

Research Paper

A Review of the Effectiveness of the Flipped Teaching Method on Self-directed Learning and Information Literacy

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ABSTRACT

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The flipped classroom method is a modern teaching approach where learners, instead of passively listening to lectures in class, first study the materials outside the classroom and then actively engage in learning through exercises and puzzles during class. Initial evidence suggests that the flipped teaching method can contribute to improving learning outcomes and better understanding of the content. Descriptive and documentary research method is one of the research methods in humanities and social sciences that focuses on interpreting documents and records related to the research topic. The results have shown that the use of the flipped teaching method can significantly enhance self-directed learning and information literacy among learners. This teaching approach, by emphasizing students' investigative and analytical activities, improves their ability to process information and evaluate sources. This review confirms positive and meaningful outcomes in the realm of self-directed learning and information literacy, emphasizing that the flipped teaching method can serve as an effective tool in enhancing student learning.

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Introduction

In today's fast-paced world, the survival of educational systems through traditional teaching, relying solely on textbook content, and viewing students as passive recipients and the center of teacher knowledge is no longer feasible. Many researchers in various countries have sought to address this emerging issue by presenting new teaching and learning methods, analyzing and evaluating these methods, and all agree that traditional teaching methods are no longer responsive to the needs of 21st-century learners (Saber Dehkordi et al., 2019). Nowadays, society requires innovative and creative teaching models to prepare students to cope with life crises, seize opportunities, and utilize their own abilities and creativity. Therefore, instead of memorization, students should learn how to learn through critical thinking and systematic problem-solving in a scientific way. One of these modern and active teaching methods is the flipped classroom method.

In the flipped classroom method, the instructor provides learners with the intended content for teaching before attending class. Learners, in environments other than the classroom, such as at home, individually or in groups, learn educational content such as written materials, instructional videos, slideshows, audio files, etc. These activities replace classroom teaching, hence the term "flipped teaching method" (Eslam et al., 2023).

In the flipped classroom method, there is less time constraint, and teachers can easily implement active learning strategies. Continuous student observation for appropriate feedback from their activities will be easily possible. If a teacher cannot attend the class for any reason, students' learning will not be interrupted, and they can continue the learning process under such circumstances. On the other hand, the absence of students from the classroom will not have much impact on learning because students will be able to adapt themselves to the existing conditions using textbooks, instructional videos, slides, and the like (Abolghasemi & Mohammadi, 2020).

Furthermore, the flipped classroom engages students in the learning process. In this method, learners receive their topics through instructional resources, and class time is allocated to learning more difficult concepts or applying concepts in practice. Moreover, the design of the teaching model in the flipped classroom is very different, where the teacher presents all or some of the instructional content that students need more understanding of outside the classroom using media tools. This helps strengthen student learning and understanding (Khashnood et al., 2021).

Today, emphasis is placed on the need for educational outcomes to include critical thinking skills, self-directed learning abilities, and logical behavior in the face of life's complex issues. In the present era, self-directed learning is defined as a tendency to take an active and self-initiated approach to learning activities and learning situations related to work, and to persevere in overcoming learning obstacles (Farah & Shahtalebi, 2018). The creation and enhancement of self-directed learning is considered one of the important goals of education because it is expected that students reach a level of personal competence where, without being placed in a special educational system, they can identify their educational needs, strive to address them, and ultimately evaluate their own learning. Self-directed learning is a continuous process experienced by individuals throughout their lives, enabling them to become competent in dealing with environmental and educational challenges and acquire the necessary skills for learning (Alimardani & Purkarimi, 2022).

On the other hand, the world is rapidly changing, and students are obligated to update their knowledge because in the information age, students need not only basic literacy skills such as reading, writing, and arithmetic, but also information literacy. Information literacy refers to the ability to effectively access valuable information, awareness of how to organize knowledge and information, various search methods, the ability to identify problems, and recognize the most effective information for solving them (Sadeghi-Majd & Fadaei-Ghamshi, 2021). Information literacy is a means of individual empowerment, and this capability helps individuals analyze and conduct research independently. Information

literacy empowers individuals to engage in discussions, prepares them for lifelong learning, and enables individuals to enjoy success in meeting their informational needs (Shin & Wang, 2023). Therefore, students' possession of information literacy will lead to an improvement in their academic performance.

