

Implementation of Digital-Based Learning Systems to Increase Student Learning Interest

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Abstract:

The digital-based learning system is a modern approach that combines technology with the teaching and learning process to create a more flexible, interactive, and adaptive learning environment. Therefore, this research aims to analyze the supporting and inhibiting factors as well as the impact of implementing digital learning on students' interest in studying at SMK Al Masturiyah Langkaplancar. The type of research used in this thesis is qualitative research with a case study approach. The subjects of this research are the principal or vice principal of curriculum, teachers, and students. In data collection, this research utilizes observation, documentation, interviews, and literature study. The data analysis techniques used are data reduction, data presentation, and conclusion drawing. Research results show that digital-based learning at SMK Al Masturiyah Langkaplancar has the potential to enhance students' learning interest through technology integration strategies, innovative methods such as blended learning and flipped classroom, personalized learning, and technology-based evaluation. However, there are several obstacles such as limited infrastructure (lack of Wi-Fi network availability), insufficient teacher understanding of digital methods, and uneven student readiness in adapting to technology-based learning patterns. Analysis based on David Easton's Systems Theory shows that the success of digital learning implementation depends on the integration among input (curriculum and human resources), process (strategy and media), output (learning interest), and feedback (continuous evaluation). Meanwhile, Maslow's Hierarchy of Needs Theory highlights that student learning interest increases when basic needs such as safety, esteem, and self-actualization are met within the learning system. This research concludes that digital learning at SMK Al Masturiyah is not yet optimal, but has great potential if supported by increased human resource capacity, infrastructure improvement, and adaptive as well as humanistic learning approaches.

Keywords: *Digital Learning, Student Learning Interests, System Theory.*

Abstrak :

Sistem pembelajaran berbasis digital merupakan pendekatan modern yang menggabungkan teknologi dengan proses belajar-mengajar untuk menciptakan lingkungan belajar yang lebih fleksibel, interaktif, dan adaptif, maka dari itu penelitian ini bertujuan untuk dan menganalisis faktor pendukung dan penghambat serta pengaruh penerapan pembelajaran digital terhadap minat belajar siswa di SMK Al Masturiyah Langkaplancar. Adapun jenis penelitian yang digunakan dalam skripsi ini adalah penelitian kualitatif dengan pendekatan studi kasus. Subjek dari penelitian ini adalah kepala sekolah atau wakasek kurikulum, guru – guru dan siswa. Dalam pengumpulan data penelitian ini menggunakan observasi, dokumentasi, wawancara dan studi pustaka. Teknis analisis data yang digunakan yaitu reduksi data, penyajian data dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa pembelajaran berbasis digital di SMK Al Masturiyah Langkaplancar memiliki potensi dalam meningkatkan minat belajar siswa melalui strategi integrasi teknologi, metode inovatif seperti personalisasi pembelajaran, serta evaluasi berbasis teknologi. Namun, terdapat beberapa hambatan seperti keterbatasan infrastruktur (belum tersedianya jaringan Wi-Fi), kurangnya pemahaman guru terhadap metode digital, serta kesiapan siswa yang belum merata dalam mengikuti pola pembelajaran berbasis teknologi. Analisis berdasarkan Teori Sistem David

Easton menunjukkan bahwa keberhasilan implementasi pembelajaran digital bergantung pada keterpaduan antara input (kurikulum dan SDM), proses (strategi dan media), output (minat belajar), dan feedback (evaluasi berkelanjutan). Sementara itu, Teori Kebutuhan Maslow menyoroti bahwa minat belajar siswa meningkat jika kebutuhan dasar seperti rasa aman, penghargaan, dan aktualisasi diri terpenuhi dalam sistem pembelajaran. Penelitian ini menyimpulkan bahwa pembelajaran digital di SMK Al Masturiyah belum berjalan optimal, namun memiliki potensi besar bila didukung dengan peningkatan kapasitas SDM, perbaikan infrastruktur, dan pendekatan pembelajaran yang adaptif serta humanis.

