Jurnal Inovasi Teknologi Pendidikan
Volume 11, No. 3, September 2024 (267-284)
Online: http://journal.uny.ac.id/index.php/jitp

Students learning engagement in the flipped classroom: Systematic literature review

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ARTICLE INFO

Article History
Received:
10 January 2024;
Revised:
16 July 2024;
Accepted:
29 July 2024;
Available online:
30 September 2024.

Keywords
Learning engagement;
Flipped classroom;
Students' engagement

ABSTRACT

The flipped classroom offers greater flexibility and meaningfulness in learning activities. Students have more space and time to construct their knowledge and skills freely. However, the presence of students in learning activities does not necessarily guarantee that students are actively engaged in creating their expertise and skills. This study conducts a systematic literature review to investigate effective strategies to ensure students' learning engagement in flipped classrooms and factors that hinder students' learning engagement. It was performed following the Kitchenman and Charter's rules and strategies. The review covered 47 articles that were published between 2018-2023. The significant findings indicated that effective strategies used to ensure and enhance students' learning engagement in the flipped classroom are gamification, providing immediate feedback, timely guidance, working in groups, scaffolding, peer coaching, user-friendly technology, learning videos with a short duration, assignments before in-class session, reflective-thinking strategy, self-regulated learning, and guided questions. Additionally, supporting materials for pre-class sessions, working in groups with the same students, doing the same activities repeatedly, low level of self-regulation, long duration and low quality of learning videos, students' perception toward the roles of the lecturer and lecturer's communicative skills can hinder students from engaging in learning activities. Therefore, when implementing a flipped classroom, the lecturers should facilitate and ignite students' learning needs and interests. Moreover, using user-friendly digital technology is essential to create an atmosphere that encourages students' engagement either in pre-class, in-class, or after-class.

How to cite:
Ridha, M., Rahman, F. & Islamy, M.I. (2024). Students' learning engagement in the flipped classroom: Systematic literature review. *Jurnal Inovasi Teknologi Pendidikan*, *11*(3), 267-284. https://doi.org/10.21831/jitp.v11i3.70562

INTRODUCTION

The flipped classroom is a hybrid learning that proportionally integrates online and offline learning activities (Bergmann & Sams, 2012). Students are asked to learn independently outside class to understand basic content delivered by the lecturer and learn more deeply in class through more challenging activities and the lecturer as a supporting partner. A flipped classroom shifts the lecturer's role from a communicator to a learning facilitator and supporter (Sudiarti et al., 2023). It is not a new learning model, but many educators' experiences and abilities to implement the flipped

classroom are still limited because it is not a common model used, including in higher education (Baig & Yadegaridehkordi, 2023; Mahalli et al., 2023; Wahyuningsih & Afandi, 2023). It is reported that students and educators spend relatively more time and effort in flipped classrooms than in traditionally structured courses (Hung, 2015). Furthermore, lecturers must ensure two parts of activities: independent work outside the classroom and applying knowledge in solving classroom tasks (Gonda et al., 2021). Students who do not have self-directed learning skills in doing the online requirements in pre-class activities will need help knowing what to do in class activities and will feel lost and helpless (Yilmaz, 2017). Implementing flipped classrooms in higher education settings also has unique characteristics and challenges regarding learning engagement. The shift of responsibility of learning from lecturer to student and ensuring students access the prior materials and learn before class independently are crucial and need specific strategies. In addition, Ha et al., (2019) also stated that igniting students' engagement in the classroom is a challenge since cultural factors, including "saving face," maintaining relationships, and deference to the lecturer, often contribute to a prevalent student passivity characterized by a reluctance to express personal viewpoints openly (Ha et al., 2019).

Besides, online and offline learning activities are about delivering the content to students and ensuring the students' responses (Merrill, 2013). In other words, students need to actively engage in the learning process to construct and strengthen knowledge and skills that meet the learning objectives. Student engagement is essential for learning outcomes in higher education (Boulton et al., 2019). Therefore, ensuring students actively engage in the learning process is crucial (Ridha, 2021). In the flipped classroom setting, students' satisfaction strongly predicts learning engagement (Yılmaz, 2022) It indicates that the more satisfied students are, the more engaged they are in learning. It is in line with Souksakhone et al., (2020) that the quality of the relationship between students and lecturers strongly predicts students' learning engagement. Students tend to consider engaging actively in the learning process if the lecturer provides opportunities to discuss with peers and ask freely to the lecturer. In other words, the lecturer's and peers' role in the learning process determines the quality of students' relationships. Furthermore, Wu et al., (2020) also revealed that intrinsic motivation has a relationship with self-efficacy, learning engagement, and performance. It shows that engagement is possibly associated with internal and external factors.

