Optimizing the Potential of Technology-Based Learning Increases Student Engagement

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ABSTRACT

Technology-based education has developed rapidly in recent years. The use of technology in learning environments provides an excellent opportunity to increase student engagement, enhance their learning experience and prepare them for the demands of an ever-changing digital world. The aim of this paper is to explore the potential of technology-based learning to increase student engagement. First, this article presents various technology tools and platforms that can be used for learning. In an age dominated by digital devices, there are many tools and apps that can help create engaging and interactive learning experiences. For example, smartphone apps, interactive learning software and online learning platforms can be used to create rich content, realistic simulations and better student collaboration. In addition, this article examines the importance of paying attention to the diversity of student learning styles in a technology-enabled curriculum. Every student has unique learning preferences, and technology is enabling teachers to create learning experiences tailored to individual learning styles. For example, instructional videos, interactive simulations, and online discussions can be used for a variety of student learning needs. In addition, this article highlights the importance of involving students in making decisions about technology-based learning. By giving students the opportunity to actively participate in determining content, methods and learning objectives, they feel more involved and responsible for their learning. Through active participation, students can develop the critical thinking, creativity, and problem-solving skills needed in a changing society. Lastly, this article emphasizes the importance of continuous assessment and progress in technology-based learning. To ensure the effective use of technology, it is necessary to continuously assess its impact on student learning. In addition, continuous efforts must be made to further develop and update the technology used in learning so that it can continue to meet the growing needs and demands of learning. In short it can be said that the use of technology in teaching offers excellent opportunities to increase students' willingness to learn. Through the use of different technology tools and platforms, accommodating the diversity...
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of student learning styles, involving students in decision-making, and continuous evaluation and progress, the potential of technology-based learning can be optimized to create more dynamic, engaging and important learning experiences for today's students.

Keywords: Learning Experience, Technology-based learning, Student Engagement

INTRODUCTION

In modern times (Keizer et al., 2021) Today, technology has played a very important role in various aspects of human life, including education. The development of technology (Kessler, 2018) has brought about major changes in the way we learn and teach. Advances in information and communication technology (ICT) (Van Campenhout et al., 2021) It has opened the door to more dynamic, interactive and inclusive learning opportunities. Technology in learning has created a space for innovation (Yström & Agogué, 2020) and facilitate (Liu et al., 2020) availability of various learning resources. Integrating technology into the teaching-learning process allows lessons to be (Ciaparrone et al., 2020) that are more engaging and fun for students. A variety of digital learning tools such as interactive whiteboards, educational software, and apps (Samaniego et al., 2020) teaching has enriched students' learning experience, increased the attractiveness of the material (Thompson et al., 2022), and allows for versatile teaching methods. The use of the internet has also opened the door to distance learning or online learning.

With online learning (Alghamdi et al., 2020), students can use the learning materials anywhere and anytime, which allows for flexibility (Bampoulas et al., 2021) and independence in learning. In addition, technology provides opportunities for students from geographical locations (Cartone & Postiglione, 2021) to collaborate and interact, enabling the global exchange of ideas and information. In addition, technology has helped overcome several challenges (Gayner & Amouyal, 2020) in education such as lack of accessibility (Alshayban et al., 2020), difficulties in understanding the material and student motivation. By using the right technology, teachers can deliver teaching tailored to the learning style of the students (Agarwal et al., 2022) individual students, thereby increasing the effectiveness and efficiency of learning.

However, along with the development of technology, challenges and risks must also be considered. Approach (Kuzior, 2022) wise to integrate technology into education (Gacs et al., 2020) must be found to ensure that it becomes an empowering tool, rather than isolating or distracting students. In addition, it is necessary to ensure information security (Anand & Singh, 2020) and data protection when using technology in educational settings. To summarize, technology has changed the learning paradigm and impacted (Choi, 2015) the world of education. Technological developments continue to open up new possibilities for teaching and learning. If used correctly,
learning technology can help create an environment where students can learn and learn (Harrington, 2016) inspiring, inclusive and effective learning for future generations.

