The Importance of Technology-Based Learning Design to Increase Student Involvement

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Abstract
This research examines the use of animation as a technology-based learning medium to increase student learning motivation. In the rapid development of information and communication technology, education requires innovative transformations in learning methods. Animation has been recognized as an effective tool for enriching students' learning experiences through clear and interactive visual representations. This research aims to analyze literature related to the use of animation as a learning medium, explore the advantages and challenges of its use, and convey the contribution of this research to the development of innovative learning practices. The method used in this research is a literature study, where data is obtained through analysis of theoretical sources and related research. The results of the literature study analysis show that animation has great potential to increase student learning motivation, involvement, creativity, and personalized learning. However, educators and researchers need to pay attention to good animation design and the role of educators in facilitating the effective use of animation. This research contributes to the development of innovative learning practices and enriches understanding of the use of animation as an effective learning medium in increasing student learning motivation.

INTRODUCTION

With rapid changes in times and advances in information and communication technology, the world of education is experiencing a significant transformation (Firdaus et al., 2021; Fricticarani et al., 2023; Melati et al., 2023). Education is no longer limited to conventional learning methods which only rely on textbooks and lectures from teachers in front of the class (Fahrudin et al., 2021; Rivalina & Siahaan, 2020). Along with technological developments, education has experienced a striking shift in terms of the use of more interesting and interactive learning media. The use of technology has opened up new opportunities for developing innovative and effective learning methods. One prominent example is the use of animation as a learning tool. Animation allows for more lively and interesting visualizations, which can help students understand complex concepts better (Ardian & Munadi, 2016). By using animation, learning material can be presented more interactively and interestingly.
allowing students to be actively involved in their learning process.

Apart from the use of animation, information and communication technology has facilitated the development of various other learning media (Rudini & Saputra, 2022). For example, the use of computer simulations and educational games has become popular in helping students understand difficult concepts and increasing their engagement in learning. In addition, online learning platforms have enabled students to flexibly access learning resources, including learning videos, interactive modules, and discussion forums that facilitate collaboration and knowledge sharing between students (Dewi et al., 2023; Jafnihirda et al., 2023). The transformation of education through the use of technology has also opened the door to distance learning or e-learning. In this digital era, students can access education remotely through online learning platforms, webinars, or virtual classes (Rivai & Mana, 2021). This provides greater flexibility for students to study according to their needs and availability, without being limited by geographic boundaries or rigid schedules.

In conclusion, the development of information and communication technology has brought about significant transformation in the world of education. Innovative learning methods, including the use of animation and other interactive learning media, have enriched students’ learning experiences. Apart from that, technology has also facilitated distance learning that is more flexible and accessible to students anywhere. By continuing to utilize the potential of technology, education will continue to develop and provide wider opportunities for students to achieve academic success (Ambarwati et al., 2021).

In the context of modern education, animation has become the center of attention of educators and researchers who want to use it as an effective learning medium. They are interested in exploring the potential of animation to increase student motivation and involvement in the learning process (Subagiya, 2023). By utilizing sophisticated technology and design, animation can take learning to a more interesting level, inspire the imagination, and provide a unique learning experience in more depth. One important aspect of learning is student learning motivation (Winastiti et al., 2012). Learning motivation acts as a driving force that encourages students to participate actively, develop interests, and achieve better results in the learning process (Suwarma et al., 2023). However, students often face challenges in maintaining their learning motivation, especially in complex or abstract learning.

