities (Aleghfeli, 2021). Self-regulated learning would assist them in utilizing more focused techniques to address the problem of learning. Education is important not just for growth and development but it helps for mitigating the risk of adversities of natural or man-made disasters in the times to come (*Education Resilience Approaches*, 2016). Quality education alone can facilitate the achievement of various sustainable goals. The lifelong learning approach is a boon to human development. Thus resilience must be focused in educational settings to optimize the attainment of learning and other developmental opportunities.

The study suggests that in contemporary times both self-regulation of learning and educational resilience are quite crucial for educational continuity and development. It is therefore anticipated that focusing on the art of self-regulation of learning for educational resilience will empower students for educational goals and continuity of the learning process irrespective of environmental, physical, and social adversities. These are interconnected concepts that must be considered in post post-pandemic era.

## 6. Recommendations and implications

The findings suggest that educational institutes can consider integrating self-regulated learning principles into their curricula to equip students with essential skills for educational resilience. The academic development program can emphasize strategies for promoting self-regulation in various types of learning environments. Equal access to resources is important for all individual, self-regulated learning help adequate access to resources, and hence it further can influence the transition from traditional learning to online learning or remote learning. The study can motivate further research into effective learning strategies that enhance self-regulated learning and, in turn, educational resilience. We also call for empirical research on every single learning strategy in an isolated form as well as in a group form affecting educational resilience. This research can inform instructional practices. We also suggest including the approach of self-regulated learning in the curriculum so that students learn to overcome a variety of challenges imposed by the pandemic. Educational institutes should also focus on educational resilience to promote lifelong learning.

## 7. Conclusion

Practicing self-regulated learning not only promotes educational resilience but also offers a resilient attitude for a lifelong journey. A resilient individual can adapt to changing circumstances and effectively deal with a variety of challenges. In the dynamic and highly competitive world adaptability is a highly sought-after skill. A resilient individual is ready to learn new skills and thrive in diverse environments. Resilience fosters perseverance and the capacity to persist in the face of setbacks and obstacles. Resilience is strongly linked to problem-solving and critical-thinking skills. Educational resilience seeks to understand the factors that contribute to a person's ability to overcome challenges and excel academically. The development of self-regulatory skills can enhance educational resilience and vice-versa. Understanding this interdependence is essential for educators, researchers, and policymakers aiming to promote student success, improve educational outcomes, and contribute to the overall well-being of learners in diverse situations.

## REFERENCES:

1. Al Mulhim, E. N. (2021). Flipped Learning, Self-Regulated Learning and Learning Retention of Students with Internal/External Locus of Control. *International Journal of Instruction*, 14(1), 827–846. <https://doi.org/10.29333/iji.2021.14150a>
2. Aleghfeli, Y. K. (2021). Conceptualizing Educational Resilience during the COVID-19 Pandemic. *Indian Journal of Career and Livelihood Planning*, 10(1), 35–45.
3. Ali, S. R., Mcwhirter, E. H., & Chronister, K. M. (2005). Self-Efficacy and Vocational Outcome Expectations for Adolescents of Lower Socioeconomic Status: A Pilot Study. *Journal of Career Assessment*, 13(1), 40–58. <https://doi.org/10.1177/1069072704270273>
4. Anghel, R. E. (2015). Psychological and Educational Resilience in High vs . Low-Risk Romanian Adolescents. *Procedia - Social and Behavioral Sciences*, 203, 153–157. <https://doi.org/10.1016/j.sbspro.2015.08.274>
5. Anthonysamy, L., Koo, A. C., & Hew, S.-H. (2020a). Self-regulated learning strategies in higher education: Fostering digital literacy for sustainable lifelong learning. *Education and Information Technologies*, 25, 2393–2414. <https://doi.org/10.1007/s10639-020-10201-8>
6. Anthonysamy, L., Koo, A., & Hew, S. (2020b). Self-regulated learning strategies and non-academic outcomes in higher education blended learning environments: A one decade review. *Education and Information Technologies*, 25(5), 3677–3704. <https://doi.org/10.1007/s10639-020-10134-2>
7. Bandura, A. (1986). *Social foundation of thought and action: A social cognitive theory*.

8. Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (2001). Self-Efficacy Beliefs as Shapers of Children's Aspirations and Career Trajectories. *Child Development*, 72(1), 187–206. <https://doi.org/10.1111/1467-8624.00273>
9. Beaman, L., Duflo, E., Pande, R., & Topalova, P. (2012). Female leadership raises aspirations and educational attainment for girls: A policy experiment in India. *Science*, 335, 582–586. <https://doi.org/10.1126/science.1211180>
10. Broadbent, J., & Poon, W. L. (2015). Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review. *Internet and Higher Education*, 27, 1–13. <https://doi.org/10.1016/j.iheduc.2015.04.007>
11. Brown, D. J., Cober, R. T., Kane, K., Levy, P. E., & Shalhoop, J. (2006). Proactive Personality and the Successful Job Search: A Field Investigation With College Graduates. *Journal of Applied Psychology*, 91(3), 717–726. <https://doi.org/10.1037/0021-9010.91.3.717>
12. Closson, K., Prakash, R., Javalkar, P., Beattie, T., Thalinja, R., Collumbien, M., Ramanaik, S., Isac, S., Watts, C., Moses, S., Gafos, M., Heise, L., Becker, M., & Bhattacharjee, P. (2022). Adolescent Girls and Their Family Members' Attitudes Around Gendered Power Inequity and Associations with Future Aspirations in Karnataka, India. *Violence Against Women*, 1–24. <https://doi.org/10.1177/10778012221097142>
13. Dignath, C., & Büttner, G. (2008). Components of fostering self-regulated learning among students . A meta-analysis on intervention studies at primary and secondary school level. *Metacognition Learning*, 3, 231–264. <https://doi.org/10.1007/s11409-008-9029-x>
14. *Education Resilience Approaches*. (2016). [worldbank.org/education](http://worldbank.org/education)
15. EU Council. (2002). *Council Resolution of 27 June 2002 on lifelong learning* (Issue July 9).
16. Eun, H., Sohn, Y. W., & Lee, S. (2013). The effect of self-regulated decision making on career path and major-related career choice satisfaction. *Journal of Employment Counseling*, 50(3), 98–109. <https://doi.org/10.1002/j.2161-1920.2013.00029.x>
17. Hadwin, A. F., Sukhawathanakul, P., Rostampour, R., & Bahena-Olivares, L. M. (2022). Do Self-Regulated Learning Practices and Intervention Mitigate the Impact of Academic Challenges and COVID-19 Distress on Academic Performance During Online Learning? *Frontiers in Psychology*, 13, 1–14. <https://doi.org/10.3389/fpsyg.2022.813529>
18. Holzer, J., Luftenegger, M., Karlot, S., Pelikan, E., Salmela-Aro, K., Spiel, C., & Schober, B. (2021). Higher Education in Times of COVID-19: University Students' Basic Need Satisfaction, Self-Regulated Learning, and Well-Being. *AERA Open*, 7(1), 1–13. <https://doi.org/10.1177/23328584211003164>
19. Hsu, A. J. C., Chen, M. Y. C., & Shin, N. F. (2021). From academic achievement to career development: does self-regulated learning matter? *International Journal for Educational and Vocational Guidance*, 1–21. <https://doi.org/10.1007/s10775-021-09486-z>
20. Jiang, Y., Wang, P., Li, Q., & Li, Y. (2022). Students' Intention toward Self-Regulated Learning under Blended Learning Setting: PLS-SEM Approach. *Sustainability*, 14, 1–19. <https://doi.org/10.3390/su141610140>
21. Junastikova, J. (2023). Self-regulation of learning in the context of modern technology: a review of empirical studies. *Interactive Technology and Smart Education*, 1–22. <https://doi.org/10.1108/ITSE-02-2023-0030>
22. Kumar, P., Nuken, A., Datta, N., & Vyas, A. (2021). Impact of an empowerment and employability program for adolescent girls: Evidence from India. *Journal of Youth Development*, 16(2–3), 255–277. <https://doi.org/10.5195/JYD.2021.1048>
23. Lapan, R. T., Kardash, C. M., & Turner, S. (2002). Empowering students to become self-regulated learners. *Professional School Counseling*, 5(4), 257–265.
24. Lee, J., & Durksen, T. (2017). Dimensions of academic interest among undergraduate students: passion, confidence, aspiration and self-expression. *Educational Psychology*, 1–19. <https://doi.org/10.1080/01443410.2017.1342770>
25. Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a Unifying Social Cognitive Theory of Career and Academic Interest, Choice, and Performance. *Journal of Vocational Behavior*, 45(1), 79–122. <https://doi.org/10.1006/jvbe.1994.1027>
26. Magno, C. (2010). Assessing Academic Self-Regulated Learning among Filipino College Students: The Factor Structure and Item Fit. *The International Journal of Educational and Psychological Assessment*, 5, 61–76. <https://www.researchgate.net/publication/277405265>
27. Mau, W., & Bikos, L. H. (2000). Educational and Vocational Aspirations of Minority and Female Students: A Longitudinal Study. *Journal of Counseling & Development*, 78, 66–74. <https://doi.org/10.1002/j.1556-6676.2000.tb02577.x>
28. McWhaw, K., & Abrami, P. C. (2001). Student Goal Orientation and Interest: Effects on Students' Use of