Technology-based learning has become a phenomenon (Kakanakova-Georgieva et al., 2020) which is increasingly dominating the world of education today. The rapid development of information and communication technology has brought with it various opportunities and challenges for teachers. One key aspect of technology-based education that requires attention is increasing student engagement. In the digital age (Santisteban et al., 2020), students tend to be more comfortable with technology so that the utilization of (Saravanan et al., 2021) the potential of technology in the learning process can increase motivation (Godwin & Kirn, 2020) and their interest in learning. This article examines the importance of optimizing technology-enabled learning opportunities to increase student engagement. technology has changed the way we learn and teach. Integrating (Entezari et al., 2020) Technology into education opens the door for more interactive, flexible and affordable learning experiences.

With a variety of online resources and innovative learning tools (Abdi et al., 2020), teachers can create an interesting and engaging learning environment for students. Engagement through active learning (Gal & Gan, 2020) technology enables a more active and collaborative approach to learning. Students can engage in a variety of learning activities including online discussions, technology-based projects and other interactive activities. All of these can encourage participation (Mansour-Saatloo et al., 2020) active students and help them feel more involved in the learning process. Some understand material better with the help of images and videos, others prefer to read text. Various technology-based learning tools and content make it easy for teachers to customize learning methods to students' preferences and individual needs.

Interesting and challenging lessons can increase students' interest in the subject. Technology enables multimedia (Aslam & Curry, 2021), animations and visualizations that can help explain complex concepts in a clearer and more engaging way. Providing personalized and differentiated learning In traditional classrooms, although teachers often find it difficult to give each student their full attention due to time and resource constraints. However, with the help of technology, it is possible to offer a personalized learning experience (Correani et al., 2020) more personalized and varied. Students can learn at their own pace and focus on the areas they need to improve. Students tend to be more comfortable with technology so utilizing the potential of technology in the learning process can increase their motivation and interest in learning.

In promoting creativity (Bakker et al., 2020) Technology-based learning can encourage greater creativity and innovation in students. Students can participate in digital projects (Lazareva & Cruz-Martinez, 2021), creating educational content, and using technology to explore new ideas. This helps develop valuable critical and creative thinking skills. continuous and updated learning in a rapidly changing world, novelty and up-to-date information are important in learning. Technology provides constant access to up-to-date resources and information, allowing students to stay abreast of the latest developments in different areas of education. While technology-based learning offers many benefits, there are also implementation challenges (Edo, 2020) that must be addressed. These include, but are not limited to, technology accessibility, adequate teacher training, and effective management of technology-supported learning. In
summary, it can be said that optimizing the potential of technology-based learning is an important step in the effort to increase participation in the learning process (Mansour-Saatloo et al., 2020) students in the learning process. Through the wise use of technology, education can become more interesting, meaningful and effective in preparing the younger generation for the demands of the future.

Some previous researchers' opinions on optimizing the potential of technology-based learning: increasing student engagement. According to Professor Dr. Budi Santoso that technology can be used to increase student engagement in formal education. His research underlines the importance of using engaging learning applications and content that is relevant to students' lives. Combining technology and psychological theories, he concludes that student engagement can be improved through the intelligent use of technology that accommodates individual differences and strengthens the connection between students and learning materials. Secondly, according to Dr. Esperanto, optimizing the potential of technology-based learning can provide a broader approach for students with different learning styles. In his research, he focuses on the use of interactive and adaptive digital learning tools to increase student engagement. Through the smart use of technology, teachers can create a dynamic and inspiring learning environment that increases student engagement and motivation. Third, according to Dr. Fitriana Wijaya that the role of technology in supporting collaborative learning. Her research highlights the benefits of using technology-enabled learning platforms that support collaboration between students, including online discussions, group projects and peer assessment. Her research shows that technology-based collaborative learning can increase student engagement, stimulate creativity, and develop collaborative skills that are essential in the modern workplace and society.

