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Classroom Learning with Active Learning Approach: A Systematic Literature Review

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Abstract: This systematic literature review explores active learning approaches in educational settings, particularly classroom learning. This study used the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) to conduct a systematic study of classroom learning with active learning approaches. A systematic literature search was conducted to identify and retrieve empirical studies between 2022 and 2024. Key findings revealed the significant impact of active learning approaches on classroom learning. These methods, which include Active Learning Pedagogy Sequence (ALPS) learning, ARCS (Attention, Relevance, Confidence, Satisfaction) Model, Problem-based Projects and Cooperative Learning, Flipped Classroom Approach, Use of ChatGPT, Utilization of Mobile Technology, and more, have consistently demonstrated their effectiveness in increasing learner engagement, motivation, satisfaction, knowledge acquisition, skill development, and knowledge retention. For example, a study by Jiang (2024) showed that the integration of technology such as ChatGPT can encourage students' self-directed exploration, resulting in higher achievement compared to traditional passive learning. Dorée and Quinn (2024) proposed ALPS to enhance student engagement and support instructors' development of teaching skills. Ko (2024) described the use of storytelling and story-making to enhance class engagement, while (Yuni et al., 2024) emphasized the effectiveness of simulations, role-playing, and problem-based projects in enhancing student collaboration and motivation.

Keywords: Active Learning, Classroom Learning, Systematic Literature Review

A. Introduction

Learning in schools is one of the important processes in shaping the competence and character of students. However, conventional learning approaches that are still widely applied in the classroom often place students as passive recipients of information. Teachers tend to dominate the learning process with lectures and long explanations, while students only listen and take notes without being actively involved in the

learning process. According Qablan (2024), this can lead to low interest in learning, lack of participation, and limited critical thinking skills in students.

Students in the era of globalization that demands 21st century competencies are expected to have critical thinking, creativity, collaboration, and communication skills (Al Suwaidi, 2024). To achieve this, a learning method is needed that not only emphasizes the transfer of knowledge, but also the active involvement of students in the learning process. The active learning approach is one of the relevant solutions in answering this challenge (Dogani, 2023).

The active learning approach places students at the center of learning. In this method, students are directly involved in various activities that encourage exploration, discussion, problem solving, and reflection on the material being studied (Algarni, 2023). The teacher acts as a facilitator who provides guidance and support so that students can discover and build their own knowledge. Various active learning strategies, such as group discussions, simulations, project-based learning, and case studies, can provide a more meaningful learning experience for students (Dorée & Quinn, 2024).

Ko (2024) research shows that the implementation of active learning can improve student learning outcomes, both in terms of conceptual understanding and critical thinking skills. In addition, Jiang (2024) research found that the active learning approach can increase learning motivation, strengthen social skills, and build student self-confidence. However, Sholicha dan El-Yunusi (2024) found that the implementation of the active learning approach is not free from various challenges, such as teacher readiness, supporting facilities, and time management in class, ensuring active engagement remains a major challenge. The dominant passive learning method in classroom learning often results in shallow understanding and hinders the acquisition of important skills. This underscores a critical research gap in understanding the effectiveness and application of active learning strategies in classroom learning environments.

Addressing this gap is important because student inactivity in the classroom reduces learning outcomes (Akar & Güzin, 2024). This systematic literature review aims to explore active learning approaches in educational settings, especially classroom learning. By examining the effectiveness of various active learning strategies in classroom learning environments, researchers can make significant contributions to the development of engaging and interactive learning experiences. This research can guide the design of classroom learning programs, the selection of appropriate learning technologies, and the creation of effective teaching practices that encourage active student participation and deeper understanding.

B. Methods

This study used the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) to conduct a systematic study on classroom learning with an active learning approach. PRISMA is a publication standard that applies to the procedure for making Systematic Literature Reviews (SLR) (Moher, 2009). This standard is commonly used in the fields of medicine and public health; however, its use can be extended to education and social sciences by following its efficiency in formulating research questions and its methodical process for sourcing. In addition, PRISMA reduces bias and performs well in research synthesis.