The flipped classroom, as a modern teaching method, is a theory that is used to describe a teaching approach where students, instead of just listening to lectures in class, first study the material outside of class and then actively participate in the learning process in the classroom through exercises and puzzles. Initial evidence suggests that the flipped classroom method can help improve learning and better understanding of the material. This is because by studying the material autonomously, students become more engaged and informed about exactly what they know and the challenges they face. Additionally, the flipped classroom method can strengthen various skills in students, including self-directed learning abilities and information literacy. In this method, students are required to study the material autonomously and independently search for and extract the information they need in order to achieve the best results from their learning process. It can be said that the flipped classroom method has a significant impact on students' self-directed learning abilities and information literacy, and it can improve their learning. However, for this method to be implemented effectively, it is necessary for teachers and students to collaborate and use appropriate tools.

Methodology:

The descriptive and documentary research method is one of the research methods in the social sciences and humanities that focuses on interpreting documents and records related to the research topic. This method is part of qualitative research and involves examining culture, history, ideology, politics, or any other topic for which relevant documents or records exist.

The descriptive and documentary research method includes the following

stages:

Document collection: This stage involves gathering documents, texts, newspapers, statistical information, interviews, television broadcasts, and other relevant sources. These documents can be collected from primary sources such as archives and libraries, or secondary sources such as books, articles, and analyses.

Classification and organization: After collection, the documents are classified and organized. This process depends on identifying subjects, types of documents, and the classification system used.

Interpretation and analysis: In this stage, the documents are examined and analyzed. Interpretation and analysis of documents may include content evaluation, thematic analysis, finding relationships between topics, data extraction, and result formulation.

Interpretation of reactions: In this stage, people's reactions and opinions to the examined documents are analyzed. This may include literary analysis, social analysis, and surveys.

Reporting results: In this stage, the research results are compiled into a final report. This report may include descriptions and analyses of documents, research findings, and the results of reactions.

Results:

Considering the different studies analyzed in this study, the results of this documentary analysis is given as below.

Zarei Afian and Ahmadi Farsani (2023) conducted a study titled "A Comparison of the Effectiveness of Traditional Teaching Method and Flipped Classroom Teaching Method in Learning Persian: Assessment Based on Bloom's Cognitive Learning Levels" on 30 sixth-grade students in District 14 of Tehran. They found that there is a significant difference between the two groups in the variables of application, analysis, synthesis, and evaluation, but not in the variables of knowledge and understanding. Overall, the flipped teaching method is preferred over the traditional method in promoting learning at higher cognitive levels

classified by Bloom.

Kasraei Nezhani (2023), in a study titled "Investigating the Effect of Flipped Teaching Method on Students' Learning Levels," found that the flipped teaching approach increases students' engagement with the content, improves teacher-student interaction, and consequently enhances students' learning. Razm et al. (2022), in a study titled "Investigating the Effectiveness of the Flipped Classroom Method on Information Literacy and Academic Motivation of Female High School Students," conducted their research on 50 female high school students in Ahvaz. They concluded that the flipped teaching method has a positive and significant effect on students' information literacy and academic motivation, and this effect persists for a follow-up period of one month.

Moradi Doliskani et al. (2022), in a study titled "The Impact of the Flipped Classroom Teaching Method on Academic Self-Efficacy and Self-Directed Learning of Students in English Language Course," conducted their research on 30 students at Payam Noor University in Delijan. They found that the flipped classroom teaching method significantly increases students' academic self-efficacy and self-directed learning (self-control, interest in learning, and self-management).

Khosnood and colleagues (2021), in a study titled "Comparing the Effectiveness of Flipped Classroom and Social Media-Based Classroom on Creativity and Self-directed Learning of Male High School Art Students in Abadan County," conducted their research on 60 high school students in Abadan County. They found that both the flipped classroom and social media-based classroom have a positive and significant effect on the creativity and self-directed learning of male high school art students in Abadan County. Additionally, the flipped classroom, compared to the social media-based classroom, has a greater positive impact on creativity and self-directed learning.

Shah Mohammadi and colleagues (2020), in a study titled "The Effectiveness of Flipped Learning Method on Increasing Self-directed Learning and Academic Achievement of Sixth Grade Students in Science Course," conducted their research on 30 sixth-grade students in Tehran. They found that the flipped learning method

leads to increased self-directed learning and its components (self-management, self-regulation, and self-motivation) in students. Additionally, teaching using the flipped method enhances the academic achievement of sixth-grade students in the science course.