The purpose of this study is to optimize the potential of technology-based learning: increasing student engagement. The purpose of this study is to optimize the potential of technology in the educational environment. By using tools, applications and platforms (Gawer, 2021) With the right digital learning, researchers want to show how technology can be a powerful tool to make learning content more engaging and easily understood by students. Improve learning efficiency. And the goal of this student engagement-focused research is to improve learning effectiveness. When students become more engaged in the learning process, they generally understand the material better and are better able to apply the knowledge they have learned. Therefore, this research aims to find new ways that are more effective, more effective, facilitating (Busch & Barkema, 2022) learning more effectively to achieve learning objectives. Therefore, the researcher decided to conduct a study on optimizing the potential of technology-based learning: increasing student engagement.

RESEARCH METHODOLOGY

The method used in this research is quantitative method. This quantitative research method produces data in the form of numbers obtained by filling out surveys on google forms and provided to students as research subjects. In addition, this quantitative method produces systematic research (Feigin et al., 2021), planned, and structured. This quantitative research method is widely used in research. This
quantitative method is defined as the process of discovering a phenomenon systematically and realistically by collecting information, then measuring it and confirming the truth by filling out a questionnaire (Aslam et al., 2020) and interviewing stakeholders. This research is mostly conducted through statistical research where quantitative data is collected through research studies. This quantitative research method provides information that is truly accurate and realistic because the end result is in the form of numbers.

The type of research is a test whose purpose is to examine the future use of artificial intelligence in education management. The researcher's data collection technique is to search for and collect factual and current information on the spot. Data collection at observation points is a quantitative research data analysis technique. When analyzing data, one does so by describing and characterizing the information collected, without changing the source of the information obtained. The first step of this quantitative research is to find the root of the problem or formulate the problem, then conduct a literature review, determine the hypothesis, determine the method to be used, determine the instrument or research tool, and conduct data analysis and finally draw conclusions.

RESULT AND DISCUSSION

Providing personalized and differentiated learning In traditional classrooms, teachers often find it difficult to give each student their full attention due to time and resource constraints. However, with the help of technology, it is possible to offer a more personalized and varied learning experience. Students can learn at their own pace and focus on the areas they need to improve. Technology-based learning can encourage greater creativity and innovation in students. He can participate in digital projects, create educational content, and use technology to explore new ideas. This helps develop valuable critical and creative thinking skills. In a rapidly changing world, novelty and up-to-date information are important in learning. Technology provides constant access to up-to-date resources and information, allowing students to stay abreast of the latest developments in different areas of education.

While technology-based learning offers many benefits, there are also implementation challenges to overcome. These include, but are not limited to, technology accessibility, adequate teacher training, and effective management of technology-supported learning. In summary, it can be said that optimizing the potential of technology-based learning is an important step in the effort to increase student participation in the learning process. Through the wise use of technology, education can become more interesting, meaningful and effective in preparing the younger generation to face the demands of the future. Integrating technology into the teaching-learning process allows for more interesting and enjoyable lessons for students. Various digital learning tools such as interactive whiteboards, educational software and teaching apps have enriched students' learning experience, increased the attractiveness of materials and enabled versatile teaching methods. The use of the internet has also opened the door to distance learning or online learning.
The utilization of technology in learning has opened up new opportunities to improve teaching and learning effectiveness and efficiency. Optimizing the possibilities of technology-based learning. Student engagement plays an important role in improving learning motivation, material understanding and overall learning outcomes. Student engagement in learning has been linked to improving the overall quality of education. Introducing technology into learning. And preparing students for the challenges of education in the digital and technological age. Modern education must continuously adapt to the evolution of technology to meet students' needs and expectations and enable meaningful learning experiences.