Kata Kunci: *Pembelajaran Digital, Minat Belajar Siswa, Teori Sistem.*

1. INTRODUCTION

Education is a learning process for students to understand, evaluate, and apply the knowledge gained from classroom learning or experiences in everyday life. Education in the digital era is undergoing significant transformation along with the rapid development of information and communication technology (ICT). The integration of technology into the learning process opens up new opportunities to create a more interactive, engaging, and personalized learning environment for students. Digital-based learning, which utilizes electronic devices, applications, and online resources, is now increasingly relevant in meeting the demands of 21st-century education (Farida Hanatan, R., Nurhalimah, 2021).

Therefore, learning interest also plays a crucial role in determining students' success in absorbing learning materials. According to Slameto, learning interest is a relatively persistent drive to pay attention and experience enjoyment in the learning process. Digital technology offers a variety of interactive, flexible, and information-rich features, which can create a more engaging learning experience that aligns with today's students' learning styles (H. Rahmawati, R., 2020).

Furthermore, digital-based learning allows students the freedom to learn at their own pace and style. They are no longer tied to fixed schedules and locations, allowing them to learn anytime and anywhere. This flexibility reduces the pressure students often face in traditional learning and provides them with greater opportunities to deeply understand the material. With direct access to various digital learning resources, students' learning interests tend to increase because they feel freer to explore topics that interest them (Anwar, M., & Dwiastuti, 2020).

This digital-based learning also supports collaboration between students. Through digital platforms, students can discuss, exchange opinions, and collaborate on assignments or projects online. This creates a more interactive learning environment and reduces the boredom that often arises in conventional learning. Furthermore, digital learning allows teachers to provide real-time feedback, which can increase student motivation to continue learning and strive harder to achieve educational goals (D. Nugraha, A., & Sari, 2020).

However, a major challenge in implementing digital-based learning is the gap in technology access among students. Not all students have adequate devices or stable internet access, which can hinder effective learning. Therefore, it is crucial for schools and governments to ensure equitable access to educational technology so that digital-based learning can be truly effective in increasing student learning interest. When these barriers can be overcome, digital-based learning has great potential to make education more engaging and relevant to current developments.

Al Masturiyah Vocational School also experiences low student interest in learning due to a lack of innovation in the learning process. Conventional learning systems, which are no longer relevant to the needs of today's digital generation, are one contributing factor. Therefore, implementing a digital-based learning system is a potential solution to increase student engagement and interest in learning. Low interest in learning not only affects students' academic abilities but can also hinder the development of character and soft skills

needed in the workplace.

As previous research has also explored this topic, research conducted by Sati et al. explains that the implementation of e-learning systems during the COVID-19 pandemic has impacted student learning interest. Despite being hampered by a lack of interaction and uneven technological facilities, this system remains an alternative learning solution that allows flexibility in time and place. This research reinforces the urgency of preparing facilities and infrastructure to support the implementation of digital learning (R. Sati, A., Herlina, N., 2022).

Furthermore, a journal study conducted by Kurniasari discussed the use of blended learning methods using Google Classroom. The results showed increased student interest because this method combines online and face-to-face learning, creating more effective interactions. This approach is considered capable of adapting to student needs and increasing their participation in the learning process (D. Yuliani, T., 2022).

Considering the various aspects mentioned above, this study aims to comprehensively examine the implementation of a digital learning system at SMK Al Masturiyah Langkaplancar and its impact on student learning interest. This study will also examine facility readiness, educator competence, and student engagement as indicators of the success of the digital-based learning system.

The results of this study are expected to provide a concrete picture of the application of technology in the learning process in vocational schools, particularly in the regions. The findings will be highly useful for educators, schools, and policymakers in designing more relevant, adaptive, and sustainable digital-based education strategies to improve the quality of national education.

2. RESEARCH METHOD

This research was conducted using a qualitative method that was carried out by analyzing observation data, interviews and documentation conducted at Al-Masturiyah Vocational School. Therefore, the approach used in this research is a qualitative approach. The qualitative research approach according to Sukmadinata is a research aimed at describing and analyzing phenomena, events, social activities, attitudes, beliefs, perceptions, thoughts of people individually or in groups, then in analyzing the data later the researcher uses a descriptive analysis approach. The descriptive analysis approach is a research method that produces descriptive data in the form of written or spoken words from people as research objects.

