Meta-analysis of developing autonomous learning strategies through Flipped Learning

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ABSTRACT

This article presents a meta-analysis of the effectiveness of Flipped Learning in fostering autonomous learning strategies. The study examines various theoretical and empirical sources, highlighting how Flipped Learning environments promote self-regulated learning, critical thinking, and problem-solving skills. The review synthesizes existing literature, analyzing methodologies, findings, and gaps. The findings suggest that Flipped Learning enhances learner autonomy through active engagement, personalized learning, and digital resources. Additionally, the study discusses challenges, including student motivation and technological accessibility, and proposes strategies for effective implementation.

Flipped learning orqali mustaqil oʻqish strategiyalarini rivojlantirishning meta-tahlili

ANNOTATSIYA

Ushbu maqolada Flipped Learning yondashuvi orqali talabalar mustaqil taʼlim strategiyalarini shakllantirish jarayoniga oid meta-tahlil keltirilgan. Tadqiqot nazariy va empirik manbalarni oʻrganish orqali Flipped Learning muhitining oʻz-oʻzini boshqarish, tanqidiy fikrlash va muammolarni hal qilish qobiliyatlarini rivojlantirishga qanday taʼsir qilishini tahlil qiladi. Natijalar shuni koʻrsatadiki, Flipped Learning oʻquvchilarning faolligini oshirish, shaxsiy taʼlim yoʻnalishlarini shakllantirish va raqamli resurslar orqali mustaqil oʻrganishni qoʻllab-quvvatlashda samarali vosita boʻlib

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xizmat qiladi. Shuningdek, maqolada talabalar motivatsiyasi va texnologik infratuzilma muammolarini hal qilish strategiyalari muhokama qilinadi.

Мета-анализ развития стратегий автономного обучения через перевернутое обучение

Ключевые слова:
перевернутое обучение,
автономное обучение,
саморегуляция, цифровое
образование,
активное участие,
персонализированное
обучение,
критическое мышление,
стратегии обучения.

АННОТАЦИЯ

В данной статье представлен мета-анализ эффективности модели перевернутого обучения (Flipped Learning) в развитии стратегий автономного обучения. Исследование включает анализ теоретических и эмпирических источников, выявляя, как перевернутое обучение способствует саморегуляции, критическому мышлению и решению проблем. Результаты показывают, что перевернутое обучение улучшает автономию учащихся за счет активного вовлечения, персонализированного обучения и использования цифровых ресурсов. Также обсуждаются проблемы, связанные с мотивацией студентов и доступностью технологий, предлагаются стратегии для эффективной реализации данной методики.

INTRODUCTION

In recent years, the rapid advancement of technology has significantly influenced educational practices, shifting traditional teacher-centered approaches to more learner-centered methodologies. One such innovation is flipped learning, which redefines classroom interactions by integrating pre-class self-learning with in-class active engagement. This pedagogical model allows students to take responsibility for their learning by engaging with materials before class and using face-to-face sessions for discussions, problem-solving, and collaborative activities (Bergmann & Sams, 2012). Flipped learning thus aligns with the broader concept of autonomous learning, which emphasizes students' self-regulation, motivation, and critical thinking abilities.

Autonomous learning has become a key educational goal, especially in higher education, where students are expected to take ownership of their learning processes. Holec (1981) defined autonomy as the learner's ability to take charge of their learning, which includes goal-setting, monitoring progress, and self-reflection. Flipped learning facilitates this process by shifting instructional content outside the classroom, allowing students to learn at their own pace and engage with materials more deeply. Research suggests that flipped learning fosters student autonomy by encouraging self-paced learning, personalized study plans, and digital literacy (Strayer, 2012).

However, while the benefits of flipped learning in promoting autonomous learning strategies are widely acknowledged, there are also challenges. Some students struggle with self-discipline and time management in flipped learning environments, leading to inconsistent learning outcomes. Moreover, technological disparities and students' varied digital competencies can impact the effectiveness of flipped classrooms. Thus, a comprehensive meta-analysis of flipped learning's impact on autonomous learning strategies is needed to explore its advantages, limitations, and best practices.