Ali-Pour and colleagues (2020), in a study titled "Exploring Students' Experiences and Perception of the Impact of Flipped Learning on Technology Literacy," conducted their research on 15 fifth-grade male students at Ibn Sina Elementary School in Birjand who had experienced flipped classrooms. They found that learning through the flipped method has a positive impact on students' technology literacy in hardware and software dimensions. Additionally, it leads to a change in parents' beliefs about technology and increases their technology literacy.

Abolghasemi and Mohammadi (2020), in a study titled "Investigating the Effect of Flipped Learning Method on Attitude and Performance in Elementary School Mathematics Class," conducted their research on fourth-grade male students in Najafabad City. They found that the flipped learning method has a positive and significant effect on the attitude and academic performance of students in mathematics class.

Rafiepour and Khosali (2020), in a study titled "The Effect of Flipped Teaching Method on Mathematics Learning Progress among Seventh-Grade Female Students," conducted their research on 60 seventh-grade female students in a center in one of the southeastern provinces of Iran. They found that although the performance of the experimental group (flipped classroom) was better than the control group, this difference was not significant. Therefore, teaching using the flipped method did not have a significant effect on the learning progress of seventh-grade female students in mathematics.

Huang and colleagues (2023), in a study titled "The Impact of Flipped Classroom Method Based on Digital Game on Learning Effectiveness of Students with Different Levels of Prior Knowledge," found that the flipped classroom method based on digital games had a positive and significant effect on student

learning. Additionally, learners with low prior knowledge, who initially lacked basic knowledge, became more interested in focusing on cognitive learning processes and significantly improved their learning effectiveness through participation in the class.

Toran (2023), in a study titled "Assessing Whether Flipped Classrooms Improve Student Learning in Science Education: A Systematic Review and Meta-Analysis," found that flipped classrooms significantly improved student learning in science education.

Huang and Chen (2023), in a study titled "The Effects of a Flipped Classroom Enhancing Collaborative Problem-Solving on Learning Performance and Interactive Patterns of Students," found that students in a flipped classroom focused on enhancing collaborative problem-solving not only had better learning performance and collective efficacy but also exhibited higher levels of knowledge and deeper interactions.

Ekici (2021), in a study titled "A Systematic Review of Gamification Applications in Flipped Learning," found that adding game elements to a flipped classroom significantly increases motivation, participation, and learning performance of students, leading to improved academic progress.

Tsai and colleagues (2020), in a study titled "Flipped Classroom Method for Enhancing Learning Performance, Motivation, Teacher-Student Interaction, and Student Creativity in the Classroom," found that the flipped classroom effectively improves student performance, learning motivation, student participation, teacher-student interactions, peer interactions, and creativity.

Suvikas and Kaiser (2020), in a study titled "Flipped Classroom as an Approach in Mathematics Education," found that the flipped classroom enhances students' mathematical thinking and understanding. Additionally, teachers can develop students' mathematical potential through the flipped teaching method.

Discussion and Conclusion:

The flipped classroom method involves a shift in the placement of instructional materials. In this approach, students study the educational content before class, and the concepts learned are reinforced during the classroom session by instructors. This method aims to increase student participation, encourage advanced critical thinking, provide opportunities for challenges and problem-solving, and create a platform for collaboration and group discussions. The effectiveness of the flipped classroom method in self-directed learning and information literacy has been investigated through various studies. Some studies have shown that using this method plays a positive role in developing self-directed learning skills and increasing students' information literacy.

For example, students who have participated in a flipped classroom environment have shown to possess greater abilities in finding, evaluating, and utilizing informational resources. Overall, the flipped classroom method allows students to be more self-directed in their learning and, in general, more effective. This method encourages students to engage in advanced and critical thinking, enabling them to make the best possible use of educational resources. Additionally, by creating opportunities for discussion and exchange of ideas, this method enhances students' communication and interactive skills. Ultimately, this discussion indicates that the flipped classroom method can play a highly effective role in strengthening students' self-directed learning skills and information literacy. By fostering opportunities for advanced thinking, discussion, and interaction, it creates a more beneficial and effective learning environment for students.

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