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Integrating Digital Literacy into the Flipped Classroom Model: A Case Study of Junior High School Students

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ABSTRACT

Flipped Classroom is a learning model that utilizes technological media, both in online and face-to-face learning, thus requiring digital literacy skills. This study aims to determine the perception and level of student satisfaction with learning with the Flipped Classroom method in the digital literacy era. The research method used is descriptive quantitative method with data collection technique in the form of questionnaire. The research sample consisted of 30 students of class 9A who were selected using cluster sampling technique. The data analysis technique used was descriptive analysis. The results showed that students' perceptions of the Flipped Classroom method in the digital literacy era were in the high category. The average student answer in the questionnaire shows interest in learning and the effectiveness of Flipped Classroom. Based on the research results, it can be concluded that students' perceptions of the use of the Flipped Classroom method in the digital literacy era are at a high level, so it is feasible to be applied in learning. In addition, students feel that learning is improved through activities in the application of Flipped Classroom in the digital literacy era. This Flipped Classroom method can be reapplied in junior high schools in the future.

Key Words: Digital Literacy Era; Flipped Classroom; Students' Perceptions.

INTRODUCTION

Flipped Classroom is a learning model that changes the order of learning activities that are usually done in class. As defined by Fang & Abdullah (2024), in this model, activities that are usually carried out in class, such as providing subject matter by the teacher, are carried out online, while in-class time is used for discussions, questions and answers, and other practical activities. Thus, students can study the material in advance outside of school hours, for example through learning videos, interactive modules, or articles provided by the teacher (Leung & Cheng, 2019). Students then come to class to apply the knowledge they learned through various activities involving problem-solving, discussions, or group projects.

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Flipped Classroom combines face-to-face learning with virtual or online learning, providing greater flexibility in accessing materials (Ikhwan & Andriyanti, 2021). On the other hand, this model also combines synchronous and independent learning. According to Colomar & Menn (2024), synchronous learning occurs when students and teachers meet face-to-face at the same time, be it physically in the classroom or through a video conferencing platform. Self-paced learning allows students to learn at their own pace, allowing them to understand the material more deeply before meeting the teacher and their peers in class for practical application.

In the era of digital literacy, the Flipped Classroom is particularly relevant as it leverages technology to create a more flexible, immersive and personalized learning experience (Asare et al., 2023). With easier access to computer devices and smartphones, students can easily access learning materials anytime and anywhere, making it a model that fits perfectly with the demands of today's digital age. Flipped Classroom can help students overcome learning challenges that arise in the digital era. In the Flipped Classroom model, students have the freedom to learn at their own pace. If they feel they have not understood the material well, they can repeat the video or read more material before meeting the teacher in class and this gives students more control over their learning process (Twenge, 2019).

In addition, Lafifa & Rosana (2023) define that this model also helps students develop digital skills that are essential in today's era. The use of various digital platforms in Flipped Classroom provides an opportunity for students to engage in technology-based learning, which is very useful for their academic and professional life ahead. Flipped Classroom gives students the opportunity to work on assignments or study materials outside of school hours (Ayu & Rizky, 2023). Self-paced learning allows students to plan their own learning time and engage in activities that enrich their experience. They can conduct experiments, read related articles, or interact with other digital learning resources. This model also allows students who have time or attendance issues to still be able to follow the lessons without constraints.

Liu et al., (2020) confirm that one of the main advantages of Flipped Classroom is the increased interaction between students and teachers. In this model, time that was previously used to explain the material theoretically is now used for more in-depth discussions and problem solving. The teacher acts more as a facilitator or guide who provides support and direction according to student needs. Students can be more active in asking questions and discussing, while teachers can provide direct feedback that is more specific to students' understanding and development (Hollister et al., 2022).

On the other hand, Flipped Classroom changes the learning paradigm from teacher-centered to student-centered (AlZuhair & Alkhuzaim, 2022). This model supports a more interactive and collaborative approach, where students are more actively involved in the learning process. Syahdan & Ali (2022) argue that in the 21st century learning, critical thinking, collaboration and communication skills are crucial, and Flipped Classroom supports the development of these skills. This model also allows for more flexible classroom management and focuses on achieving individual learning goals. With a more dynamic and interactive classroom, students can work more in groups, exchange ideas and help each other to understand the material.