3. RESULTS

The implementation of digital learning at SMK Al Masturiyah Langkaplancar is one effort to address the challenges of the increasingly digitalized world of education. However, the success of any educational innovation is inseparable from various supporting and inhibiting factors, both internal and external. Therefore, the results of the research at SMK Al-Masturiyah are:

The lack of systematic training and mentoring is one of the reasons why teachers are not fully ready to adopt this method optimally, this was stated in an interview with the vice principal of curriculum, Mrs. Emi Oktaviani, S.Pd., that "Obstacles to implementing learning methods in vocational schools can vary, ranging from teachers' lack of understanding of the methods used, lack of supporting facilities and infrastructure, to teachers' lack of readiness to adapt to new methods. In addition, internal student factors such as lack of interest in learning, learning anxiety, and the ineffectiveness of learning methods can also be obstacles."

Furthermore, limited facilities and infrastructure are also a significant obstacle. At SMK Al Masturiyah, a stable and evenly distributed school Wi-Fi network is not yet available. This is due to the geographical conditions and the inadequate quality of network infrastructure in the area. This was also discussed in an interview with Mrs. Emi Oktaviani, S.Pd., who stated that "Wi-Fi is not yet available at the school, due to the poor network and coverage, which often hinders work. For learning, students usually use the network from their respective internet quotas."

As a result, digital learning processes must rely on students' and teachers' personal internet quotas, which are of course very limited and unevenly distributed. This reliance on personal networks makes the learning process inconsistent, often disrupted, and even leads to students losing enthusiasm for online or blended learning.

Supporting and Inhibiting Factors Influencing the Success of Implementing Digital Learning at Al Masturiyah Vocational School

In the context of education, particularly the implementation of digital learning, it is important to view the learning process as an interconnected and continuous system. David Easton's Systems Theory views each process within a system as a cycle consisting of input, transformation, output, and feedback, where each part influences and determines the effectiveness of the system as a whole (Budiman, B., Ningsih, D. S., Rahmadani, S., Lubis, S. A., 2023).

The application of this theory is highly relevant to the situation at SMK Al Masturiyah Langkaplancar, where the success or failure of digital learning implementation is heavily influenced by various elements within the school's educational system.

In an education system, inputs include human resources (teachers and students), curriculum, and technological infrastructure. At Al Masturiyah Vocational School, the prominent inhibiting factors at the input stage are:

- 1) Lack of teacher understanding of digital learning methods. Many teachers are not yet accustomed to using technology in learning because they have not get adequate training.
- 2) Limited infrastructure, especially the unavailability of school Wi-Fi networks.

This makes the digital learning process completely dependent on personal quotas of students and teachers, which impacts the consistency of implementation online learning.

However, several factors also contribute to system input, such as the emergence of some teachers who have begun developing their own digital content and increasing school awareness of the importance of technological transformation in education. Furthermore, there is an increase or decrease in student learning interest.

The output of implementing digital learning should be an increase in student interest, motivation, and learning outcomes. At SMK Al Masturiyah, the results that emerged were still mixed, including: some students who had adequate devices and digital learning styles, there was an increase in learning interest because they felt freer and challenged to learn independently, especially those who experienced access barriers or felt anxious about technology, but their learning interest actually decreased, accompanied by confusion and lack of active participation, therefore this output shows that the system is not yet running in balance; the process being carried out has not been fully able to overcome weak input constraints (M. D. Pane, A., 2020).

This feedback system then needs to be formalized in the form of periodic, data-based evaluations and concrete follow-up, in order to improve the learning cycle towards a more adaptive and efficient direction. Therefore, from David Easton's Systems Theory framework, it can be understood that the success or failure of implementing digital learning at SMK Al Masturiyah is highly dependent on the connection between input (human resources and technology), process (methods and implementation), output (student

learning outcomes), and feedback (evaluation and follow-up).