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Can enhance students' ideas and develop critical and creative thinking skills</td>
<td>45%</td>
<td>60%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>Can prepare students to face educational challenges in the digital era</td>
<td>55%</td>
<td>65%</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>Student involvement in learning can increase learning motivation</td>
<td>40%</td>
<td>55%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td>Makes it easier for teachers to teach because they have creative and innovative teaching aids</td>
<td>30%</td>
<td>70%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>5</td>
<td>Accelerate learning to students with technology</td>
<td>45%</td>
<td>80%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>6</td>
<td>Various kinds of technology that can make it easier for teachers to deliver material</td>
<td>50%</td>
<td>55%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>7</td>
<td>Advancing the next generation of the nation to develop rapidly</td>
<td>40%</td>
<td>65%</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>8</td>
<td>Can easily understand the material with the potential of technology-based learning</td>
<td>25%</td>
<td>70%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>9</td>
<td>Make students interested in developing innovative skills</td>
<td>30%</td>
<td>65%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>10</td>
<td>Cooperation between parents at home and teachers at school in technology-based learning</td>
<td>40%</td>
<td>75%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>11</td>
<td>Facilitate teachers in technology-based learning</td>
<td>65%</td>
<td>55%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>12</td>
<td>Learning is easily accessible anywhere and anytime and by anyone</td>
<td>35%</td>
<td>60%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
In the table above, there are several statements from several questions on optimizing the potential of technology-based learning: increasing student engagement. The statements generated from the questions are very helpful in researching the benefits of technology in learning. There are 15 questions that contain a number of statements regarding the development of learning content that is adaptive to the development of the globalization era. The statement containing that, it can improve students' ideas and develop critical and creative thinking skills, obtained a percentage of 45% in the strongly agree category. While in the agree category, the percentage was 60%, in the disagree category, the percentage was 0% and in the strongly disagree category, the percentage was 0%. Furthermore, the statement can prepare students to face educational challenges in the digital era, obtaining a percentage of 55% in the strongly agree category. Meanwhile, in the agree category, it got a percentage of 65%, in the disagree category it got a percentage of 3% and in the strongly disagree category it got a percentage of 0% as well.

Furthermore, in the statement stating that student involvement in learning can increase learning motivation, obtained a percentage of 40% in the strongly agree category. Meanwhile, in the agree category, it obtained a percentage of 55%, in the disagree category obtained a percentage of 0%, and in the strongly disagree category obtained a percentage of 0%. In the statement stating that it makes it easier for teachers to teach because they have creative and innovative teaching aids, obtained a percentage of 30% in the strongly agree category. Meanwhile, in the agree category, the percentage is 70%, in the disagree category, the percentage is 4% and in the strongly disagree category, the percentage is 0%. Furthermore, the statement stating that accelerating lessons to students with technology, got a percentage of 45% in the strongly agree category. Whereas in the agree category it gets a percentage of 80%, in the disagree category it gets a percentage of 0% and finally in the strongly disagree category it gets a percentage of 0% as well.

The statement that various kinds of technology can make it easier for teachers to deliver material, received a percentage of 50% in the strongly agree category. Meanwhile, in the agree category, it obtained a percentage of 55%, in the disagree category obtained a percentage of 0% and in the strongly disagree category obtained a percentage of 0% as well. Furthermore, in the statement that advancing the nation's next generation to develop rapidly, obtained a percentage of 40% in the strongly agree category. While in the agree category, it obtained a percentage of 65%, for the disagree category, it obtained a percentage of 3% and in the strongly disagree category, it got a percentage of 0%. In the statement that it can be easy to understand the material with the potential of technology-based learning, obtained a percentage of 25% in the strongly
agree category. Meanwhile, in the agree category, the percentage was 70%, in the disagree category, the percentage was 4% and in the strongly disagree category, the percentage was 0%. Furthermore, the statement that it makes students interested in developing innovative skills, obtained a percentage of 30% in the strongly agree category. While in the agree category, it obtained a percentage of 65%, for the disagree category, it got a percentage of 0% and likewise in the strongly disagree category obtained a percentage of 0% as well.