This not only makes learning more interesting but also brings students closer to learning experiences that are more relevant to the needs and challenges of the modern world (Fang & Abdullah, 2024). Overall, the Flipped Classroom provides significant benefits in meeting the challenges of education in the digital age, by utilizing technology to create a more independent, flexible and interactive learning experience. It also develops essential skills for life in the 21st century, making students better prepared for a fast-paced(Amalia, 2018).

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In general, previous research by Coventry et al., (2023) and Fang & Abdullah (2024) discovered that this learning model can significantly improve student learning outcomes. Flipped Classroom that utilizes technology, such as blogs and other digital media, gives students the opportunity to learn independently outside the classroom, which is then followed by interactive activities in the classroom (Ayub et al., 2022). This model not only improves students' understanding of the material, but also increases their engagement in the learning process. By focusing in-class time on discussion, collaboration and problem solving, Flipped Classroom helps students develop critical thinking skills and knowledge application.

Research by Hamidy & Purboningsih (2016) and Widyastono (2017) specifically examined the implementation of Flipped Classroom using blogs as learning media, and showed that this model is effective in improving students' cognitive learning outcomes, with material absorption rates reaching 70-100%. This research emphasizes the use of blogs to allow students to access materials flexibly, which supports independent and interactive learning. Meanwhile, research by Ayu et al., (2024); Elhefni et al., (2023) and Zhang & Ma (2023) focused more on measuring learning outcomes through questionnaires, and found that Flipped Classroom delivers significant results in improving student engagement and understanding, through more active and applied learning, with students engaging more in discussion and collaboration during class time. Those studies confirmed the effectiveness of Flipped Classroom, albeit with slightly different approaches to data collection and implementation.

The implementation of the Flipped Classroom method can face some significant challenges, one of which is the reliance on online learning materials and media (Arimbi & Daulay, 2024). In today's digital era, Putra & Hidayaturrahman (2020) state that technology plays an important role in education, but not all students have equal access to devices or stable internet connections. Reliance on digital learning media can exacerbate the gap between students who have better access to technology and those who are less accessible to digital infrastructure.

In addition, Abuhassna et al., (2020) and Purnamasari et al., (2021) suggest that the implementation of Flipped Classroom also requires close collaboration between teachers, students and parents. Teachers need to design learning materials that are not only engaging, but also easy to access and understand online. Students, on the other hand, must have the willingness and ability to study independently before class meetings, while parents play a role in supporting their children at home, both in providing access to technology and motivating them to learn (Meşe & Sevilen, 2021). Sub-optimal collaboration between these three parties can reduce the effectiveness of the Flipped Classroom method.

Thus, while the internet provides easy access to a wide range of learning materials, a major challenge is ensuring that students can access information that is accurate, relevant and in line with the prevailing curriculum.This research aims to find students' perceptions and responses to the Flipped Classroom method in the era of digital literacy. With the development of technology and digital media, the Flipped Classroom method is an interesting option to be applied in learning. This research will explore the extent to which students are satisfied with this method, both in terms of the quality of learning materials provided, the effectiveness of the media used, and its influence on student motivation and learning independence. By knowing students' perceptions and responses, it is hoped that this research can provide deeper insights into the challenges and potential of using Flipped Classroom as a relevant learning method in the digital era.

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METHODS

Descriptive quantitative is used in this study, according to Creswell & Creswell (2018), descriptive quantitative research methods aim to describe phenomena, symptoms, or events that occur factually, systematically, and accurately. This research aims to provide a clear picture of students' perceptions of the use of the Flipped Classroom method in learning in the digital literacy era. In collecting data, researchers used a questionnaire with a five-point Likert scale, which consisted of 30 questions. Of these, 8 questions were selected as core questions that represent indicators or aspects related to the level of student perceptions of learning using the Flipped Classroom method.

The location of this research was SMPN 36 Pekanbaru, which is located in Pekanbaru City, Riau Province. Of the four classes in the research population with a total of 120 students, class A was selected as the research sample, consisting of 30 students for analysis. This decision was taken with the consideration that class A had already participated in learning using the Flipped Classroom method guided by a teacher who was experienced in this method, so that it could represent the population appropriately.