In this article, the researcher aims to investigate factors behind the students' learning engagement in flipped classroom settings. The review articles already published have explored the various effects of the flipped classroom, such as developing critical thinking skills through implementing a flipped classroom, based on articles in the Google Scholar, ResearchGate, EBSCO, and Emerald databases published between 2015-2020 (Nugraheni et al., 2022), trends in implementing flipped classrooms that are relevant to information systems theory based on articles in the IEEE, SAGE, Science Direct, ERIC, Springer, and Google Scholar databases published between 2014-2018 (Al-Emran et al., 2021), opportunities and challenges in implementing the flipped classroom in different fields of study based on research articles contained in the Google Scholar, NREL, Science Direct, and Web of Science databases which have been published from 2009 to 2018 (Al-Samarraie et al., 2020), advantages and challenges of implementing the flipped classroom based on research articles indexed in the ProQuest, Education Resources Information Center (ERIC), and SSCI databases in the period 1980 to 2016 (Akçayır & Akçayır, 2018), and effective flipped classroom features and how to design a flipped classroom to ensure students' active participation in learning based on articles published between 2012 to 2016 (Nguyen & Wang, 2017). However, articles that investigate the strategy to ensure students' learning engagement and factors that hinder students' learning engagement in flipped classrooms are still limited, especially in higher education settings. Therefore, this review answers the research objectives and contributes to learning using flipped classrooms in higher education.

METHOD

The data used in this review came from recent studies that focus on the student's learning engagement in flipped classrooms. The articles that were published between 2018-2023 were systematically reviewed for the current investigation. Keywords such as "flipped classroom and

learning engagement", "inverted classroom and learning engagement", "flipped classroom and student engagement", "inverted classroom and student engagement", and "student learning engagement" were used in a thorough search of the database in Google Scholar. This systematic literature review used the review method developed by Kitchenman & Charters (2007) It has four steps: inclusion and exclusion criteria, article selection process, data coding and analysis, and quality assessment. In the first step, the researcher determined the inclusion and exclusion criteria.

Table 1. The Inclusion & Exclusion Criteria

No.	Inclusion Criteria	Exclusion Criteria
1	Must be a Journal Article or Conference Proceeding	Dissertation & Thesis are not Included
2	Must be an Article about Flipped Classrooms in Higher Education Settings	Review Articles and Book Chapters are Excluded
3	Must Describe or Explain the Strategy to Ensure Students' Engagement	Articles that only Mention the Effect of Flipped Classrooms Generally
4	Must Describe or Explain the Factors that Help Ensure Student Engagement.	Articles about Flipped Classrooms other than Higher Education are not Included.

In the second step, the researcher conducted an article selection process. It is conducted based on the "Preferred Reporting Items for Systematic Reviews & Meta-Analysis (PRISMA)".

