Gudang Jurnal Multidisiplin Ilmu
Volume 2 ; Nomor 3 ; Maret 2024 ; Page 42-46
Doi : https://doi.org/10.59435/gjmi.v2i3.380
Website :https://gudangjurnal.com/index.php/gjmi

E-ISSN : 2988-5760

Self-Regulated Learning And Cognitive Processes In Flipped Classroom: A Library Investigation

Nike Aulia Andhini[1*], J. Priyanto Widodo[2]

[1,2] Master of English Education, STKIP PGRI Sidoarjo
[1*]nikeauliandhini@gmail.com, [2]prowidodo@gmail.com

Article Info

Enter:
February 15, 2024
Accepted:
February 29, 2024
Published:
March 02, 2024

Keywords:
Flipped classroom,
Self-Regulated Learning,
Cognitive Process,
Library Investigation,

Abstrack

This study investigates how cognitive processes in a flipped classroom setting influence self-regulated learning (SRL). Active student participation and self-directed learning are prioritized in this approach. 13 pertinent papers on flipped classrooms, SRL, and related topics were looked into for the literature review. The results demonstrated the value of SRL in enhancing students' capacity for autonomous learning and academic success. Collaborative and active learning are further encouraged in the flipped classroom setting. The conclusion for education is that in order to enhance student learning outcomes, it is critical to include SRL principles into teaching procedures. Offering students individualized support and unambiguous direction as they get ready for flipped classroom activities are examples of useful recommendations. Through this research, the function of SRL in flipped classrooms is better understood, and ideas for developing instructional strategies based on SRL principles are gained.

INTRODUCTION

The flipped classroom approach is a teaching strategy that involves a combination of different types of learning and provides a focus on active student engagement. In recent times, this approach has gained significant attention and is considered the new norm in blended learning. In a flipped classroom, students are expected to take full responsibility for their own learning, by organizing their own learning rhythm before attending face-to-face classes (Bishop & Verleger, 2013). The role of the teacher in a flipped classroom is as a facilitator of group discussions in the classroom, helping to answer students' questions, guiding discussions, and facilitating students to learn from various perspectives, rather than just receiving knowledge directly. The flipped classroom is also known as a flipped classroom, 24/7 classroom, or flipped instruction due to the reversal of learning activities from the conventional blended learning approach. In this context, the online component of the flipped classroom involves online-based self-directed learning before face-to-face classes, while the face-to-face component involves interactive group learning in the classroom (Fauzan et al., 2021).

The flipped classroom approach aims to maximize the interaction between teachers and students in a face-to-face classroom as well as provide feedback tailored to students' individual needs regarding their learning. In a flipped classroom, students have the opportunity to engage and actively participate in learning activities in both individual and group contexts. The blended learning approach of flipped classroom involves students in learning activities both through face-to-face interaction and through online components (Rasheed et al., 2020). In any technology-enabled learning, the online component (such as self-study before face-to-face class) has an important role in the success of the flipped classroom approach, as students need to prepare themselves well to participate productively in face-to-face sessions. Typically, students are required to watch online videos before attending face-to-face classes, where they will engage in group activities and discussions with classmates and teachers.

Many diverse research reviews have been conducted regarding the flipped classroom, as has been reported in blended learning. Since research in blended learning has shown that students' success rate depends on their ability to adopt the necessary self-regulation strategies, it is important to understand the various solutions that have been offered by researchers to improve the behavior The flipped classroom approach is a learning strategy that combines online and face-to-face components, with a focus on active student participation. This approach has become popular in blended learning (Alamry, 2017). In a flipped classroom, students have full responsibility for their own learning and prepare themselves before attending face-to-face classes. The teacher's role in a flipped classroom is to be the facilitator of classroom discussions. They help answer students' questions, guide discussions, and encourage students to learn from multiple perspectives. The flipped classroom is also known as a flipped classroom or flipped instruction due to the reversal of learning activities from the conventional approach. The online component involves independent learning before the face-to-face class, while the face-to-face component involves group learning in the classroom.

The flipped classroom approach not only changes the way students receive information, but also makes room for the development of critical and collaborative thinking skills. By requiring students to prepare before the face-to-face class, they are given the opportunity to explore the material in depth independently. This not only develops learning independence, but also strengthens the understanding of the concepts being taught. In the classroom, teachers can act as facilitators who encourage students to ask questions, try new solutions, and collaborate with fellow students. Thus, the flipped classroom creates an environment that promotes active and interactive learning, preparing students to become lifelong learners who can adapt to change and pursue knowledge with great curiosity.