- Self-Regulated Learning Strategies. *Contemporary Educational Psychology*, 26(3), 311–329. <https://doi.org/10.1006/ceps.2000.1054>
29. Mega, C., Ronconi, L., & Beni, R. De. (2014). What makes a good student? How emotions, self-regulated learning, and motivation contribute to academic achievement. *Journal of Educational Psychology*, 106(1), 121–131. <https://doi.org/10.1037/a0033546>
  30. Okagbue, E. F., Ezeachikulo, U. P., Nchekwubemchukwu, I. S., Chidiebere, I. E., Kosiso, O., Ouattaraa, C. A. T., & Nwigwe, E. O. (2023). The effects of Covid-19 pandemic on the education system in Nigeria: The role of competency-based education. *International Journal of Educational Research Open*, 4, 1–10. <https://doi.org/10.1016/j.ijedro.2022.100219>
  31. Pintrich, P. R. (2000). The Role of Goal Orientation in Self-Regulated Learning. In *Handbook of Self-Regulation* (pp. 451–502). <https://doi.org/10.1016/b978-012109890-2/50043-3>
  32. Pothukuchi, B. R., Kumar, S. A., & Dash, M. (2014). A study of the impact of self-regulated learning on academic and career goal clarity among postgraduate women students of Bangalore. *IUP Journal of Soft Skills*, 8(2), 1–11.
  33. Puustinen, M., & Pulkkinen, L. (2010). Models of self-regulated learning: A review. *Scandinavian Journal of Educational Research*, 45(3), 269–286. <https://doi.org/10.1080/00313830120074206>
  34. Puzziferro, M. (2008). Online Technologies Self-Efficacy and Self-Regulated Learning as Predictors of Final Grade and Satisfaction in College-Level Online Courses. *American Journal of Distance Education*, 22(2), 72–89. <https://doi.org/10.1080/08923640802039024>
  35. Rashid, T., & Asghar, H. M. (2016). Technology use, self-directed learning, student engagement and academic performance: Examining the interrelations. *Computers in Human Behavior*, 63, 604–612. <https://doi.org/10.1016/j.chb.2016.05.084>
  36. Schraw, G., Kauffman, D. F., & Lehman, S. (2006). Self-Regulated Learning. In *Encyclopedia of Cognitive Science*. <https://doi.org/10.1002/0470018860.s00671>
  37. Skedsmo, G., & Huber, S. G. (2023). Understanding academic resilience, equity, and research engagement to improve education. *Educational Assessment, Evaluation and Accountability*, 35(2), 165–168. <https://doi.org/10.1007/s11092-023-09408-3>
  38. Sunaina. (2017). Occupational Aspirations of Adolescents in Relation to Their Self Concept. *Scholarly Research Journal for Interdisciplinary Studies*, 4(37), 8623–8628. <https://doi.org/10.21922/srjis.v4i37.10595>
  39. Tani, M., Gheith, M. H., & Papaluca, O. (2021). Drivers of student engagement in higher education: a behavioral reasoning theory perspective. *Higher Education*, 82(3), 499–518. <https://doi.org/10.1007/s10734-020-00647-7>