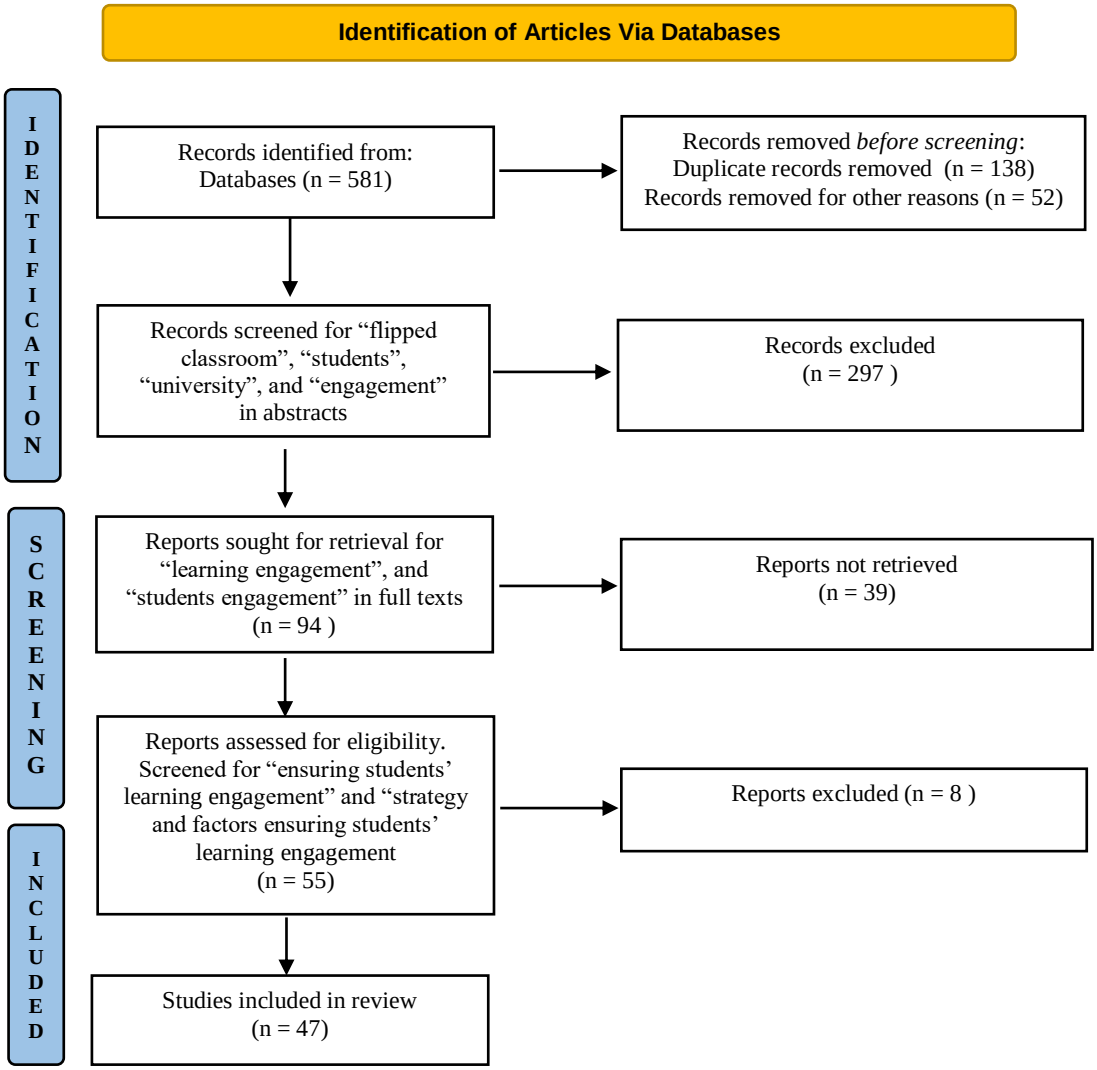

Figure 1. PRISMA Flowchart for Article Selection Process

The third step is coding and analyzing the data. Six features related to the quality of the research methodology were coded, including 1) research objectives, 2) flipped classroom design, 3) method, 4) participant, 5) the result, and 5) discussion. In the last step, the researcher measured the weight of the articles to ensure the quality and enhance the interpretation of the findings. Instruments used in assessing the quality of this article using a series of list questions include 1) clarity of research objectives; 2) clarity of the flipped classroom implementation; 3) clarity of the research methods and data collector; 4) clarity on the number of research participants; 5) completeness of the research result; and 6) clarity of analysis of research results. Each question is graded using a three-point scale, where "Yes" is worth 1 point, "No" is worth 0 points, and "Partially" is worth 0.5 points.

Table 2. The Quality Assessment Results

No.	Articles	Q1	Q2	Q3	Q4	Q5	Q6	Total
1	Article -1	1	1	1	1	1	1	6
2	Article - 2	1	0.5	1	1	1	1	5.5
3	Article - 3	1	1	1	1	1	1	5
4	Article - 4	1	1	1	0.5	1	1	5,5
5	Article - 5	1	1	1	1	1	1	6
6	Article - 6	1	0.5	0.5	1	1	1	5
7	Article - 7	1	1	1	1	1	1	6
8	Article - 8	1	0.5	1	1	1	1	5.5
9	Article - 9	1	1	1	1	1	1	6
10	Article - 10	1	0.5	1	0.5	1	1	5
11	Article - 11	1	1	1	1	1	1	6
12	Article - 12	1	0.5	1	1	1	0.5	5
13	Article - 13	1	1	1	1	1	1	6
14	Article - 14	1	0.5	1	1	1	1	5.5
15	Article - 15	1	1	1	1	1	1	6
16	Article - 16	1	1	1	1	1	1	1
17	Article - 17	1	1	1	1	1	1	1
18	Article - 18	1	1	1	1	1	1	1
19	Article - 19	1	1	1	1	1	1	1
20	Article - 20	1	1	1	1	1	1	1
21	Article - 21	1	1	1	1	1	1	1
22	Article - 22	1	1	1	1	1	1	1
23	Article - 23	1	1	0.5	1	0.5	1	5
24	Article - 24	1	1	1	1	1	1	6
25	Article - 25	1	1	1	1	1	1	6
26	Article - 26	1	1	1	1	1	1	6
27	Article - 27	1	1	1	1	1	1	6
28	Article - 28	1	1	1	1	1	1	6
29	Article - 29	1	1	1	1	1	1	6
30	Article - 30	1	1	1	1	1	1	6
31	Article - 31	1	0.5	1	1	1	1	5.5
32	Article - 32	1	1	1	1	1	1	1
33	Article - 33	1	1	1	1	1	1	1
34	Article - 34	1	1	1	1	1	1	1
35	Article - 35	1	1	1	1	1	1	1
36	Article - 36	1	1	1	1	1	1	1
37	Article - 37	1	0.5	1	1	1	1	5.5
38	Article - 38	1	0.5	1	1	1	1	5.5
39	Article - 39	1	1	1	1	1	1	6
40	Article - 40	1	1	1	0.5	1	1	5.5
41	Article - 41	1	1	1	1	1	1	6
42	Article - 42	1	1	1	1	1	1	6
43	Article - 43	1	1	1	0.5	1	1	5.5
44	Article - 44	1	1	1	1	1	1	1
45	Article - 45	1	1	1	1	1	1	1