Failure in one aspect will directly impact others. Therefore, efforts to improve the quality of digital learning must be seen as a systemic intervention – not just improving methods, but also strengthening infrastructure, preparing human resources, and building a reflective culture within the school environment.

Analysis of the Influence of Digital Learning Implementation on Students' Learning Interest

The implementation of digital learning at SMK Al Masturiyah Langkaplancar is not only a technological transformation process, but also an approach that significantly impacts students' psychological dimensions, particularly in relation to motivation and interest in learning. In analyzing this influence theoretically, the most relevant approach used is Abraham Maslow's Hierarchy of Needs Theory.

Maslow divided human needs into five interrelated layers: physiological needs, safety needs, social needs, esteem needs, and self-actualization. Learning interest does not fully emerge unless students' basic needs are met. By referring to this theory, we can examine how digital learning can strengthen or weaken the learning motivation of Al Masturiyah Vocational School students at each of these levels.

At the most basic level, physiological and safety needs encompass learning comfort and access to supporting resources. At SMK Al Masturiyah, limited technological facilities, such as the lack of school Wi-Fi and a lack of digital devices, remain serious obstacles. Students must rely on personal data plans, which are often limited and unstable, creating discomfort and anxiety in online learning.

This directly hinders the fulfillment of their basic need for peaceful learning. According to Maslow's framework, if physiological and safety needs are not met, students tend to struggle to improve focus, motivation, and even interest in learning. In other words, the success of digital systems will be difficult to achieve without ensuring that technology access is available and affordable for all students. Furthermore, digital learning has great potential to support students' social needs through online collaboration features, discussion forums, and interactions through applications. However, in practice at Al Masturiyah Vocational School, the limited use of digital platforms leads students to study individually without meaningful interaction. As a result, students feel less connected to each other and their teachers.

According to Maslow, individuals have a strong drive to be appreciated and recognized. In the context of digital learning, rapid feedback systems (such as grade notifications, digital certificates, or praise on learning platforms) are highly influential in fostering student confidence and motivation. However, at SMK Al Masturiyah, not many teachers have utilized these interactive evaluation features.

Therefore, students rarely receive instant recognition for their achievements, either in the form of immediate grades or constructive feedback that encourages their development. When this need for recognition isn't met, students tend to feel their efforts are meaningless, ultimately discouraging them from engaging more deeply in digital learning.

Conversely, students who receive recognition, even if it's just a short "good job" message in a learning app, show increased enthusiasm and engagement. Therefore, digital learning systems need to be designed in such a way that rewards and appreciation become part of the process, not just the end result. At the highest level, the need for self-actualization drives students to learn not just out of obligation, but because they enjoy the process and feel they are growing personally. Digital learning designed with a learning model *personalized learning*, *project-based learning*, and the use of creative media (such as video editing, multimedia presentations, and gamification) allows students to explore their

potential more broadly.

Unfortunately, conditions at Al Masturiyah Vocational School are still less than optimal in this regard. Due to limited media and teachers' competence in designing creative learning, students are limited in their ability to express themselves and innovate through technology. However, when students are given independent projects or assignments based on their interests, they are more engaged in learning and connect it to their personal identities and aspirations.

Thus, when digital learning strategies successfully encourage students to reach the stage of actualization, their interest in learning not only increases, but grows intrinsically and sustainably.

Based on Maslow's Hierarchy of Needs theory, the impact of digital learning implementation on students' learning interest at Al Masturiyah Vocational School is greatly influenced by the system's ability to address their basic and psychological needs. Learning interest doesn't emerge spontaneously, but rather results from the fulfillment of needs for safety, social relationships, esteem, and self-actualization.

If digital learning focuses solely on delivering material without considering students' emotional and motivational needs, the system will be ineffective and can even drastically reduce interest in learning. Therefore, schools need to develop digital learning systems that are not only technology-oriented but also consider the human side of students, in accordance with Maslow's principles.