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LITERATURE REVIEW

The concept of autonomous learning has been extensively studied in educational research. Holec (1981) introduced the notion of learner autonomy, which was later expanded by Little (1991) and Benson (2001), who emphasized the role of self-regulation, goal-setting, and learner control in education. Zimmerman (2000) proposed a self-regulated learning framework, linking autonomy to metacognition, motivation, and behavior. Additionally, Dam (1995) and Oxford (2003) explored how learners develop autonomy through strategic learning techniques and reflective practices.

Flipped learning, introduced by Bergmann and Sams (2012), shifts traditional teaching models by providing instructional content outside the classroom, enabling students to engage in active learning during class time. Studies by Bishop and Verleger (2013) and Abeysekera and Dawson (2015) highlight that flipped learning encourages self-directed study, critical thinking, and collaborative problem-solving, essential for autonomous learning development. Moreover, Strayer (2012) noted that flipped learning enhances student engagement by fostering interactive discussions and real-world problem-solving skills.

Recent meta-analyses (Chen et al., 2018; Lo & Hew, 2017) demonstrate that flipped learning enhances student engagement, motivation, and self-efficacy. The approach allows learners to control their study pace, fostering autonomy. However, research also indicates potential challenges, such as resistance to independent learning and the digital divide (Akçayır & Akçayır, 2018). Furthermore, studies by Sun and Wu (2016) highlight that flipped classrooms require continuous teacher guidance to ensure learners remain motivated and engaged in self-directed learning.

DISCUSSIONS

Flipped learning is based on a different organization of the teacher and students' activities than the generally accepted one. It swaps the contents of homework, independent work, and work in class. Theory and new educational material are studied independently, while practical assignments on the topic are completed in class, various aspects of the new topic and complex issues are discussed and analyzed. Students receive an educational video or an electronic educational resource for studying the material and self-assessment assignments as homework. The key information on the topic is usually presented in a compact, 15–20 minute video. During the lesson, the teacher should organize joint activities on the studied topic: discussions in groups, solving problems, creating mini-projects, conducting laboratory experiments, etc.

The interest in "flipping" traditional classes is due to existing pedagogical problems that make it difficult to achieve high educational results: weak educational and cognitive motivation and responsibility, lack of desire and ability of students to independently acquire knowledge, work independently, the teacher does not have time for an individual approach, frontal work prevails, little time to consolidate and practice the acquired knowledge and skills, etc.

An essential aspect of flipped learning is the focus on activities in the classroom, the audience, and the involvement of students in the educational process.

The value of flipped classes lies in the ability to use class time to discuss the content of theoretical material, check and practice knowledge, and interact with each other in practical activities. During classes, the teacher's role is to act as a consultant and facilitator, encouraging students to act independently and work together. To achieve the planned

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learning outcomes, he must organize, support, direct, and provide feedback. The role of the student also changes: he is an active participant in the learning process. Foreign experts in the field of education call flipped learning one of the innovative approaches that will have the most significant impact on education in the coming years. These include, in particular:

• massive open social learning (organization of networked peer learning with an emphasis on communication and interaction);

• educational design based on data analysis (a strategy for developing and changing the educational trajectory of a course, focused on process technologies, on the step-by-step activities of students and ways for them to achieve the best results, analysis of the obtained data);

• meta-learning (reflection, self-analysis of the rational organization of the educational route, personal dynamics of performance, ways of achieving educational results, setting adequate goals);

• dynamic assessment (assessment of educational results and personal growth relative to previous achievements within the course, stage, module, and not in comparison with other students in the context of short-term results of one lesson) [1].