No.	Articles	Q1	Q2	Q3	Q4	Q5	Q6	Total
46	Article - 46	1	1	1	1	0.5	1	5.5
47	Article - 47	1	1	1	1	1	1	6

In short, all the articles (n = 47) are eligible to be used for further analysis.

RESULTS AND DISCUSSION

Results

Out of the total number (N = 581) of articles collected for the analysis, it seems that only several articles (N = 47) have met the criteria.

Table 3. Articles for Systematic Literature Review

No.	Author & Year	Title of Articles	Journal Ranks	Outcome Summary
1	Kay et al., (2019)	A Comparison of Lecture-Based, Active, and Flipped Classroom Teaching Approaches in Higher Education	Scopus Q1	Active Learning was Better than Lectures in Fostering Teaching, Social, and Cognitive Presence. Besides, Social Presence is Significantly Higher for the Active and Flipped Classroom.
2	Lai et al., (2021)	A Multilevel Investigation of Factors Influencing University Students' Behavioral Engagement in Flipped Classrooms	Scopus Q1	Autonomous and Controlled Motivation, Perceived Self-Efficacy, and Instructor Competence Influenced Student Engagement.
3	Steen-Utheim & Foldnes (2018)	A Qualitative Investigation of Student Engagement in a Flipped Classroom	Scopus Q1	Students Reported Enhanced Learning Experiences and Increased Engagement Within the Flipped Classroom Model.
4	Hussain et al., (2020)	A Quasi-Qualitative Analysis of Flipped Classroom Implementation in an Engineering Course: from Theory to Practice	Scopus Q1	The Flipped Classroom Improved Academic Performance and Enhanced Student Engagement with Peers and Instructors.
5	Chen et al., (2019)	A Reflective Thinking-Promoting Approach to Enhancing Graduate Students' Flipped Learning Engagement, Participation Behaviors, Reflective Thinking, and Project Learning Outcomes	Scopus Q1	The Proposed Approach Significantly Improved Students' Learning Design Project Outcomes and Reflective Thinking Abilities. It also Enhanced Student Engagement and Participation.
6	Yilmaz (2022)	An Investigation into the Role of Course Satisfaction on Students' Engagement and Motivation in a Mobile-Assisted Learning Management System Flipped Classroom	Scopus Q1	Student Satisfaction in a Mobile-Based Flipped Classroom was Correlated with Levels of Engagement and Motivation Exhibited During Academic Tasks.
7	Tomas et al., (2019)	Are First-year Students Ready for a Flipped Classroom? A Case for a Flipped Learning Continuum	Scopus Q1	Students Reported High Levels of Engagement with the Video Content and Perceived it as Beneficial to their Learning.

No.	Author & Year	Title of Articles	Journal Ranks	Outcome Summary
8	He (2020)	Construction of a "Three-stage Asynchronous" Instructional Mode of Blended Flipped Classroom based on a Mobile Learning Platform	Scopus Q1	It Enhanced Academic Performance, Learner Autonomy, Cultivation of Collaborative Inquiry, Increased Learning Enthusiasm, Improved Classroom Engagement, Disciplined Attendance, and Strengthened Self-Efficacy.
9	Czaplinski & Fielding (2020)	Developing a Contextualized Blended Learning Framework to Enhance Medical Physics Student Learning and Engagement	Scopus Q1	Analysis of Survey Data Revealed an Overall Increase in Student Engagement with Learning Activities and Content.
10	Yoon et al., (2021)	Designing Supports for Promoting Self-Regulated Learning in the Flipped Classroom	Scopus Q1	The Experimental Group Demonstrated Significantly Higher Self-Regulated Learning Skills, Pre-Class Behavioral Engagement, in-Class Cognitive Engagement, and Overall Emotional Engagement than the Control Group.
11	Xu et al., (2021)	Effects of the Flipped Classroom Model on Student Performance and Interaction with a peer-coach Strategy	Scopus Q2	The Findings Revealed Improved Student Engagement and Out-of-Class Interaction Through Peer Coaching. There was also an Expanded Network of Interaction and Engagement with Tutors, Group Members, and Peers from other Groups.
12	Yu & Gao (2022)	Effects of Video Length on a Flipped English Classroom	Scopus Q1	The Shorter Video Durations in Group A yielded Superior Outcomes to Longer Videos in Groups B And C Regarding English Proficiency, Student Engagement, and Overall Satisfaction within the Flipped.
13	Pasaribu & Wulandari (2021)	EFL Teacher Candidates' Engagement in Mobile-Assisted Flipped Classroom	Scopus Q2	The Results Demonstrated that the Flipped Course Model Fostered Enhanced Emotional, Behavioral, Cognitive, Social, and Affective Engagement Among Learners.
14	Howell (2021)	Engaging Students in Education for Sustainable Development: The Benefits of Active Learning, Reflective Practices and Flipped Classroom Pedagogies	Scopus Q1	Over 90% of Respondents Concurred that in-Class Active Learning Exercises Enhanced Engagement and Retention of Course Material Compared to Traditional Methods.