Objective of Study

The objective of this study is to investigate the relationship between self-regulated learning and cognitive processes in the context of flipped classroom through a comprehensive literature review.

RESEARCH METHOD

The research design for this study involved a thorough literature review to explore the relationship between self-regulated learning (SLR) and cognitive processes in a flipped classroom context. This process began by searching appropriate databases such as Web of Science, with a focus on articles published between 2010 and 2019. Additional relevant studies were also identified from sources such as Google Scholar and Science direct. Articles were selected based on certain criteria, including the definition of the flipped classroom, the emphasis on SRL or related aspects, and their empirical nature. Data from the articles were then analyzed to extract key information about SRL strategies, cognitive processes, and their impact in a flipped classroom. Findings were synthesized to provide insights into the effectiveness and implications of the flipped classroom approach. The research design also considers the limitations of existing studies and suggests future research directions to further enhance understanding in this area.

Our literature search process was conducted in three stages. The first stage involved using the Web of Science database, which is a source of indexed articles in social sciences (SSCI) and science (SCI). We used the search string "(blend* learning OR hybrid learning OR flipped learning OR blend* course OR hybrid course OR flipped course OR flipped classroom*)" adopted from well-known research on blended learning. This string was entered into the advanced search option of the Web of Science database. The year range we determined was 2010 to 2019. Next, we narrowed down the articles by selecting those belonging to the social science index (SSCI) and the research fields of education, educational psychology, and educational science. This method follows a similar approach used in other studies. In addition, researchers also examined the titles, keywords, and abstracts of all the results, focusing on self-regulation and related terms such as learning strategies, metacognition, practice, elaboration, critical thinking, time management, effort management, help-seeking, procrastination, and peer learning.

The second stage involved adding five studies found from other sources such as Science Direct and Google Scholar. These studies were relevant to the topic we were researching and were not found in the Web of Science database. We used the search terms "flip" and "invert" in different combinations with the Boolean operator "OR". This is because some authors use the term "class flip" interchangeably with the term "class invert" (Rasheed et al., 2020).

Selection Criteria

The third stage involved further refinement by applying inclusion and exclusion criteria adopted from previous studies. We selected articles that (a) defined the flipped classroom as a combination of face-to-face and online interventions, (b) focused on self-regulation or related aspects such as help-seeking and procrastination in the flipped classroom, or dealt with related instructional methods, (c) were empirical studies, and (d) primarily investigated the educational aspects of the flipped classroom. We excluded articles that (a) focused only on the face-to-face aspects of the flipped classroom, (b) were book chapter reviews, (c) were written in a language other than English, and (d) were not available as full text. After going through this process, we managed to select 13 final studies that were relevant to our research (Rasheed et al., 2020).

FINDINGS AND DISCUSSIONS

Self-regulation strategies that have been researched in the flipped classroom

One of the ongoing challenges that scholars encounter in the present technologically-driven educational context is how to address the issue of self-regulation in all types of online learning (Arbi et at, 2023). As learners have greater freedom, flexibility and authority in these environments, self-regulation becomes a complex issue. Researchers have investigated and attempted to understand the various aspects and types of self-regulation strategies that can be adopted to overcome the negative effects and weaknesses that may arise in modern education as a whole. In Table I, a study conducted by (Bishop & Verleger, 2013) aimed to evaluate the pedagogical impact of flipped classroom with a focus on self-regulation to improve formative learning outcomes. The results showed that students who participated in the flipped classroom were able to apply their self-learning knowledge and adopt more effective self-regulation strategies in carrying out their online learning activities.

