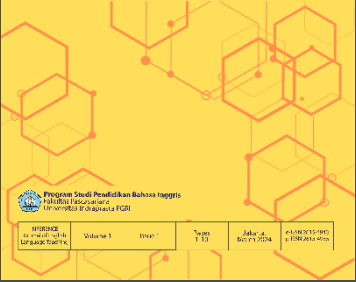


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Corresponding Author:
Hasna Abrorihah
hasna82619@gmail.com

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RESEARCH ARTICLE

Infographics: An Effective Tool for Modern Learning in Indonesia

Hasna Abrorihah¹,

UIN Walisongo, Semarang, Central Java, Indonesia

Reti Wahyuni²,

UIN Walisongo, Semarang, Central Java, Indonesia

*e-mail: hasna82619@gmail.com*¹

*e-mail: reti.wahyu@walisongo.ac.id*²

Abstract: This research aims to explore the effectiveness of infographics in learning in higher education, as well as the challenges and perceptions of students. A qualitative method was conducted in the research, and employing the structured interviews that involving UIN Walisongo students who applied infographics in their learning. The research results revealed that infographics increase student's understanding and engagement, with image and color visualization that assisted in elevating the absorption of information. The challenges found were infographic designs that were dense or less structured. The findings recommend to display in simple, clear design and concise text. In conclusion, infographics are effective in conveying complex material.

Keywords: Infographics; Student; Effectiveness; Perception; Visualization.

Infografis: Alat Efektif Pembelajaran Modern di Indonesia

Abstrak: Penelitian ini bertujuan untuk mengeksplorasi efektivitas infografis dalam pembelajaran di perguruan tinggi, serta tantangan dan persepsi mahasiswa. Metode yang digunakan adalah wawancara terstruktur dengan mahasiswa UIN Walisongo yang telah menggunakan infografis. Hasil penelitian menunjukkan infografis meningkatkan pemahaman dan keterlibatan mahasiswa, dengan visualisasi gambar dan warna yang membantu mempercepat penyerapan informasi. Tantangan yang ditemukan adalah desain infografis yang padat atau kurang terstruktur. Disarankan untuk menggunakan desain yang sederhana, jelas, dan teks yang ringkas. Kesimpulannya, infografis efektif dalam menyampaikan materi kompleks.

Kata kunci: Infografis; mahasiswa; efektivitas; persepsi; visualisasi.

Introduction

Developing effective teaching materials for all levels of education is an important factor in improving the quality of learning. Teachers are expected to be able to take advantage of all available opportunities and tools to make the learning process more interesting and easy for students to understand. One aspect that is increasingly used in the teaching process is the optimization of information and communication technology (ICT) to strengthen student understanding. According to Miarso (2007), information technology plays an important role in supporting the achievement of educational goals, especially in improving the efficiency and quality of the learning process.

One of the most frequently used forms of technology in the classroom is visual tools, such as Microsoft PowerPoint. The use of these visual tools helps teachers convey information more efficiently and interactively. Data and information visualization allow students to understand the material more quickly and in-depth. Research shows that 75% of the information the brain processes comes from visual settings, which shows how important visual communication is in learning (Arochman et al., 2023).

Infographics were recognized as an effective teaching tool, especially in higher education. Infographics offer information and graphic elements in combination effortfully to make the learning materials more interesting and easier for students to comprehend. In addition, Infographics are created not only as tools to make students' understanding easier but also to increase their involvement in the learning process. Ample previous studies reported that infographics potentially simplify complex information and allow students to absorb the material better, making infographics an important tool in modern learning (Ozdamli & Ozdal, 2018; Arochman et al., 2023).

Infographics have been introduced as an effective tool in teaching, especially in higher education institutions, to facilitate the learning process for students (Ozdamli & Ozdal, 2018). Infographics combine information and graphic elements in a design that is designed to convey data concisely and easily understood so that it can help students and teachers in the knowledge transfer process (Siricharoen & Siricharoen, 2015). Williams (2009) demonstrated in his study that 75% of the information processed by the human brain comes from visual format, which shows how important visual communication is in supporting cognitive processes. Infographic utilization is considered beneficial in solving complex problems, increasing student motivation, and learning behavior to achieve sustainable results (Mohd Noh et al., 2017).