No.	Author & Year	Title of Articles	Journal Ranks	Outcome Summary
15	Fang et al., (2022)	Exploring Student Engagement in Fully Flipped Classroom Pedagogy: Case of an Australian Business Undergraduate Degree	Scopus Q2	The Results Revealed Factors Influencing Student Engagement, Explicitly Focusing on Self-Efficacy, Emotional State, Well-Being, and a Sense of Belonging.
16	Malik et al., (2018)	Exploring the Relationship Between Student Engagement and New Pedagogical Approaches	Int. Journal	The Flipped Approach Positively Impacted Students' Physical and Cognitive Engagement. However, no Significant Improvement was Observed in their Emotional Engagement.
17	Ng & Lo (2022)	Flipped Classroom and Gamification Approach: Its Impact on Performance and Academic Commitment to Sustainable Learning in Education	Scopus Q1	The Gamification in Traditional Classrooms Positively Impacted Learner Achievement, while Gamified Flipped Classrooms Fostered Enhanced Learner Engagement.
18	Bates & Ludwig (2020)	Flipped Classroom in a Therapeutic Modality Course: Students' Perspective	Scopus Q1	Students Perceived the Flipped Classroom as a Valuable Pedagogical Approach Fostering Active Participation and Enhanced Preparedness for in-Class.
19	Antonis et al., (2023)	Flipped Classroom with Team-based Learning in Emergency Higher Education: Methodology and Results	Scopus Q1	The Flipped Classroom Augmented Student Engagement with Course Materials and Improved Academic Performance.
20	Rajaram (2019)	Flipped Classrooms: Providing a Scaffolding Support System with Real-time Learning Interventions	Int. Journal	Most Students Reported a Positive Learning Experience. The Design Effectively Enhanced Student Engagement Fostered Collaborative Learning and Cultivated Higher Levels of Critical Thinking.
21	Lee & Wallace (2018)	Flipped Learning in the English as a Foreign Language Classroom: Outcomes and Perceptions	Scopus Q1	Results Indicate that Students in the Flipped Classroom Demonstrated Significantly Higher Average Scores on the Final Three Assessments. Also, the Instructor Observed Heightened Levels of Student Engagement in the Flipped Class.
22	Loveys & Riggs (2019)	Flipping the Laboratory: Improving Student Engagement and Learning Outcomes in Second-Year Science Courses	Scopus Q1	Pre-Laboratory Activities Effectively Bridge the Theoretical and Practical Aspects of the Course (65%) and Enhance Overall

No.	Author & Year	Title of Articles	Journal Ranks	Outcome Summary
				Student Engagement with the Course Material (79%).
23	Durrani et al., (2022)	Gamified Flipped Classroom versus Traditional Classroom Learning: Which Approach is More Efficient in Business Education?	Scopus Q1	The GFC Demonstrated Greater Efficiency than the Traditional in Terms of Technique Complexity, Task Focus, Student Engagement, Satisfaction, Knowledge Acquisition, and Motivation.
24	Ho (2020)	Gamifying the Flipped Classroom: How to Motivate Chinese ESL Learners?	Scopus Q1	The Students Perceived the Group-Based Game Task as more Effective than the Group Discussion Task. This Fosters a Positive Classroom Environment and Encourages Students to Practice English.
25	Borit & Stangvaltaite -Mouhat (2020)	GoDental! Enhancing Flipped Classroom Experience with Game-based Learning	Scopus Q1	Most Students (97%) Reported a Positive Experience with the Game-Based Learning Flipped Classroom, Significantly Enhancing Student Engagement, Motivation, Social Integration, and Concentration.
26	Sammel et al., (2018)	Hidden Expectations Behind the Promise of the Flipped Classroom	Scopus Q3	Most Participants Expressed Satisfaction with Learning Outcomes and Reported Positive Experiences with the Online Video. However, Compliance with the Mandatory Viewing Requirement of Eight Weekly Videos was Inconsistent.
27	Lewis-Kipkulei et al., (2021)	Increasing Student Engagement via a Combined Roundtable Discussion and Flipped Classroom Curriculum Model in an OT and Special Education Classroom	Scopus Q2	The Findings Indicate that the Combined Roundtable Discussion and Flipped Classroom Curriculum Model Positively Influenced Student Engagement and Participation.
28	Abdullah et al., (2019)	Investigating the Effects of the Flipped Classroom Model on Omani EFL Learners' Motivation Level in English Speaking Performance	Scopus Q1	The Flipped Classroom Model Fostered a Creative, Engaging, and Motivating Atmosphere within the EFL-Speaking Classroom.
29	Alebrahim & Ku (2020)	Perceptions of Student Engagement in the Flipped Classroom: A Case Study	Scopus Q2	Findings Revealed a Spectrum of Opinions Regarding Flipped Classroom Implementation, Influenced by Factors such as Student Engagement and Classroom Environment. Student Participants also