A systematic literature search was conducted to identify and retrieve empirical studies relevant to this review. Three databases were searched: Scopus, ERIC, and Google Scholar. The reference sections of previous review articles were also scanned for relevant articles. We used the following set of keywords to search for relevant articles: Classroom learning related to Active Learning, and limited our search to empirical studies published in peer-reviewed/refereed journals between 2022 and 2024. This search yielded a total of 28 articles.

Next, the abstracts of all 28 articles were read to decide whether the full text of an article should be retrieved or not. The authors initially agreed on the following criteria for inclusion and exclusion of articles. To be included, the study had to present some form of classroom learning. In addition, the study had to include an active learning approach. If any of the above criteria were not met, the study was rejected. Based on these criteria, 14 relevant articles were included.

The data extraction sheet was used to record all the information needed from each study report. Data extraction involved various active learning approaches used in learning in educational settings, the effectiveness of active learning approaches in the classroom by examining, to create a comprehensive understanding of the current state of knowledge regarding the use of active learning approaches in classroom learning environments, and to formulate recommendations and directions for future learning.

C. Results and Discussion

The educational landscape is constantly evolving, influenced by technological advances and changing pedagogical approaches. Recent research provides valuable insights into these trends. This study analyzes findings from a sample of research articles (2022-2024) to identify key areas of focus in educational research.

Active learning approaches have been the focus of attention in various studies due to their potential to improve student engagement and learning outcomes. Jiang (2024), for example, showed that the integration of technologies such as ChatGPT can encourage students' self-exploration, resulting in higher achievement compared to

traditional passive learning. This supports the effectiveness of active learning in improving student performance. Meanwhile, Dorée and Quinn (2024) introduced the Active Learning Pedagogical Sequence (ALPS) framework that offers techniques such as "Think, Pair, Share" and group discussions. This framework not only increases student engagement but also supports the development of instructors' teaching skills. Several other studies highlight variations in active learning strategies. Ko (2024) describes the use of storytelling and story-making to increase classroom engagement, while Yuni et al. (2024) emphasizes the effectiveness of simulations, role-playing, and problem-based projects in enhancing student collaboration and motivation. Similarly, Dogani (2023) and Gosavi & Arora (2022) assert that interactive methods such as group discussions, quizzes, and case studies can improve student retention, critical thinking skills, and satisfaction with learning.

In the context of technology, Garg et al. (2022) highlighted the positive impact of active learning-based mobile applications on student understanding through live quizzes and in-depth feedback. Additionally, Mason and Gayton (2022) identified the benefits of flipped classrooms in supporting test preparation and building student confidence through customized active learning experiences.

Other studies, such as that conducted by Cotta et al. (2022), showed that the use of concept maps in flipped classrooms significantly improved student understanding compared to traditional classrooms. Roderick (2023) even linked classroom design to active learning, where flexible space configurations support collaboration and critical thinking. Additionally, Bavishi et al. (2022) and Vale & Barbosa (2023) emphasize the importance of physical and social activities in active learning, such as case-based discussions and gallery walks, which encourage collaboration and deep reflection.

Table 1. List of Article Details

Article	Author (year)	Main Findings	Active Learning
Unleashing the Potential of ChatGPT: Empowering Enhanced Active Learning in the Classroom Compared to Conventional Passive Learning	(Jiang, 2024)	Incorporating ChatGPT into classroom learning promotes active learning by encouraging independent exploration and inquiry. This study showed that students who used ChatGPT for research significantly outperformed students in traditional passive learning, highlighting the effectiveness of active learning strategies in improving student performance.	ChatGPT Usage
Building an Active Classroom Using the Active Learning Pedagogy Sequence	(Dorée & Quinn, 2024)	This article describes active learning techniques categorized as Think, Pair, Share, Composite, Group, Move, or Lead, and introduces the Active Learning Pedagogy Sequence (ALPS) to effectively enhance instructor teaching skills and student learning experiences.	Active Learning Pedagogy Sequence (APLS)