Tabel 1 Self-regulation Starategish That Have Been Investigated In Flipped Classrooms

Authors	Aim	Results
Ng (2018).	To determine whether the flipped classroom, with reference to the principles of self-regulation, is a good pedagogy for improving formative learning outcomes.	The research findings demonstrate students' ability to apply their self-learning knowledge before their face-to-face classes.
Bingen, Steinda, Krumsvik, and Tveit (2019).	To explore student learning activities in the flipped classroom using various digital tools	Students were more comfortable using resources from external commercial websites. Thus, this finding is arguably related to students' need for autonomy; The results suggest that nursing students' ability to engage in self-regulated learning may be influenced by adaptation to higher education. Secondly, students who were able to handle stressful situations and students with high ability to handle stressful situations appeared to adopt more self-regulatory strategies for learning.
Sun and Anderman (2018).	To examine the relationship between three key self-regulation constructs - 'self-efficacy, prior domain knowledge and use of Learning Strategies' with Academic Achievement	The results showed that self-efficacy and online help-seeking strategies were significantly positively related to academic achievement in both the pre-class and in-class flipped classroom components. Students' self-efficacy in collaborative learning had a positive impact on the use of help-seeking strategies during classroom learning.
Çakıroğlu and Öztürk (2017).	To explore how students' self-regulated learning skills develop in a flipped learning environment where problem-based activities are used.	Goal setting and planning, self-regulated learning, task strategies and help seeking skills of students were significantly higher in the in-class sessions. During the pre-class or online component, goal setting and planning, environment structuring skills were significantly high, while time management, monitoring help seeing, self-evaluation and self-efficacy skills were moderate while monitoring skills were significantly lower. Management, monitoring help-seeking, self-evaluation and self-efficacy skills were moderate while monitoring skills were significantly lower.
Chen and Chen (2019).	To enhance effective learning and teaching by investigating the influence of cognitive style, gender and different teaching strategies in a Flipped Classroom.	Learning strategies and cognitive styles have a significant effect on student satisfaction and achievement. Peer-learning, interactive videos and social management issues associated with group work increase students' motivation towards self-regulation.

The findings in this study suggest that students' need for authority has a relationship with nursing students' ability to engage in self-regulated learning when adapting to higher education. In addition, students who are able to cope with stressful situations and have a high ability to deal with them tend to adopt more self-regulation strategies while studying. This study investigated the correlation between academic performance and three key self-regulation constructs, namely prior knowledge in the field of study, self-confidence, and the use of learning strategies. The findings showed that self-confidence and online help-seeking strategies had significant positive relationships with academic achievement in both the pre-class and in-class components of the flipped classroom model. Students' self-confidence in collaborative learning had a positive impact on the use of help-seeking strategies during classroom learning. The study conducted by (Çakiroğlu & Öztürk, 2017) explored the development of self-regulated learning skills in students in a flipped learning environment using problem-based activities.

The findings of the study showed that students' goal setting and planning, self-regulated learning, task strategies, and help-seeking skills were significantly higher in classroom sessions. In the pre-class or online component, goal setting and planning and environmental structuring showed significantly higher levels, while time management, help-seeking monitoring, self-assessment, and self-assurance had moderate levels, while monitoring skills showed significantly lower levels. The study conducted by (Chen et al, 2019) aimed to improve more effective teaching and learning in the flipped classroom model by considering cognitive style, gender, and teaching strategies. The findings of the study showed that cognitive style and learning strategies had a significant impact on learning performance and student satisfaction in both

the flipped classroom model and the revised flipped classroom model. Peer-to-peer learning, interactive videos, and social management issues associated with group work increased students' motivation towards self-regulation.

The findings from the study show that the application of self-regulated principles in the flipped classroom can improve students' independent skills before face-to-face meetings. The use of digital tools also contributes to students' convenience in utilizing external resources. In addition, the relationship between students' ability to cope with stress and the adoption of more self-regulatory strategies highlights the importance of holistic support to students' well-being inside and outside the classroom. Findings on the relationship between self-identification, online search strategies, and academic achievement emphasize the importance of supportive feedback in strengthening students' self-efficacy and expanding their learning strategies.

Implications of this Research for Education

The implications of this research for education are significant in the context of developing learning methods that focus on student self-regulation. The finding of a relationship between the use of self-regulation strategies and student success in the flipped classroom model confirms the importance of learning that provides opportunities for students to develop learning independence. This suggests that the flipped classroom approach can be an effective method to help students hone their self-regulation skills, which are essential skills in facing the challenges of education in the modern era. This implication underscores the need for a more holistic learning approach that not only imparts knowledge, but also trains students to become active and independent learners.