No.	Author & Year	Title of Articles	Journal Ranks	Outcome Summary
				Expressed Enthusiasm for the Model's Challenging Nature.
30	Gu et al., (2022)	Promoting Pre-service Teacher Students' Learning Engagement: Design-Based Research in a Flipped Classroom	Scopus Q2	Findings Revealed a Significant Enhancement in Students' Behavioral, Cognitive, and Emotional Engagement Following Three Rounds of Interactive Experimentation.
31	Ling et al., (2019)	Promoting Student Engagement Using Flipped Classroom in Large Introductory Financial Accounting Class	Scopus Non-Q	The Study Demonstrated a Positive Correlation Between the Flipped Classroom and Enhanced Student Engagement. Specifically, the Model Facilitated Improved Comprehension and Fostered more Interactive Discussions.
32	Zain & Sailin (2020)	Students' Experience with Flipped Learning Approach in Higher Education	Scopus Non-Q	The Findings Identified Critical Components of Student Engagement within the Flipped Learning Approach: Enjoyment of the Learning Process, Active Participation, Collaborative Learning, and the Effective Integration of Technology.
33	Pan & Mow (2023)	Study on the Impact of Gamified Teaching Using Mobile Technology on College Students' Learning Engagement	Scopus Non-Q	The Study Revealed a Significant Improvement in Test Scores and Indicated Significant Differences in Behavioral, Cognitive, and Emotional Learning Engagement Between the Experimental and Control Groups.
34	Talan & Selvinc (2019)	The Effect of a Flipped Classroom on Students' Achievements, Academic Engagement, and Satisfaction Levels	Scopus Q2	The Experimental Groups Exhibited Significantly Higher Academic Achievement and Engagement than the Control Group. Students also Expressed Overall Satisfaction with the Flipped Classroom.
35	Ruiz (2021)	The Effect of Integrating Kahoot! and Peer Instruction in the Spanish Flipped Classroom: The Student Perspective	Scopus Q1	The Students Perceived Kahoot! as a Valuable Tool for Enhancing Engagement And Motivation, Facilitating Improved Comprehension, and Cultivating a Positive Learning Environment.
36	Elmaadaway (2018)	The Effects of a Flipped Classroom Approach on Class Engagement and Skill Performance in a	Scopus Q1	Findings Indicated Significantly Higher Levels of Activity and Engagement Among Participants in the

No.	Author & Year	Title of Articles	Journal Ranks	Outcome Summary
		Blackboard Course		Experimental Group Compared to the Control Group.
37	Doo & Bonk (2020)	The Effects of Self-Efficacy, Self-Regulation, and Social Presence on Learning Engagement in a Large University Class u Using Flipped Learning	Scopus Q1	Self-Regulation Exerted a Direct Influence on both Social Presence and Learning Engagement.
38	Hava (2021)	The Effects of the Flipped Classroom on Deep Learning Strategies and Engagement at the Undergraduate Level	Scopus Q3	The Study Findings Demonstrated that the Flipped Classroom is Better than the Traditional One in Facilitating the Utilization of Deep Learning Strategies, Enhancing Cognitive and Emotional Engagement.
39	Jung et al., (2022)	The Effects of the Regulated Learning-Supported Flipped Classroom on Student Performance.	Scopus Q1	The Study Revealed a Significant Positive Correlation Between the Flipped Classroom Model and Regulatory Guidance. However, no Evidence was Found in Pre-Class Activity Engagement.
40	Khan & Watson (2018)	The Flipped Classroom with Tutor Support: An Experience in a Level One Statistics Unit	Scopus Q2	The Flipped Classroom Approach Yielded Improved Student Performance, a Deeper Understanding of Course Concepts, and Increased Learner Engagement.
41	Smiderle et al., (2020)	The Impact of Gamification on Students' Learning, Engagement, and Behavior based on their Personality Traits	Scopus Q1	Introverted Students Demonstrated Higher Levels Of Engagement with the Gamified Version than their Extroverted Counterparts.
42	Guo (2019)	The Use of an Extended-Flipped Classroom Model in Improving Students' Learning in an Undergraduate Course	Scopus Q1	The Model Enhanced Students' Perceptions of Teaching Quality, and Peer Interaction, Facilitated the Development of Generic Skills, and Improved Performance
43	Su Ping et al., (2020)	Tracing EFL Students' Flipped Classroom Journey in a Writing Class: Lessons from Malaysia	Scopus Q1	Most Students Reported Positive Experiences with the Flipped Classroom Model.
44	Burkhart et al., (2020)	Undergraduate Students Experience of Nutrition Education Using the Flipped Classroom Approach: A Descriptive Cohort Study	Scopus Q2	Most Students Reported High Levels of Engagement, with Half Indicating Greater Engagement in the Flipped Classroom Approach (FCA) Compared to Traditional Courses.