This is where animation as a technology-based learning medium can significantly contribute (Muslim et al., 2024). Animation has strong visual and audio appeal, able to arouse students’ imagination and creativity. With the right use of animation, difficult or abstract learning material can be conveyed in a way that is easier for students to understand. Animation can also present information interactively, allowing students to actively participate in the learning process (Yuliansah, 2018).
Previous research has revealed the benefits of using animation in increasing student learning motivation (Yuliansah, 2018). Animation provides an interesting and enjoyable learning experience, which in turn increases student engagement and interest in learning material (Winastiti et al., 2012). In addition, animation can motivate students by conveying relevant and contextual content, presenting stories or scenarios that provoke students' emotions, and providing immediate feedback. However, although there is a certain amount of research that has been done in this area, there is still room for further research. This research will explore more deeply the use of animation as a technology-based learning medium with a focus on increasing student learning motivation. The main goal is to understand in depth how animation can influence student learning motivation in an educational context (Sandra et al., 2024).

Apart from that, this research will also explore the impact of using animation on students' understanding of concepts. Animation has the potential to convey complex information in a way that is easier for students to understand. In this research, we will investigate whether the use of animation as a technology-based learning medium can significantly increase students' understanding of concepts. Through this research, it is hoped that there will be a better understanding of how the use of animation in learning can influence students' learning motivation and their understanding of concepts. The results of this research will provide new insights and deeper thinking about developing innovative and effective learning methods in this digital era.

Thus, this research has important updates in exploring the potential for using animation as a technology-based learning medium and discussing its practical implications in the context of curriculum development and learning practices in educational institutions. It is hoped that the results of this research can make a positive contribution to the development of more meaningful and effective education.

METHODS

The method used in this research is a literature study. Literature study is a research method that involves collecting and analyzing various literature sources that are relevant to the research topic (Assyakurohim et al., 2023). In this case, researchers will search for and collect articles, books, scientific journals, theses, and other literature sources related to the use of animation as a technology-based learning medium to increase learning motivation.

The following are the steps that will be taken in this literature study method; i) Identify the topic researchers will identify a specific research topic, namely the use of animation as a technology-based learning medium to increase learning motivation. This will help in directing literature searches to focus on relevant topics. ii) Literature search researchers will conduct literature searches using academic databases, online libraries, scientific journals, and other trusted sources. Relevant keywords such as "animation in learning," "technology-based learning media," and "learning motivation" will be used to search for appropriate literature. iii) After relevant literature is found, the researcher will make a selection based on previously determined inclusion and exclusion criteria. The selected literature must be directly related to the research topic and be of good quality. Articles that already have a reputation and are relevant to the latest developments in the field will be a priority. iv) After the literature is selected, the researcher will carry out an analysis of the content of the literature. This involves in-depth reading and understanding of literature content relating to the use of animation as a technology-based learning medium to increase learning motivation. Things such as the methodology used, research findings, and practical implications will be explored and critically analyzed. v) Based on the literature analysis, researchers will draw comprehensive and in-depth conclusions regarding the use of animation as a technology-based learning medium to increase learning motivation. This conclusion
will include significant findings, trends, challenges, and novelties in the use of animation as a learning medium.

This literature study method allows researchers to develop a strong theoretical foundation, gain a deep understanding of the research topic, and identify knowledge gaps that still need to be studied (Irawan et al., 2021). Apart from that, this method also allows researchers to see the latest trends and developments in the use of animation as a technology-based learning medium, as well as explore its practical implications in an educational context.

RESULT AND DISCUSSION

Learning media are all forms of tools or materials used in the learning process to help students understand and master the subject matter. This media can be in the form of physical objects, technology, or a combination of both designed to communicate information more effectively and facilitate understanding and retention of learning concepts. The aim of using learning media is to create a more interesting, meaningful, and interactive learning experience, thereby helping students understand lesson content better. According to A. S. Hardjasudarma, learning media are all tools or intermediaries that can influence human sensory organs in observing, feeling, or gaining knowledge and experience. Meanwhile, according to Djamarah and Zain, learning media are all objects or devices used by teachers in the teaching and learning process to make it easier for teachers and students to achieve learning goals.