The researcher used a scale to identify categories or levels of student perceptions of the Flipped Classroom method in the digital literacy era. This scale is divided into five categories, ranging from very low to very high categories, based on the average value obtained (Opuni & Alhassan, 2023). To analyze the data, researchers used descriptive statistics presented in the form of central tendency (mean, median, and mode) and variability (variance, standard deviation, and range). The results of the analysis were then presented in the form of tables containing frequencies and percentages. The use of descriptive statistics in this study aims to determine the score of students' perceptions of the use of the Flipped Classroom method in the digital literacy era at SMPN 36 Pekanbaru.

FINDINGS AND DISCUSSION

Findings

The researcher analyzed the descriptive statistic from the sample of research with 8 questions which the core of questions from students' perception about Flipped Classroom and then interpretation into frequency of indicator table and descriptive statistic table. The following tables below presented to give an overview of the results.

Table 1. Students' Perception in the Implementation of Flipped Classroom

N	Valid	30
	Missing	0
Mean		3.90
Median		4.00
Mode		4.00
Std. Deviation		0.772
Variance		0.5
Range		
Min		1
Max		5
Sum		1055

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The existence of Flipped Classroom model is certainly very helpful for students in learning. When asked to students, generally students answer more that there are no problems when they learning Flipped Classroom in digital literacy era. From the table 2 it can be seen that the final Mean score of data obtained is 3.90 which is on the interval scale of 3.41 - 4.20 positive or high category. So from data processing it can be concluded that students' perception of Flipped Classroom learning methods in the digital literacy era is good. Median in the overall assessment of student perception of Flipped Classroom learning of 4.00 and the mode or picture of data that appeared the most in students' perception of Flipped Classroom learning by 4.00 while the standard deviation on the results of assessment of student perception of Flipped Classroom learning in the digital literacy era was 0.772. This value indicates that there is more variation in the data that has been obtained.

Discussion

Flipped Classroom as a learning model in the digital era makes an important contribution to the development of students' digital skills, which is a crucial aspect in facing the demands of an increasingly technology-based world. In Flipped Classroom, students are provided with learning materials in advance through digital media, such as videos, articles, or interactive modules that can be accessed independently before they attend face-to-face sessions (Dwivedi et al., 2021). Besides, Neuberger et al., (2023) suggest that this approach opens up opportunities for students to learn at a more flexible pace, allowing them to revisit material they have not understood and develop a deeper understanding.

Moreover, Vodă et al., (2022) state that the application of digital media in the Flipped Classroom serves as the main tool that facilitates students to improve their technical skills in using digital devices and applications needed to access and process information. For example, students must master how to operate e-learning platforms, such as Moodle or Google Classroom, to access materials, submit assignments and participate in online discussions. They also learn to use multimedia tools such as videos and infographics, which not only enhance their understanding of the material, but also introduce them to different types of technology that can be used in everyday life (Jiang et al., 2023).

Furthermore, the Flipped Classroom encourages students to hone their digital literacy skills, which include the ability to search, evaluate and manage information from online sources (Argudo-Serrano et al., 2023). In such a rapidly evolving information age, the ability to assess the credibility of digital resources and utilize them effectively is a critical skill. Students who are familiar with Flipped Classroom will be more familiar with the dynamics of searching for information online, determining the relevance of materials, as well as the ability to integrate various media formats (text, video, audio) in their learning process (Lestari, 2018).

Not only limited to technical skills, Ostmeier & Strobel (2022) define that Flipped Classroom also improves students' cognitive skills in critical and analytical thinking. Since students prepare the materials in advance, they are better prepared to actively participate in face-to-face sessions, which focus more on discussion and knowledge application. This leads to the development of problem-solving skills that are invaluable in the digital age, where many complex challenges require analytical and creative thinking to find innovative solutions (Pujani, 2022).

Then, Flipped Classroom as a learning method that emphasizes the active role of students, requires students to prepare and complete tasks independently before and after class meetings (Meshkat & Mohammadpour, 2019). This approach has significant implications for the development of students' independent learning skills. Independence in learning is created

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when students are responsible for preparing themselves, exploring the material in advance through the resources provided, and applying their understanding during class sessions that focus more on discussions or practical activities. Thus, Aisyah et al., (2021) confirm that Flipped Classroom encourages students to not only be passive participants, but also active participants in the learning process. It also increases students' awareness of the importance of effective time planning and task management, which are integral to self-directed learning. Moreover, this process fosters a sense of responsibility towards their own learning process, which no longer relies entirely on the teacher's instruction, but involves personal effort in exploring and understanding the subject matter (Ch'ng & Leong, 2024).