No.	Author & Year	Title of Articles	Journal Ranks	Outcome Summary
45	Li & Li (2022)	Using the Flipped Classroom to Promote Learner Engagement for the Sustainable Development of Language Skills: A Mixed-Methods Study	Scopus Q1	Students in the Flipped Classroom Condition Exhibited Significantly Higher Mean Scores on Post-Test Engagement Measures Across Behavioral, Emotional, Cognitive, and Social Dimensions than their Traditional Classroom Counterparts.
46	Iswandari (2022)	A Student Engagement in a Virtual Class by Flip Learning Application	Sinta 5	The Study Found Evidence of Learner Engagement, with the Role of Professional Educators Emerging as the Most Influential Factor Among the Four Core Components of the Flipped Learning Framework.
47	Nissa et al., (2023)	Flipped Classroom Method and Collaborative Writing Via Google Documents to Improve Students' Participation and Writing Performance in Higher Education	Sinta 3	Findings Indicate a Significant Positive Impact on Students' Writing Quality and Enhanced Student Engagement.

Discussion

Learning engagement is defined as the intensity of involvement and active participation in the learning process (Cole & Chan, 1994). In the flipped classroom settings, it includes pre-class, in-class, and after-class activities. It is not only about attending learning activities but rather being engaged in a series of activities (Chakraborty & Nafukho, 2014). In addition, Dixson (2015) stated that learning engagement is about the time and energy students use to achieve learning objectives and how students enjoy the learning process. In other words, learning engagement is a crucial factor in learning, especially in the flipped classroom setting. It determines perceived effectiveness and learning outcomes.

In this review, the researcher highlights strategies to ensure and enhance students' learning engagement in flipped classroom settings. Durrani et al., (2022) and Zain & Sailin (2020) found that students become more enthusiastic in class discussions when challenged to answer the quiz in gamification media such as Socrative or Kahoot at the end of the in-class session. Students also become more engaged (Ho, 2020) and more focused on construction knowledge and enhanced skills when learning through gamification (Howell, 2021). It seems that integrating game elements into learning activities makes the classroom atmosphere more interesting and joyful so the students be more engaged in learning activities (Borit & Stangvaltaite, 2020; Lo & Hew, 2019; Pan & Mow, 2023; Ruiz, 2021), especially extroverted students (Smiderle et al., 2020).

Besides that, students are more engaged in the learning process and encouraged to demonstrate their abilities when the lecturer and other students give them immediate feedback either in pre-class, in-class, or after-class sessions (Abdullah et al., 2019; He, 2020; Iswandari, 2022; Kay et al., 2019; Lai et al., 2021; Lee & Wallace, 2018; Li & Li, 2022; Su Ping et al., 2020; Talan & Selvinc, 2019; Yılmaz, 2022). It indicated that students feel comfortable and encouraged to confirm their understanding and ask for explanations when the lecturer guides and assists the students timely (Hava, 2021; He, 2020; Lai et al., 2021; Li & Li, 2022; Steen-Utheim & Foldnes, 2018) and confirm their understanding and skill demonstrated (Gu et al., 2022; Ruiz, 2021; Steen-

Utheim & Foldnes, 2018). Students also perceived meaningful learning when opportunities to ask questions and get assistance from the lecturer were available in the learning process (Antonis et al., 2023).

Previous researchers also confirmed that students' engagement enhanced when students were asked to learn in groups such as debate, discussion, and do assignments in groups (Guo, 2019; Lewis-Kipkulei et al., 2021; Ruiz, 2021). It seems that learning in groups gave students more opportunities to interact and collaborate with learning content and other students (Bates & Ludwig, 2020; Burkhart et al., 2020; Czaplinski & Fielding, 2020; Ho, 2020; Iswandari, 2022; Jung et al., 2022; Lee & Wallace, 2018), made the students feel more comfortable to ask questions, confirm understanding, express opinions and explanations to other students (Fang et al., 2022), and feel more comfortable delivering constructive comments for the assignments (Nissa et al., 2023). It is in line with Lo & Hew (2019) that some students preferred to ask for help from their peers rather than the lecturer. Moreover, related to technological aspects, students become more engaged in learning activities when the lecturer uses short and concise videos (less than 5 minutes) compared to longer videos (about 10 to 30 minutes) (Yu & Gao, 2022). Short and concise videos make students more focused on a topic and grab their interest to master the content (Yılmaz, 2022).