Meanwhile, Fuad Hassan, learning media are tools or materials used to present learning communication to make it better, effective, and fun. According to Sutrisno Hadi, learning media are tools or physical objects used by teachers in the teaching and learning process to facilitate the presentation of learning material and help students understand it. According to M. Syafei, learning media is anything that can produce changes in students' behavior through their five senses. The use of learning media in an educational context has several important goals. The following are some of the main objectives of using learning media: Increasing student involvement. Interesting and varied learning media can increase student involvement in the learning process (Asril et al., 2023).

Visual or interactive media can make learning more interesting and avoid boredom. As well as improving understanding of concepts, learning media can help explain abstract or complex concepts. Through visualization, graphics, or animation, these concepts can be illustrated more clearly and easily understood by students. And improve memory. The use of interesting media can help stimulate students' memory. Information presented in different ways, such as through images or audio, tends to be easier to remember than just plain text. As well as encouraging collaborative learning. Several types of learning media, such as group presentations or media-based projects, can encourage students to work together in teams and collaborate in understanding and applying the material.

The following are the results of the literature study analysis based on the literature study method used in this research:

**Animation as a Learning Media**

Literature studies show that the use of animation as a learning medium has advantages in conveying complex information visually and interactively (Safitri & Titin, 2021). Animation can visualize concepts that are difficult to understand in a form that is easier for students to digest. The use of motion, color, and sound elements, animation can bring learning material to life and enrich students' learning experiences.

**The Effect of Animation on Learning Motivation**

Various research studies in the literature show that the use of animation as a technology-based learning medium can increase students’ learning motivation. Attractive and interactive animations can arouse student interest, spark curiosity, and
create a fun learning experience. Apart from that, animation also provides variety in teaching methods, which can prevent boredom and monotony in learning to improve concept understanding.

Literature studies also support that the use of animation in learning can improve students’ understanding of concepts. Animation can depict abstract or complex concepts more visually and clearly. By using animation, students can see and understand how these concepts work in a real context. Clearer visual representations and interesting situational simulations in animation can help students gain a deeper understanding of the learning material. Novelty in the Use of Animation (Widyastuti et al., 2024).

Literature studies reveal that the use of animation as a learning medium continues to experience development and innovation. Increasingly realistic animation designs, the use of more sophisticated technology, and integration with interactive elements such as exercises and exams can increase the effectiveness of using animation in learning. Apart from that, research also highlights the importance of paying attention to the quality of animated content, such as accuracy of information, suitability to the curriculum, and connection to students’ real lives (Winastiti et al., 2012).

Through analysis of literature studies, it can be concluded that the use of animation as a technology-based learning medium has great potential to increase students’ learning motivation and their understanding of concepts. Literature studies also show that there is newness in the development of animation as a learning tool that is increasingly sophisticated and relevant to technological developments (Ningrum et al., 2023; Wulandari & Rofiah, 2020). The use of animation as a technology-based learning medium has become a topic that has attracted the interest of educators and researchers in recent years. In the results of a literature study, it was found that animation has great potential to increase student learning motivation (Sunami & Aslam, 2021).

One of the important findings in literature studies is that animation can bring abstract or complex learning content to life in a way that is easier for students to understand (Sunami & Aslam, 2021). The use of motion, color, and sound elements, animation allows students to visualize concepts that are difficult to explain verbally or statically. This increases students’ comprehension of learning material and allows them to gain a deeper understanding.

Apart from that, animation also offers an interactive learning experience. In a literature study, it was found that interactive animation can increase student involvement in learning (Sunami & Aslam, 2021). Students can interact with animated content, such as clicking, highlighting, or selecting options that allow for independent exploration. This interactive feature allows students to be actively involved in learning and improves their understanding and memory.