In addition, infographics are highly valued as a medium that helps teachers ensure students get information accurately and accomplish the assignments completely (Davis & Quinn, 2014). The use of infographics is considered suitable not only for the learning process in the classroom but also in the work environment. This research aims to explore the use of infographics in facilitating learning in higher education institutions and students' acceptance of this media as a learning aid. This research sets three main objectives: first, identifying problems that hinder the learning process; second, determine the important elements in infographics that influence Graphic Design and Digital Media students; and third, measuring the extent to which students accept the use of infographics in their learning (Jaya et al., 2022).

In this modern era, infographics have become an important tool for conveying relationships and complex information systems intuitively, more than just recording or explaining scientific theories. Research in the last decade has highlighted the role of infographics as a tool to attract attention and increase understanding, with many studies showing that infographics can strengthen recall (Morrison, 2013; Fusion Strategy, 2013). Shively and Maine (2012) also emphasized that infographics are an ideal tool in the 21st century to support learning assessment among students and teachers.

The use of infographics has increased in various fields, including journalism, organizations, and education (Abilock & Williams, 2014). This is triggered by technological growth, competition in various sectors, as well as the impact of globalization and the internet. Infographics, which are easy to create, have a significant positive impact on the audience (Mohd Noh et al., 2017)

It is important to examine the use of infographics and their impact, especially for students who are visual learners. For instance, using simple icons and a limited color palette can make infographics more visually appealing and easy to understand. When words and images are presented harmoniously, students are better able to construct verbal and visual representations and create connections between the two. Meaningful learning occurs when students can relate to these representations, especially when animation is added to the narrative. The coordination of animation and narration allows students to retain information more effectively in working memory. In contrast, consecutive presentations reduce the likelihood of storing visual and verbal representations simultaneously due to limited working memory capacity (Abilock & Williams, 2014).

This research aims to gain an in-depth understanding of:

1. Students' perceptions about the benefits of infographics in learning.
2. Challenges faced when using infographics in various learning contexts.

Research Method

This research employed the interview method to collect qualitative data regarding the effectiveness of using infographics in the learning process in Indonesia. Interviews were conducted in a structured manner with resource persons consisting of male and female students from UIN Walisongo who have experience in applying infographics as a learning tool. The interview process was conducted face-to-face setting. The obtained data was analyzed using a thematic approach to identify important patterns that support the objectives of this research. It is hoped that the results of this interview will provide empirical insight regarding the application of infographics in modern learning systems in Indonesia.

Results and Discussion

Students' Perceptions about the Benefits of Infographics in Learning

Providing infographics as a learning medium has gained attention as an effective way to enhance students' learning experiences. With an engaging visual combination and structured information, infographics are believed to make the material easier to understand and remember. To explore this further, interviews were conducted with several students to understand their experiences using infographics as a learning medium.

Have you ever learned to use infographics as a learning medium? If yes, what was your experience?

The interview results revealed that infographics have become a part of student's learning experiences, with most students providing positive feedback. Here are their responses to this question:

"Yes, in assignments such as designing infographics." (Male Student 1)

"Yes, I have. The learning experience became more engaging and easier to understand because of the attractive visuals." (Male Student 2)

"Yes, I have used infographics for learning. My experience was enjoyable because the information was presented in a more structured and appealing way." (Female Student 1)

"Yes, I have used infographics in class." (Female Student 2)

Male Student 1 mentioned that he used infographics in assignments such as creating their designs, and finding the activity engaging. Male Student 2 emphasized that learning with infographics made the experience more enjoyable and easier to understand due to the attractive visual design. Meanwhile, Female Student 1 appreciated how infographics presented information in a structured and appealing way, making her learning experience enjoyable. Female Student 2 confirmed using infographics in class and found them highly helpful.

As Davis & Quinn (2014) stated, infographics can make learning materials more relevant and engaging for the digital generation. These responses indicate that students generally find infographics beneficial in creating a structured and engaging learning environment.

This positive experience raises further questions about the effectiveness of infographics in helping students understand learning materials, explored in the following question:

Do you feel that infographics help you understand learning materials? Why?

Students generally agreed that infographics are an effective tool for understanding learning materials. Here are their responses:

"Somewhat, because infographics make materials easier to understand."(Male Student 1)

"Very helpful! Complex information becomes simpler and easier to remember because it's visualized."(Male Student 2)

"Yes, because infographics present information visually, making it easier to understand and remember."(Female Student 1)

"Yes, very helpful, because I can understand the material in a more enjoyable way."(Female Student 2)

Male Student 1 felt that infographics helped him understand materials by simplifying information. Male Student 2 had a stronger view, stating that infographics are highly effective in simplifying complex concepts into an easier-to-understand and memorable visual format. Female Student 1 mentioned that the visual presentation in infographics enhanced her understanding and memory retention, while Female Student 2 highlighted the enjoyable aspect of infographics, which also aided her comprehension.