Flipped classroom as a hybrid learning needs a high level of students' autonomous learning. Doo & Bonk (2020) also highlights that students' level of self-regulation determines their social presence and engagement in learning. For instance, Tomas et al., (2019) reported that students admitted not having time or forgetting to access the videos delivered by the lecturer in pre-class sessions. Therefore, a self-regulated learning strategy can be used to ensure students' engagement. For instance, researchers confirmed that asking students to determine their learning objectives and create a summary of what he has learned, share it in a discussion forum to get immediate feedback from the lecturer and peers, ask students to watch videos and take quizzes, and provide access to the total scores obtained and several videos have been watched is effective in ensuring students' learning engagement (Jung et al., 2022; Yoon et al., 2021). In addition, pre-class session activities are the requirement for in-class activities in the flipped classroom setting. Students reported becoming more engaged in class sessions as if they had previously accessed the videos or learning material delivered in pre-class sessions (Ling et al., 2019; Su Ping et al., 2020). In other words, ensuring students access the content in pre-class sessions is crucial for their engagement. Previous researchers stated that students spent more time and effort in learning activities when the lecturer required them to access the videos in pre-class sessions (Antonis et al., 2023; Li & Li, 2022; Sammel et al., 2018), asked to write questions that related to the content, either for confirmation or explanation (Ling et al., 2019; Malik et al., 2018) and asked to give comments about the content (Elmaadaway, 2018). Therefore, given assignments such as reading or watching the learning content and answering a series of questions as guidance to master the content (Lewis-Kipkulei et al., 2021), making notes, summarizing, and creating several reflective questions are essential for students' learning engagement.

In this review, the researcher also highlights some obstacles in students' learning engagement. In the flipped classroom, delivering learning materials in the pre-class session is crucial for students. However, the format of the materials seems to determine the students' interest. Alebrahim & Ku (2020) and Malik (2018) reported that students tend not to read the materials in digital book format, which the lecturer delivered as supporting materials in video format. The students are also less motivated to engage in learning activities while grouped with the same students repeatedly. Moreover, students were also less motivated to engage and focus on learning activities when the learning material was delivered in long duration video format (Hava, 2021; Li & Li, 2022; Yu & Gao, 2022), and students tend to find it more boring than face to face learning (Lai et al., 2021).

Furthermore, students' habitual learning activities also determine their engagement in a flipped classroom. Sammel et al., (2018) revealed that students became less or did not participate actively in learning activities in the flipped classroom, such as watching videos or mastering the basic knowledge independently in pre-class activities. Lin et al., (2019) also reported that only 25% of the students watched the pre-recorded video lectures that were delivered in pre-class sessions, but when the lecturer asked students to present their reflection notes about the videos, the number

of students watching the video increased. In other words, students still maintain a habit of receiving lectures directly from the lecturer. It seems the students tend to find that the lecturer has the job, not the students so they have to teach and explain the materials to students. The last, the lecturer's communicative skills determine students' engagement. Lai et al., (2021) revealed that students are less engaged in learning activities when the quantity and quality of the communication between lecturer and students are limited. It seems related to the classroom atmosphere or the emotional relationship between lecturers and students. When lecturers are more interactive and proactive in asking students about what they understand or don't understand and offering help before they ask for help, it motivates them to be more active in learning activities.

CONCLUSION

The systematic review reveals that previous research found that gamification, immediate feedback, timely guidance and assistance, work in groups, scaffolding, peer-coaching, user-friendly technology, short videos, pre-class assignments, reflective thinking, self-regulated learning, and guided questions are effective in ensuring students learning engagement in higher education that using flipped classroom. Furthermore, it also reveals that supported learning material, working in groups with the same people, low level of self-regulation, long and low-quality videos, repeating the same activity, and students' perception towards the role of the lecturer in the learning process and interaction can decrease students' interest to engage in the learning process. Additionally, the systematic review of the literature suggests that lecturers should ensure students' learning needs are met, creating an atmosphere that encourages students' engagement either in pre-class, in-class, or after-class, and using user-friendly digital technology. Further research is encouraged to extend this study by eliminating the restriction in higher education settings and focusing more on engagement in specific terms, including cognitive, emotional, and behavioral engagement.

ACKNOWLEDGEMENT

This research was funded by Antasari Banjarmasin State Islamic University based on Decree Number P-0069/Un/14/V.2/TL/03/2023.

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