Literature studies also show that the use of animation as a technology-based learning medium can increase students’ learning motivation (Muthmainnah et al., 2021; Safitri, 2021). Animations that are interesting, entertaining, and relevant to students’ real lives can arouse their interest in learning (Maulidia & Lestari, 2024). Animation also provides variety in teaching methods, avoiding boredom and monotony in conventional learning. By strengthening student motivation, animation can create a positive learning environment and increase student involvement in the learning process (Winastiti et al., 2012). However, the literature review also found several challenges in using animation as a learning medium. Some challenges include the quality of animated content related to information accuracy, suitability to the curriculum, and connection to students’ real lives (Yuliansah, 2018). Apart from that, technical factors such as limited technological accessibility, internet speed, and the devices required can also influence the implementation of animation in learning.

Apart from increasing students’ learning motivation, the use of animation as a technology-based learning medium also has other positive impacts (Prabowo et al.,
The results of the literature study show that the use of animation can increase student involvement in the learning process, increase student creativity and imagination, and facilitate adaptive and personalized learning. The use of animation as a learning medium provides flexibility in presenting material. Animation can be adjusted to students' needs and abilities so that it can encourage more adaptive learning (Yuliansah, 2018). In a literature review, it was found that animation can be adjusted to the level of difficulty or speed of student learning so that students can learn at their own pace. This helps reduce the tendency for students to feel behind or under too much pressure in their learning.

Apart from that, the use of animation can also increase students' creativity and imagination. Interesting and entertaining animations encourage students to think critically, develop visual thinking, and come up with their creative ideas (Faizhal & Rosada, 2023). Animation can stimulate students' imaginations by presenting a new and challenging world in learning. This contributes to the development of students' cognitive and creative skills. Apart from the positive impact on student motivation and engagement, the use of animation as a technology-based learning medium can also facilitate personalized and independent learning (Lutfi & Usamah, 2019). Animation can provide opportunities for students to learn independently and in a comfortable environment (Herwina, 2021; Santika et al., 2022). Students can access animations flexibly, repeatedly, and according to their learning preferences. Thus, animation can help students develop independence, self-confidence, and responsibility for their learning process.

However, implementing the use of animation in learning also requires attention to several important factors. In a literature review, it was found that good and quality animation design is crucial in influencing the effectiveness of using animation in learning (Yuliansah, 2018). Animation must pay attention to the principles of good design, including clarity of message, connection to the learning context, and visual consistency. Apart from that, the role of educators as facilitators and supervisors in the use of animation is also an important factor in ensuring that animation is used effectively in the learning process (Winastiti et al., 2012).

Overall, the results of the literature study show that the use of animation as a technology-based learning medium has great potential to increase student learning motivation, involvement, creativity, and personalized learning. Animation can enrich students' learning experiences through clear, interactive, and interesting visual representations. However, educators and researchers need to pay attention to good animation design and the role of educators in facilitating the effective use of animation. Challenges related to content quality and technical aspects also need to be considered in implementing animation as a learning medium. Hopefully, this research can provide a valuable contribution to overcoming these challenges and optimizing the use of animation as an effective learning tool. Thus, this research has the potential to develop innovative learning practices and enrich our understanding of the use of animation as an effective learning medium in increasing student learning motivation.

CONCLUSION

The conclusion from the research above is that the use of animation as a technology-based learning medium has great potential in increasing student learning motivation. Animation can enrich students’ learning experiences through clear, interactive, and interesting visual representations. The use of animation can also increase student engagement, creativity, and personalized learning. However, challenges related to content quality and technical aspects need to be addressed to ensure the effective implementation of animation in learning.

This research contributes to the development of innovative learning practices and enriches understanding of the use of animation as an effective learning medium.
It is hoped that this research can help educators and researchers optimize the use of animation as a learning tool that can increase student motivation and involvement in the learning process. With a deeper understanding of the potential and challenges of using animation, efforts can be made to develop quality animated content, design interesting interactions, and integrate animation into relevant curricula. Thus, animation can be an effective tool for improving students' learning experiences and creating an inspiring learning environment. This conclusion emphasizes the importance of continuing to carry out further research and exploration regarding the use of animation as an innovative learning media that has a positive impact on student learning motivation.

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