In the context of Flipped Classroom, there is a significant increase in learning effectiveness which is reflected in students' ability to master and understand the material learned as discovered by Aristika et al., (2021); Bereczki & Kárpáti (2021) & Yahiaoui et al., (2022). One of the main factors contributing to this improvement is the flexible nature of the material presentation, which students can access at any time according to their learning needs and rhythm. Students are given the freedom to study the material independently outside of class meeting hours, allowing them to repeat material or deepen understanding without time pressure. Besides, students can learn at a level of depth more suited to their capacity, without having to rush around following a strict class schedule. This more flexible learning, which prioritizes accessibility and availability of material outside of class time, encourages students to engage more actively with the material, leading to better understanding and the ability to integrate knowledge into a broader context (Panagiotidis, 2018).

As such, Flipped Classroom is proven to be effective in improving student understanding, as it allows for a learning process that is more tailored to individual needs and learning styles (Pangrazio et al., 2020). The learning process that used to take place in the classroom, such as the delivery of material by the teacher, is now moved outside the classroom using various learning technologies, such as learning videos, podcasts, or other reading materials. This allows students to learn the material and directly improves concept understanding as students can repeat the material according to their needs without the pressure of limited time as in a traditional classroom (Rizky, 2020).

Furthermore, Wildeman et al., (2023) found that the Flipped Classroom model focuses on active learning, which encourages student engagement in the learning process. In this way, students are not only recipients of information, but also active participants in their own learning. They have the opportunity to discuss, ask questions and solve problems directly with the teacher's guidance, which enhances their understanding of the material more holistically. In-class activities such as discussions and collaborative projects also help students to develop social skills and critical thinking skills that are important in education and everyday life (Arimbi & Daulay, 2024). By utilizing available digital learning resources, students learn to manage their time and organize their learning materials. This process teaches students to be independent learners, able to search and access information effectively without direct dependence on teacher instruction. This is particularly important in the digital era, where information is available in large quantities and the ability to filter, analyze and use information wisely becomes a much-needed skill.

In fact, Flipped Classroom can be an effective solution to improve student learning outcomes at the junior high school level. By providing more space for interaction and collaboration in the classroom, as well as providing opportunities for students to learn independently outside of class, this method is able to develop students' knowledge skills more deeply and thoroughly. This in turn can improve the quality of learning, optimize student

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understanding, and produce students who are better prepared to face future learning challenges. The implication of implementing Flipped Classroom in this context is the importance of developing digital skills that are not only limited to the mastery of technology itself, but also include critical thinking skills, collaboration, as well as the ability to manage information effectively. In the Flipped Classroom-based learning process, students not only learn about the subject matter, but are also trained to use technology creatively and productively. For example, they can participate in online discussions, work on collaborative projects using digital tools, or conduct more in-depth research through online tools.

CONCLUSIONS AND SUGGESTION

The implementation of the Flipped Classroom learning model in the digital era contributes significantly to the development of students' digital skills. The learning materials presented allow students to learn at a flexible pace, revisit material that has not been understood, and deepen their understanding. This approach also encourages students to develop technical skills in using digital devices and applications needed to access and process information. In addition, Flipped Classroom enhances students' digital literacy skills, such as the ability to search, evaluate and manage information from online sources, as well as critical and analytical thinking skills. The model also strengthens students' ability to learn independently, which not only improves understanding of the subject matter, but also prepares students to face challenges in an increasingly technology-dependent world.

It is also important for stakeholders, such as educators and educational institutions, to continue to improve the technological infrastructure that supports Flipped Classroom, provide training for teachers to utilize technology effectively, and develop interesting and relevant digital learning materials. For future researchers, it is recommended to explore the implementation of Flipped Classroom at various levels of education and examine its effect on students' digital skills development in more depth. Further research can also examine the long-term evaluation of the implementation of Flipped Classroom, especially in the readiness of students to face the challenges of an increasingly digitalized world of work.

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