The feasibility of using flipped learning is also due to the characteristics of Generation Z, which, as a rule, includes those born between 1995 and 2012. Its distinctive features are practicality, the desire to demonstrate their uniqueness and personalize their personal brand, a realistic view of career and leadership, the ability to act in multitasking mode, the need for access to information and constant contact with peers. The preparation of a teacher for a specific flipped lesson involves a methodological analysis and selection of the topic of the lesson; diagnostics of the readiness and knowledge of students for independent study of the material; selection and (or) development of information resources that will be offered to students for independent study, assessment of their compliance with the content of training and age characteristics; planning of the lesson: goal setting, determination of the content of the activity at each stage, determination of criteria for assessing educational results, determination of the content and means of final control. An essential stage in the preparation of a flipped lesson, emphasizes N.N. Zaprudsky, is thinking over the homework that must be completed after viewing and studying the recommended educational resource: an answer to the key question of the topic, formulation of questions that arose in the process of independent work with materials, compilation of tables, diagrams, reference notes that reflect the main content of the topic, and development of criteria for assessing the completed homework [2]. Independent work of students includes: study of new material (presentation, video lecture, text in a textbook); completing tasks according to instructions (formulating questions, drawing up a diagram, completing tasks together, self-assessment tests).

Thus, in the process of using the flipped learning model, the following is flipped:

• the content of the lesson and independent homework;

• the teacher's activities (you need to be an organizer, tutor and consultant, you can form the habit and ability to learn);

• the activities and attitude of students to learning (active participation in the educational process, responsibility for the results).

The flipped learning model is based on the following conceptual ideas:

• activating the learning process, shifting the emphasis from the acquisition of knowledge to the formation of universal competencies;

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• developing the ability to learn independently;

• forming a sense of responsibility for your education;

• individualization of learning;

• using high-quality information on the Internet, involvement in group work;

• the ability of the student to control the pace and time of learning.

The teacher's attention can be focused on the development of individual abilities and skills in solving life's problems: initiative, acceptance of responsibility, focus on results, communication skills, the ability to coordinate one's own and others' interests, etc. This corresponds to the urgent requirement of today to ensure the development of universal personal competencies in education, such as the ability to communicate and cooperate, creativity, and critical thinking. Flipped learning's role in developing autonomous learning strategies has been extensively debated among scholars. Proponents argue that flipped learning cultivates responsibility and self-motivation by enabling students to interact with materials before engaging in classroom activities (Bishop & Verleger, 2013). In contrast, critics highlight difficulties such as students' reluctance to engage in pre-class learning and their varying levels of digital literacy (Lo & Hew, 2017).

Analysis of empirical studies suggests that flipped learning positively influences autonomy when accompanied by structured guidance and technological support. For instance, Chen et al. (2018) found that scaffolding techniques, such as guided questions and formative assessments, improve student independence. Additionally, Akçayır and Akçayır (2018) emphasize that teacher support is crucial in ensuring effective flipped learning experiences. Furthermore, Hwang, Lai, and Wang (2015) stress the importance of interactive technologies in supporting students' self-directed learning efforts.

Despite these advantages, challenges remain. Students with limited digital access or self-regulation skills may struggle in flipped environments. Studies suggest that blending flipped learning with coaching sessions and adaptive learning technologies can mitigate these barriers (Strayer, 2012). Moreover, Jong (2019) points out that student engagement varies depending on discipline, highlighting the need for subject-specific flipped learning strategies. Furthermore, institutions must consider equitable access to digital resources to ensure all students benefit from flipped learning models.

CONCLUSION

Flipped learning has emerged as a powerful approach to fostering autonomous learning strategies, allowing students to take ownership of their education through self-paced study and active classroom engagement. Research supports its effectiveness in enhancing self-regulation, motivation, and critical thinking. However, successful implementation requires addressing potential challenges such as digital accessibility, student self-discipline, and the need for instructor guidance. Future research should explore adaptive learning technologies and personalized scaffolding techniques to optimize flipped learning for diverse student populations. By integrating well-structured digital resources and pedagogical strategies, flipped learning can significantly contribute to the development of autonomous learners in the XXI century.

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