Article	Author (year)	Main Findings	Active Learning
Active learning: a story-telling and story-making approach to embrace student learning style for classroom engagement	(Ko, 2024)	This article discusses an active learning approach that combines storytelling and story-making to engage students. This method encompasses diverse learning styles, increases classroom engagement, and fosters a more interactive and participatory learning environment for students.	Combining storytelling and story-making to engage students
Active Learning Strategies in Madrasah	(Yuni et al., 2024)	Active learning in the classroom involves strategies such as group discussions, simulations, role-plays, and problem-based projects. These methods engage students directly, increasing their understanding, motivation, and collaboration, ultimately leading to improved learning outcomes.	Group discussions, simulations, role plays, and problem-based projects
Active learning and effective teaching strategies	(Dogani, 2023)	Active learning promotes student engagement through interactive strategies such as discussion, problem solving, and cooperative learning. This approach increases retention, critical thinking, and motivation, in contrast to traditional lectures where students are passive recipients of information, fostering a more participatory learning environment.	Discussion, problem solving, and cooperative learning
Impact of Active Learning Approach on Students Evaluation of Teaching	(Zulfiqar et al., 2023)	This study showed that an active learning approach, using the whiteboard as the sole instructional medium, significantly increased student interactivity and led to more positive perceptions of the instructor, as evidenced by an average evaluation score of 54.5 out of 60.	Interactive teaching strategies with whiteboards instead of diagnostic lectures
Active Learning Strategies for Engaging Students in Higher Education	(Gosavi & Arora, 2022)	Active learning involves engaging students through methods such as problem solving, case studies, role-playing, and quizzes. This approach improves academic performance, skill development, and student satisfaction, fostering a more interactive and effective learning environment in higher education settings.	Problem solving, case studies, role plays, and quizzes
An Implementation of Active Learning Strategies for Effective Use of In-class Hour to Achieve Complete Knowledge Transfer in an Engineering Course	(Kamath, 2022)	Active learning enhances classroom learning by engaging students through strategies such as the ARCS model, collaborative learning, and flipped classrooms. These methods promote deeper understanding and knowledge transfer, in contrast to traditional	ARCS model, collaborative learning, and flipped classrooms

Article	Author (year)	Main Findings	Active Learning
		passive learning approaches that lack student engagement.	
Mobile-Based Active Learning Can Enhance Engagement in Classroom	(Garg et al., 2022)	This paper discusses how the ALT mobile application enhances classroom learning through Active Learning strategies, promoting student engagement through live quizzes and feedback, ultimately increasing levels of understanding and enabling professors to track engagement and evaluate teaching methods effectively.	ALT mobile app
Active Learning in Flipped Classroom and Tutorials: Complementary or Redundant?	(Mason & Gayton, 2022)	Research shows that active learning in flipped classrooms complements traditional tutorials, improving student learning and exam preparation. Students appreciate the different context, noting that the flipped classroom increases confidence for tutorials, while tutorials provide opportunities for tailored feedback.	Flipped classrooms and tutorials
Recontextualizing employability in the Active Learning Classroom	(Roderick, 2023)	Active Learning Classrooms (ALCs) promote dynamic, collaborative learning through mobile furniture and technology, facilitating small group interactions and critical thinking. The design fosters flexibility, allowing for reconfiguration of the space to enhance student engagement and participation in the learning process.	Utilization of mobile technology
Active Learning: A Shift from Passive Learning to Student Engagement Improves Understanding and Contextualization of Nutrition and Community Health	(Bavishi et al., 2022)	This article uses an active learning approach, emphasizing peer interaction and engagement. Students participate in discussions, case-based quizzes, and collaborative meal planning, significantly improving their understanding of nutrition and public health, as evidenced by their post-quiz performance.	Discussions, case-based quizzes, and collaborative meal planning
Cognitive competence: comparing learning between traditional classroom and active classroom	(Cotta et al., 2022)	This study found that Concept Maps with the Flipped Classroom approach significantly improved student learning (mean 3.38) compared to the Traditional Classroom (mean 2.75), promoting meaningful learning through understanding, integration, and autonomous engagement rather than passive memorization.	Flipped Classroom Approach
Active learning strategies for an effective mathematics teaching and learning	(Vale & Barbosa, 2023)	Active learning strategies in the classroom include paper folding, gallery walks, and math trails. These methods promote cognitive, social, and physical	Paper folding, gallery walks and math trails

Article	Author (year)	Main Findings	Active Learning
		engagement, encouraging collaborative work, mathematical communication, and reflection in a supportive environment, enhancing the learning experience for students.	