Limitations of this Study

However, after reviewing the findings, the researcher realizes that this study has weaknesses and limitations that need to be considered. One of them is the limited time span studied, which is from 2010 to 2019. This makes this study unlikely to cover the latest developments in the field of technology-based learning and student self-regulation. Furthermore, this study may not have gone as thoroughly into the firsthand experiences and viewpoints of educational practitioners in the field as it might have because it tended to concentrate more on evaluating the literature. Consequently, it's critical to acknowledge that the results of this research may have greater validity if they were backed up by firsthand practical evidence from fieldwork-related teaching experiences. Therefore, more research can expand on this and provide a deeper knowledge of how student self-regulation affects flipped classroom learning.

CONCLUSION AND SUGGESTION

Conclusion

This study concludes by emphasizing the value of self-regulated in flipped learning environments. According to the results, students who participate in self-directed learning before in-person classes are more likely to use successful self-regulation techniques including goal-setting, preparation, and asking for assistance. Additionally, group learning activities in the classroom helped pupils strengthen their capacity for self-regulation. These results highlight how crucial it is to consider how self-regulation techniques play a part in planning and implementing successful flipped classroom practices that improve student learning. All things considered, this study's findings provide credence to the idea that the flipped classroom model fosters students' growth in both active learning and self-regulation. The design and implementation of student self-regulation-oriented learning models will be significantly impacted by these findings for educational practitioners. Teachers can improve students' academic accomplishment and learning independence by implementing a well-integrated flipped classroom approach that offers more effective learning experiences and builds students' capacity to manage their own learning.

Suggestion

Based on the research findings, there are several suggestions that can be made for educational practitioners in implementing the flipped classroom approach effectively. First, it is important for teachers to provide clear and supportive guidance for students in preparing themselves before face-to-face sessions. This can be done by providing relevant and useful online learning resources and giving clear directions on how students can utilize these resources effectively. In addition, teachers also need to provide constructive feedback to students on their progress in self-regulation and effective use of learning strategies.

Secondly, the flipped classroom approach can be improved by paying attention to students' individual needs in developing self-regulation skills. Teachers can use a differentiation approach to provide support that matches each student's level of readiness and learning style. This includes providing additional materials for students who need additional challenges, as well as additional assistance for students who need extra help in managing time and managing tasks. By considering students' individual needs, a flipped classroom approach can be more inclusive and positively impact all students in achieving their learning goals.

AKNOWLEDGEMENT

The researchers would like to express their gratitude to those who have helped the implementation of this research, especially the supervisors, family and friends who have helped a lot.

REFERENCES

Alamry, A. M. (2017). *Flipped Learning and Self-Regulated Learning Experiences in Higher Education: A Qualitative Case Study*. 393. https://researchdirect.westernsydney.edu.au/islandora/object/uws:45934/datastream/PDF/view

Arbi, A. P. (2024). Optimizing the Use of Artificial Intelligence in English Language Learning: A Literature Review. *Gudang Jurnal Multidisiplin Ilmu*, *2*(2), 25–30. https://doi.org/10.59435/gjmi.v2i2.278

Arbi, A. P., Prasetyo, M. A. T., & Akhlish, M. (2023). Pemahaman Kompetensi Abad 21 dalam Film Freedom Writers (2007). *Prawara: Jurnal Pendidikan Bahasa Dan Sastra Indonesia*, *4*(2), 128-139.

Bingen, H. M., Steindal, S. A., Krumsvik, R., & Tveit, B. (2019). Nursing students studying physiology within a flipped classroom, self-regulation and off-campus activities. *Nurse education in practice*, *35*, 55-62.

Bishop, J. L., & Verleger, M. A. (2013). The flipped classroom: A survey of the research. *ASEE Annual Conference and Exposition, Conference Proceedings*. https://doi.org/10.18260/1-2--22585

Çakiroğlu, Ü., & Öztürk, M. (2017). Flipped classroom with problem based activities: Exploring self-regulated learning in a programming language course. *Educational Technology and Society*, *20*(1), 337–349.

Çakıroğlu, Ü., & Öztürk, M. (2017). Flipped classroom with problem based activities: Exploring self-regulated learning in a programming language course. International Forum of Educational Technology and Society.

Chen, P. Y., & Hwang, G. J. (2019). An IRS-facilitated collective issue-quest approach to enhancing students' learning achievement, self-regulation and collective efficacy in flipped classrooms. *British Journal of Educational Technology*, *50*(4), 1996-2013.