  40. Ulfatun, T., Septiyanti, F., & Lesmana, A. G. (2021). University students' online learning self-efficacy and self-regulated learning during the covid-19 pandemic. *International Journal of Information and Education Technology*, 11(12), 597–602. <https://doi.org/10.18178/IJiet.2021.11.12.1570>
  41. Wang, M. C., & Gordon, E. W. (93 C.E.). *Educational Resilience in Inner Cities*.
  42. Wolters, C. A., Won, S., & Hussain, M. (2017). Examining the relations of time management and procrastination within a model of self-regulated learning. *Metacognition Learning*, 1–19. <https://doi.org/10.1007/s11409-017-9174-1>
  43. Yang, Y. C., & Wu, W. I. (2012). Digital storytelling for enhancing student academic achievement, critical thinking, and learning motivation: A year-long experimental study. *Computers & Education*, 59(2), 339–352. <https://doi.org/10.1016/j.compedu.2011.12.012>
  44. Zalazar-jaime, M. F., & Medrano, L. A. (2020). An Integrative Model of Self-Regulated Learning for University Students: The Contributions of Social Cognitive Theory of Carriers. *Journal of Education*, 1–13. <https://doi.org/10.1177/0022057420904375>
  45. Zimmerman, B. J. (1986). Becoming a self-regulated learner: Which are the key subprocesses? *Contemporary Educational Psychology*, 11(4), 307–313. [https://doi.org/10.1016/0361-476X\(86\)90027-5](https://doi.org/10.1016/0361-476X(86)90027-5)
  46. Zimmerman, B. J. (1989). A Social Cognitive View of Self-Regulated Academic Learning. *Journal of Educational Psychology*, 81(3), 329–339. <https://doi.org/10.1037/0022-0663.81.3.329>
  47. Zimmerman, B. J. (2000). Attaining self-regulation a social cognitive perspective. In *Handbook of Self-Regulation* (pp. 13–39).
  48. Zimmerman, B. J. (2013). From Cognitive Modeling to Self-Regulation: A Social Cognitive Career Path. *Educational Psychologist*, 48(3), 135–147. <https://doi.org/10.1080/00461520.2013.794676>
  49. Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (1992). Self-Motivation for Academic Attainment: The Role of Self-Efficacy Beliefs and Personal Goal Setting. *American Educational Research Journal*, 29(3), 663–676. <https://doi.org/10.3102/00028312029003663>
  50. Zimmerman, B. J., & Martinez-Pons, M. (1986). Development of a Structured Interview for Assessing Student Use of Self-Regulated Learning Strategies. *American Educational Research Journal*, 23(4), 614–

628. <https://doi.org/10.3102/00028312023004614>
51. Zimmerman, B. J., & Martinez-Pons, M. (1988). Construct Validation of a Strategy Model of Student Self-Regulated Learning. *Journal of Educational Psychology*, 80(3), 284–290.
52. Zimmerman, B. J., & Martinez-Pons, M. (1990). Student Differences in Self-Regulated Learning: Relating Grade, Sex, and Giftedness to Self-Efficacy and Strategy Use. *Journal of Educational Psychology*, 82(1), 51–59. <https://doi.org/10.1037/0022-0663.82.1.51>