Active Learning Pedagogy Sequence (ALPS)

ALPS is an active learning approach designed to increase student engagement while systematically developing instructors' teaching skills. The approach offers a pedagogical framework consisting of a series of steps that guide how active learning can be effectively implemented in the classroom (Dorée & Quinn, 2024).

The ALPS framework begins by identifying students' learning needs and the instructional objectives to be achieved. Then, relevant active learning methods, such as Think, Pair, Share, Composite Group, Group Move, or Lead, are applied sequentially to accommodate diverse learning styles. (Ortiz Martín et al., 2024).

1. Think, Pair, Share: This method begins with students individually thinking of answers or solutions to a problem, then discussing them with a partner, and finally sharing the results of the discussion with the whole class. This step helps build critical thinking and communication skills.
2. Composite Group: This strategy involves combining groups with the aim of stimulating collaboration between groups, so that students can exchange ideas and deepen their understanding of the learning topic.
3. Group Move: In this stage, students are instructed to move between groups to share and receive new insights from different perspectives. This encourages a more interactive classroom dynamic and prevents students from getting stuck in their comfort zones.
4. Lead: This stage provides opportunities for students to lead discussions, presentations, or other learning activities. This role not only builds confidence but also encourages the development of leadership skills and individual responsibility for learning.

In addition to these steps, ALPS also integrates ongoing evaluation through direct feedback from students and instructor observations. This feedback helps ensure that the approach used is appropriate to the needs of the students and effective in achieving the learning objectives (Lavi & Bertel, 2024). The strength of ALPS lies in its flexibility to be adapted to various classroom and subject contexts. By using this approach, students are not only passive participants but also active contributors in the learning process. This creates a more collaborative, dynamic environment and supports meaningful learning (Sekwena, 2023).

ChatGPT Usage

The use of ChatGPT as part of an active learning approach offers new opportunities to create more interactive, self-directed, and meaningful learning environments. The technology acts as a virtual assistant that can facilitate knowledge exploration, support problem solving, and encourage student engagement in the learning process (Jiang, 2024).

In active learning, ChatGPT can serve as a tool that encourages students to ask questions, verify understanding, and develop critical thinking skills. For example, students can use ChatGPT to find initial answers to complex questions, which are then discussed further in groups. This process encourages independent exploration of ideas before engaging students in collaborative discussions, in line with the main principles of active learning (Wahit & Rossli, 2024).

Leelavathi and Surendhranatha (2024) said that ChatGPT can be used to create immersive learning scenarios. For example, in problem-based learning, students can ask ChatGPT to provide case simulations or hypothetical scenarios that are relevant to the learning topic. In this way, students are encouraged to think analytically, formulate solutions, and evaluate alternatives in real-world situations.

ChatGPT helps students broaden their horizons through direct access to organized information. This technology allows students to identify and understand difficult concepts by providing detailed explanations, providing examples, or clarifying abstract concepts. This approach is in line with active learning that places students at the center of the learning process, where they control their own learning experience (Jiang, 2024). On the other hand, Bettayeb et al. (2024) said that ChatGPT enriches the role of teachers in active learning. Teachers can use ChatGPT to design more engaging teaching materials, create interactive quizzes, or provide direct feedback to students. This tool can also help teachers save time in responding to student questions personally, so they can focus on facilitating class discussions and providing more in-depth guidance.

However, ChatGPT integration in active learning also requires the right strategy so that its use does not replace human interaction. Teachers need to ensure that students remain actively involved in critical thinking and discussion, not just relying on instant answers from technology.

ARCS Approach

The ARCS (Attention, Relevance, Confidence, Satisfaction) model is an active learning approach designed to increase student motivation in the learning process. Developed by John M. Keller, this model aims to create an engaging and meaningful learning

experience by combining motivational elements that encourage students to be actively involved in learning (Yulianto et al., 2024).