4.DISCUSSION

The implementation of a digital-based learning system at SMK Al-Masturiyah Langkaplancar shows that the use of technology in the learning process has significant potential to increase student learning interest, but the results are not yet optimal. Research findings indicate that technology can make learning more flexible and interactive, and provide opportunities for students to learn according to their needs and learning styles. However, these benefits are greatly influenced by the readiness of human resources, the availability of infrastructure, students' ability to adapt, and how teachers design and evaluate digital learning.

A. Implementation of Learning Digital-Based and Student Learning Interest

Results research shows that digital learning can be an alternative to overcome the boredom that arises in conventional learning. The use of technology allows teachers to present materials and activities more varied learning, while students get the opportunity to access learning resources more flexibly. This finding is in line with description in the research which states that technology integration can creating a more interactive and adaptive learning environment. Farida Hanatan and Nurhalimah (2021) also positioned interactive digital modules as

One form of innovation that can be used to increase interest in learning. Flexibility become an important aspect in digital learning. Students do not completely tied to a specific place and time of study so that it has opportunity to review material, seek additional resources, and adapt learning process with each individual's abilities. In this study, the conditions. This especially has a positive impact on students who already have adequate devices and relatively familiar with technology. Thus, digital learning has the potential to foster learning independence and a sense of challenged to explore the material.

Learning digital also opens up opportunities for interaction and collaboration through various online media. Discussions, assignment submissions, providing feedback, and Technology-based evaluation can encourage student engagement. Nugraha and Sari (2020) emphasizes the use of digital technology to improve teaching and learning

interactions. However, research at Al-Masturiyah Vocational School shows that this potential has not been fully utilized because limited facilities and teacher competencies in designing digital learning creatively.

B. Inhibiting Factors Implementation of Digital Learning

Factor the most prominent obstacle is limited infrastructure, especially the lack of a stable and evenly distributed school Wi-Fi network. Based on interview results, digital learning activities still rely on quotas students' and teachers' personal internet. This condition causes access to learning becomes uneven due to the ability of each student to provide quotas and devices different. Reliance on personal networks can also disrupt continuity learning and lowers student enthusiasm when the connection is unstable.

Findings This shows that digital transformation in education is not enough simply by providing devices or using learning applications. Network infrastructure is a fundamental part that determines the sustainability of the digital learning process. The results of research by Sati, Herlina, and colleagues (2022) cited in this study also showed that e-learning can be a flexible learning alternative, but it is still facing obstacles to interaction and equal distribution of technological facilities.

Besides infrastructure and teacher competence are important factors. Research results shows that there are still teachers who do not understand digital learning methods optimally due to limited training and mentoring. This condition can cause technology to be used only as a tool for delivering material, not as part of an innovative learning design. Therefore, improving teacher competency through training, mentoring, practice, and continuous evaluation is an important need in development digital learning in schools.

Other factors is that students' readiness is not evenly distributed. Some students can follow

good digital learning because they have the tools and capabilities adequate adaptation, while others experience confusion, anxiety, or difficulty participating. This indicates that the implementation of digital learning needs to take into account gaps in abilities and conditions students so that technology does not actually widen inequalities in experience study.

C. Analysis Based on Theory David Easton System

Findings research can be understood through David Easton's Systems Theory which looks at a system as a unit consisting of input, process, output, and feedback. In the context of digital learning at Al-Masturiyah Vocational School, input includes sources human resources, students, curriculum, devices, and technological infrastructure. Weaknesses in input, especially limited teacher competency and networks internet, has a direct impact on the quality of the learning process.

At the level process, teachers need to transform the input into a meaningful learning experience. Meaningful through appropriate strategies, methods, media, and evaluation. Research

shows that methods such as blended learning, flipped classroom, personalization of learning, and technology-based evaluation have the potential to increase student engagement. However, its implementation requires teacher competence and adequate infrastructure support. Thus,

The success of the method cannot be separated from the quality of the system input. Output the system in this study is mainly seen in changes in learning interest students. The results were mixed: students who had adequate equipment and those familiar with technology tend to show higher interest, while students who experience barriers to access or anxiety about technology tend to show lower participation. This finding confirms that digital learning has not

produced even output.