Chen, Y. T., Liou, S., & Chen, L. F. (2019). The relationships among gender, cognitive styles, learning strategies, and learning performance in the flipped classroom. *International Journal of Human–Computer Interaction*, *35*(4-5), 395-403.

Er, E., Kopcha, T. J., Orey, M., & Dustman, W. (2015). Exploring college students' online help-seeking behavior in a flipped classroom with a web-based help-seeking tool. *Australasian Journal of Educational Technology*, *31*(5).

Fautch, J. M. (2015). The flipped classroom for teaching organic chemistry in small classes: is it effective?. *Chemistry Education Research and Practice*, *16*(1), 179-186.

Fauzan, M., Haryadi, H., & Haryati, N. (2021). Penerapan Elaborasi Model Flipped Classroom dan Media Google classroom Sebagai Solusi Pembelajaran Bahasa Indonesia Abad 21. *DWIJA CENDEKIA: Jurnal Riset Pedagogik*, *5*(2), 361. https://doi.org/10.20961/jdc.v5i2.55779

Hardin, B. L., & Koppenhaver, D. A. (2016). Flipped professional development: An innovation in response to teacher insights. *Journal of Adolescent & Adult Literacy*, *60*(1), 45-54.

Hewitt, K. K., Journell, W., & Zilonka, R. (2014). What the flip: impact of flipped instruction on self-regulated learning. *International Journal of Social Media and Interactive Learning Environments*, *2*(4), 303. https://doi.org/10.1504/ijsmile.2014.067638

Mohamed, H., & Lamia, M. (2018). Implementing flipped classroom that used an intelligent tutoring system into learning process. *Computers & Education*, *124*, 62-76.

Musfa'ah, A., Slamet, J., & Arbi, A. P. (2022). Pelatihan Pembuatan Video Pembelajaran Berbasis KineMaster untuk Pendidik di SDN Petemon X/358 Surabaya. Jurnal Abdidas, 3(4), 748-755.

Ng, E. M. (2018). Integrating self-regulation principles with flipped classroom pedagogy for first year university students. *Computers & Education*, *126*, 65-74.

Prasetyo, M. A. T., Arbi, A. P., & Jalil, A. (2023). Enhancing Education Quality at SMP Islam Insan Kamil Wonoayu Amidst the Merdeka Curriculum. *Jurnal Filsafat, Sains, Teknologi, Dan Sosial Budaya*, *29*(4).

Rasheed, R. A., Kamsin, A., Abdullah, N. A., Kakudi, H. A., Ali, A. S., Musa, A. S., & Yahaya, A. S. (2020). Self-regulated learning in flipped classrooms: A systematic literature review. *International Journal of Information and Education Technology*, *10*(11), 848–853. https://doi.org/10.18178/ijiet.2020.10.11.1469

Shyr, W. J., & Chen, C. H. (2018). Designing a technology-enhanced flipped learning system to facilitate students' self-regulation and performance. *Journal of Computer assisted learning*, *34*(1), 53-62.

Silva, J. C. S., Zambom, E., Rodrigues, R. L., Ramos, J. L. C., & de Souza, F. D. F. (2018). Effects of learning analytics on students' self-regulated learning in flipped classroom. *International Journal of Information and Communication Technology Education (IJICTE)*, *14*(3), 91-107.

Sletten, S. R. (2015). *Investigating Flipped Learning : Post-Secondary Student Self- Regulated Learning , Perceptions , and Achievement*. *December*, 116.

Sun, Z., Xie, K., & Anderman, L. H. (2018). The role of self-regulated learning in students' success in flipped undergraduate math courses. *The internet and higher education*, *36*, 41-53.

Widodo, J. P., & Slamet, J. (2020). Students' Perception Towards Google Classroom as E-Learning Tool (A Case Study of Master of English Education of the Second Semester at STKIP PGRI Sidoarjo). *Magister Scientiae*, *2*(48), 99–109.

Widodo, J. P., & Slamet, J. (2021). Lecturers' Perspectives Through E-learning by Using Moodle for Post-Graduate Students at STKIP PGRI Sidoarjo. *International Seminar on Language, Education, and Culture (ISoLEC 2021)*, 161–171.

Widodo, P., Subandowo, M., Musyarofah, L., & Slamet, J. (2023). Interactive gamification-flip-book for developing students' outcomes. *Advances in Mobile Learning Educational Research*, *3*(2), 754–762. https://doi.org/10.25082/amler.2023.02.002