1. *Attention*
   The first stage of the ARCS model focuses on getting students' attention, which is the first step to building active engagement. Teachers can use a variety of methods such as reflective questions, interesting stories, or exploratory activities to spark students' curiosity. This approach helps students focus and engage with the material being taught. For example, in a science class, a teacher might begin the lesson with a demonstration of a simple experiment that sparks discussion.
2. *Relevance*
   Once the students' attention is gained, the next step is to relate the learning to real life or the students' interests. This strategy provides relevant context, so that students feel that the material being learned has practical benefits for them. Teachers can use real-life examples, case studies, or scenarios that relate to the students' experiences. By showing relevance, students are more motivated to actively participate in the learning.
3. *Confidence*
   The ARCS model also emphasizes the importance of building students' self-confidence in the learning process. Teachers can support this by providing tasks that are gradual, starting from low to more complex levels of difficulty, so that students feel capable of completing the challenges given. In addition, providing constructive feedback that shows students' progress can help increase their confidence in their own abilities.

4. *Satisfaction*
   The final stage is to create student satisfaction through recognition of their achievements. This satisfaction can be in the form of recognition of success, a fun learning experience, or a deeper understanding of a particular topic. Teachers can use closing activities that provide a sense of accomplishment, such as reflective discussions or real-world applications of what has been learned.

The ARCS model strongly supports the active learning approach because it places students at the center of the learning process. By attracting attention, connecting learning to relevant things, and building self-confidence, students are more likely to be actively involved in activities such as group discussions, simulations, or problem-based projects (Pangestuti et al., 2024). This approach also allows students to feel satisfied with their learning, which ultimately motivates them to continue learning independently. The combination of motivational elements in the ARCS model makes active learning more effective, interactive, and oriented towards meaningful outcomes (Na et al., 2024).

Combining Storytelling and Story-Making to Engage Students

The approach of combining storytelling and story-making is an active learning strategy that engages students emotionally, cognitively, and creatively to increase engagement in learning. This strategy leverages the power of narrative, which naturally captures attention and helps students process information in a meaningful context (Ko, 2024).

Tabakova and Pelaheichenko (2023) explain that stories have the ability to capture students' attention because they offer emotional elements, conflicts, and resolutions that are relevant to everyday life. When students listen to or create stories, they not only remember facts but also understand concepts in a larger context. This helps them connect learning to their experiences, which is the essence of an active learning approach.

Teachers can use stories to convey information in an engaging way and motivate students to think critically. For example, in a history class, teachers can begin by telling the story of a historical figure to introduce the social and cultural context of the time (Tabakova & Pelaheichenko, 2023). The story can prompt group discussions, where students analyze the actions of the figure and their impact. In a science class, stories can be used to explain complex concepts, such as describing a scientist's journey to discover a particular theory. This approach not only makes the material easier to understand but also inspires students to explore new ideas (Betts, 2023). While this approach is very useful, there are challenges that can arise, such as lack of time or students who find it difficult to get started. Teachers can address this by providing clear guidance, such as a narrative template, or starting with a short story to stimulate students' ideas.

Problem-Based Projects and Cooperative Learning

Problem-Based Learning (PBL) and Cooperative Learning are active learning approaches that encourage students to be directly involved in the learning process through collaboration, exploration, and problem solving. These two approaches complement each other by placing students at the center of learning and promoting their active involvement in understanding and applying concepts (Susanty et al., 2024).

PBL begins by presenting complex and relevant real-world problems for students to solve. In PBL, students work independently or in small groups to research, analyze, and find solutions (Bahriyatin et al., 2024). The problems given usually do not have definite answers, so students are encouraged to think critically and creatively. For example, in a geography lesson, students can be asked to design a water resource management strategy in an area at risk of drought. They need to integrate knowledge from various disciplines such as ecology, economics, and technology to find

sustainable solutions. This process not only improves conceptual understanding but also trains higher-order thinking skills, such as analysis, synthesis, and evaluation (Susanty et al., 2024).