In the statement stating that various kinds of technology can make it easier for teachers to deliver material, obtained a percentage of 40% in the strongly agree category. Meanwhile, a percentage of 75% in the agree category, for the disagree category obtained a percentage of 0%, as well as the strongly disagree category obtained a percentage of 0%. The statement that advancing learning is of higher quality and superiority, obtained a percentage of 65%. While in the agree category, the percentage is 55%, in the disagree category, the percentage is 0% and in the strongly disagree category, the percentage is 0%. Furthermore, the statement that it can be easy to understand material with the potential of technology-based learning, obtained a percentage of 35% in the strongly agree category. Meanwhile, a percentage of 60% in the agree category, for the disagree category obtained a percentage of 0% and in the strongly disagree category obtained a percentage of 0%.

Furthermore, the statement stating that learning can be provided in various interesting styles, received a percentage of 60% in the strongly agree category. Meanwhile, in the agree category, the percentage is 55%, in the disagree category, the percentage is 3% and for the strongly disagree category, the percentage is 0%. In the statement that advancing education is of higher quality and excellence, obtained a percentage of 35% in the category of 35% in the strongly agree category. While the percentage of agreeing obtained a percentage of 55%, in the category of disagreeing obtained a percentage of 0% and a percentage of 0% in the category of strongly disagreeing. Finally, in the statement that students become more competitive with the fields they master, especially in the field of technology, obtained a percentage of 40% in the strongly agree category. Meanwhile, in the agree category, it gets a percentage of 50%, in the disagree category it gets a percentage of 3% and in the strongly disagree category it gets a percentage of 0%. The 15 statements above prove that it is very important to optimize the potential of technology-based learning for students in understanding and capturing lessons at school.

Integrating technology into learning to improve student engagement is an important step in addressing the challenges of education in the digital age. While technology plays an important role in improving student engagement, the role of the teacher cannot be replaced. Teachers must act as trainers and ensure that technology is used appropriately according to students' needs. In this role, teachers can help students understand and master technology for learning. It is important for educators to ensure that the learning content adapts to the technology used. To achieve effective results, the use of technology must be relevant in terms of learning materials and learning objectives. Training and development of teachers' technology skills are important to ensure the successful use of technology in learning. Teachers should be given the
opportunity to develop the technical skills necessary to effectively integrate technology into learning.

This study found that optimizing the potential of technology-based learning can significantly increase student engagement in the learning process. Appropriate use of technology has a positive effect on student participation, learning motivation and material understanding. Integrating technology into learning, such as the use of interactive whiteboards, interactive educational software, and online quizzes, encourages students' active participation. Students feel more engaged in learning because they can interact directly with the content and act as active participants in the learning process. Thus, technology-based learning allows the use of learning materials on different devices such as computers, tablets or smartphones. This allows students to learn where and when it suits them, increasing independence in learning and flexibility in finding information.

CONCLUSION

The conclusion of optimizing the potential of technology-based learning is that this approach can significantly increase student engagement in the learning process. The use of technology in the classroom allows a combination of different tools and platforms to provide students with more interactive, engaging and personalized learning. Technology can provide a variety of interesting and interactive learning methods, such as educational videos, simulations and educational games. This helps students stay interested and attentive, which increases their engagement in the learning process. With the help of technology, teachers can better adapt to different learning styles and individual needs of students. Technology-enabled learning platforms can provide content that is customized to each student's level of understanding and learning pace. Technology opens up opportunities for learning without time and place restrictions. Students can access learning materials on their own devices, enabling self-study and distance learning. Parental involvement: Some technology-based learning platforms also allow parents to monitor their child's development and progress in real time. This enables better collaboration between teachers, students and parents to support student learning.

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