Feedback is an important part of ensuring the system continues to improve. Schools need to conduct regular evaluations of the use of technology, student engagement, teacher constraints, network access, and learning outcomes. This feedback should then be used as a basis for improvement. strategies, providing support, and adapting learning to conditions real in schools. Thus, systems theory asserts that improvements digital learning must be done comprehensively, not just in one area component.

D. Analysis Based on Theory Abraham Maslow's Hierarchy of Needs

Influence digital learning on learning interest can also be understood through the Theory Abraham Maslow's Hierarchy of Needs. In this study, interest in learning is not only seen as a result of the use of technology, but also as the result of fulfilling students' basic and psychological needs during the process learning.

In level physiological needs and safety, availability of devices and internet access becomes an important factor. When students have to use their personal quota, limited or facing unstable connections, discomfort arises and anxiety that can interfere with concentration in learning. Therefore, the provision of more stable and affordable access to technology is part of the effort creating a sense of security in digital learning.

On social needs, technology can actually expand students' opportunities to communicate, discuss, and collaborate. However, research shows that that the use of digital platforms at Al-Masturiyah Vocational School is not yet fully implemented produce meaningful interactions. Learning that is too individualized can make students feel less connected to their friends and teachers. Because of this, Therefore, digital learning design needs to include collaborative activities and targeted communication.

On need for appreciation, providing prompt and constructive feedback can helps students feel that their efforts are appreciated. Research shows that Interactive evaluation and appreciation features have not been widely utilized by teachers. In fact, positive comments, recognition of work results, and information learning development can strengthen self-confidence and encourage students to continue participating.

In level self-actualization, digital learning has a great opportunity to provide space for students to develop creativity and potential. Model personalized learning, project-based learning, creative media, presentations multimedia, video editing, and gamification can provide a learning experience which is closer to the students' interests and aspirations. However, research shows that the opportunity is not optimal due to media limitations and teacher competence in designing creative learning.

E. Implications of Research on Digital Learning Development

Based on overall findings, increased interest in learning through digital learning in SMK Al-Masturiyah requires a systemic and humanistic approach. First, schools need to strengthen network infrastructure so that learning does not completely dependent on personal quotas. Second, teachers need to receive training and ongoing support to be able to choose methods, media, and digital evaluation according to student characteristics. Third, schools need paying attention to student readiness through digital literacy mentoring and providing alternatives for students who experience device or network problems.

Fourth, learning evaluation needs to be directed at fast, constructive feedback, and sustainable. Fifth, digital learning should not only be oriented towards the use of technology, but also towards fulfilling needs social, appreciation, sense of security, and self-actualization of students. With the approach In this regard, technology can function as a means to strengthen the quality of interaction and learning experiences, not just replacing learning media conventional.

In a way overall, this study shows that digital-based learning at SMK Al-Masturiyah

Langkaplancar has positive potential in improving interest in learning, but success is not evenly distributed. Infrastructure barriers. Teacher competence and student readiness are the main factors that need to be addressed. Therefore, increasing interest in learning through digital transformation is a must implemented as a continuous process that links resource readiness power, learning strategies, student experiences, and evaluation and follow-up.

5.CONCLUSION

Based on the results of the discussion of the study entitled Implementation of Digital-Based Learning Systems in Increasing Student Interest in Learning at SMK Al Masturiyah Langkaplancar, the digital-based learning system at SMK Al Masturiyah Langkaplancar has positive potential in increasing student interest in learning. The digital strategies implemented such as technology integration and the development of digital literacy have opened up opportunities for more flexible and interactive learning, then in its implementation there are still obstacles due to the lack of infrastructure such as the unavailability of Wi-Fi, lack of teacher training, and uneven student readiness in facing technology-based learning. These supporting and inhibiting factors indicate that the success of the system is highly dependent on the balance between input, process, and feedback as explained in David Easton's System Theory. Then, the learning interest of SMK Al Masturiyah students will develop optimally if their psychological needs are met, as explained in Maslow's Theory of Needs. A sense of security, appreciation, and space for self-actualization greatly influence their learning motivation in this digital era.

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