PBL provides space for students to develop self-management skills, as they must plan and organize their own research steps. The teacher acts as a facilitator who provides guidance and support, not as the main provider of information (Susanty et al., 2024).

Cooperative learning is an approach that involves students working together in small groups to achieve a common goal. Each member of the group has specific responsibilities and contributes to the success of the team. This approach teaches social skills, such as communication, negotiation, and cooperation, which are essential in both learning environments and the workplace (Ramadhan et al., 2023).

One popular cooperative learning model is Jigsaw, where students are divided into small groups, and each member learns a specific part of a larger material. After that, they return to their original groups to teach what they have learned to the other members. This method ensures that all students contribute and learn from each other (Susanty et al., 2024). Another example, in a science lesson, students can work together to design an experiment, collect data, and analyze the results. In this process, each member has a specific role, such as researcher, data logger, or presenter of results. This strategy not only strengthens students' understanding of the material but also builds a sense of collective responsibility for their learning (Ramadhan et al., 2023).

Utilization of Mobile Technology

Mobile devices allow students to access learning resources anytime and anywhere. Applications such as interactive quizzes, simulations, or educational games make the learning process more interesting and enjoyable. With this technology, students can actively participate through online discussions, real-time polls, or app-based Q&A sessions such as Kahoot, Mentimeter, or Quizizz. For example, teachers can use polling applications to get students' responses directly during the lesson. This not only helps students stay engaged but also provides teachers with direct feedback on Mobile technology enables team-based learning by providing a digital platform for collaboration. Applications such as Google Workspace (Docs, Sheets, Slides) or Microsoft Teams allow students to work together on projects, share ideas, and complete assignments in real time, even if they are in different locations (Garg et al., 2022). Additionally, features such as breakout rooms in video conferencing applications (Zoom or Microsoft Teams) allow students to have small group discussions, supporting an active, collaboration-based learning approach. This interactivity helps students develop essential communication, negotiation, and problem-solving skills (Roderick, 2023).

Flipped Classroom Approach

The flipped classroom approach is a form of active learning that reverses the traditional structure of the learning process. In this approach, students learn basic material outside of class through videos, articles, or interactive modules, while class time is used for more in-depth activities, such as discussions, problem solving, or collaborative projects. This approach changes the role of students from passive recipients of information to active participants in the learning process (Cotta et al., 2022).

Prior to class, students are provided with learning materials such as video lectures, interactive presentations, or relevant readings. These resources allow students to learn basic concepts independently and at their own pace. For example, in a math class, students can watch a video about the theory of quadratic equations at home. They are given the freedom to pause, rewind, or fast-forward the video as needed, which helps them understand the concepts better before class discussions (Mason & Gayton, 2022). Class time is focused on the application of concepts, such as solving complex problems, group discussions, simulations, or experiments. The teacher acts as a facilitator who guides students to explore and understand the material in greater depth. For example, after studying the theory at home, students can work in groups to solve math problems or conduct simulations that apply the concepts. This approach provides opportunities for students to ask questions, discuss, and receive direct feedback from the teacher and peers (Cotta et al., 2022).

D. Conclusion

Findings from the reviewed studies underscore the significant impact of active learning approaches in classroom learning. These methods, which include Active Learning Pedagogy Sequence (ALPS), ARCS (Attention, Relevance, Confidence, Satisfaction) Model, Problem-based Projects and Cooperative Learning, Flipped Classroom Approach, Use of ChatGPT, Utilization of Mobile Technology, and more, have consistently demonstrated their effectiveness in increasing learner engagement, motivation, satisfaction, knowledge acquisition, skill development, and knowledge retention. For example, a study by Jiang (2024) showed that the integration of technologies such as ChatGPT can encourage students' self-directed exploration, resulting in higher achievement compared to traditional passive learning. Dorée and Quinn (2024) proposed ALPS to increase student engagement and support instructors' teaching skill development. Ko (2024) described the use of storytelling and story-making to increase classroom engagement, while Yuni et al. (2024) emphasized the effectiveness of simulations, role-playing, and problem-based projects in increasing student collaboration and motivation.

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