A study by Mubarok & Asri (2020) supports this perspective, noting that infographics help readers quickly and easily understand and absorb information. These responses show that the visual elements of infographics significantly contribute to understanding learning materials, although the impact may vary depending on individual preferences.

Since good comprehension is essential for successful learning, the next question explored whether the visual appeal of infographics also impacts students' ability to remember information:

Do you feel that infographics make information more engaging and easier to remember? Why?

When asked about the appeal and ease of remembering information through infographics, students provided the following responses:

"Yes, the illustrations used are varied and depict the material." (Male Student 1)

"Yes, because the combination of colors, images, and brief text makes the information more digestible and memorable."(Male Student 2)

"Yes, because infographics use images, colors, and layouts that help focus and visualize concepts."(Female Student 1)

"Yes, because infographics usually contain the key points of the material, making it easier to remember." (Female Student 2)

Male Student 1 appreciated the variety of illustrations in infographics, effectively depicting the material and making it more engaging. Male Student 2 emphasized how the use of colors, images, and concise text in infographics enhances memory retention. Female Student 1 noted that infographics utilize visuals and layouts to capture attention and help visualize concepts, making them both engaging and helpful. Female Student 2 highlighted that focusing on key points in infographics makes information easier to remember, although she also mentioned that unclear layouts could sometimes be confusing.

As Alrwele (2017) stated, infographics enhance student engagement by combining visual elements and concise text that facilitate understanding. These findings reinforce the view that

infographics are an effective tool for making information more engaging and memorable due to their visual and structural features.

Challenges in Using Infographics

Although infographics are considered effective, students face various challenges in their use. When asked,

"What challenges do you face when using or understanding infographics in learning?"

Students provided diverse responses. The interview results show that students encounter several challenges in using infographics as a learning medium. Here are the student's responses to the question:

"Perhaps in designing infographics, it is quite challenging to organize the material sequentially." (Male Student 1)

"The main challenge is if the design is too crowded or the information is not clearly organized." (Male Student 2)

"The main challenge is the lack of detailed explanations in certain parts that require further interpretation." (Female Student 1)

"So far, none." (Female Student 2)

Male Student 1 mentioned that designing infographics is the primary challenge, especially in arranging the material sequentially. This process requires significant attention to detail and time. Meanwhile, Male Student 2 highlighted that overly dense designs or poorly organized information often make comprehension difficult.

From the female students' perspective, Female Student 1 stated that challenges arise when infographics fail to provide sufficient detail for certain parts of the material that need further interpretation. In contrast, Female Student 2 claimed she did not face significant challenges in using infographics, although she acknowledged that unclear layouts could become a hindrance if encountered.

These responses indicate that the primary challenge in using infographics lies in ensuring a simple yet informative design. This is supported by research from Alrwele (2017), which states that overly complex or confusing infographic designs can reduce their effectiveness in conveying information. Furthermore, Yildirim (2016) emphasized that the ability to filter relevant information and logically organize layouts is a common challenge in the infographic creation process. By adhering to principles of simple design and logical information flow, infographics can be utilized more effectively as a learning medium.

Suggestions for Improving the Use of Infographics Based on Interviews

The use of infographics as a learning medium has gained attention as an effective way to enhance students' learning experiences. With a combination of engaging visuals and structured information, infographics are believed to make material easier to understand and remember. To explore this further, interviews were conducted with several students to understand their experiences using infographics as a learning tool.

"In your opinion, how can infographics be made more effective in helping students learn?"

The interview results revealed several suggestions for improving the effectiveness of infographics in learning. Here are the students' responses to this question:

"I think if the design is simple, the material would be easier to understand and more appealing." (Male Student 1)

"Use a simple design, choose colors that are not too flashy, and add brief explanations for the key points." (Male Student 2)

"Infographics can be more effective if they are simple, with clear points, non-confusing colors, and complemented by brief text explanations." (Female Student 1)

"For now, I don't think there's anything that needs to be added." (Female Student 2)

Male Student 1 emphasized that a simple infographic design would make the material easier to understand and more engaging. Male Student 2 added that simplicity in design, the use of non-flashy colors, and brief explanations for key points would make infographics more effective. Female Student 1 also agreed on the importance of simplicity, highlighting that clear, non-confusing infographics with brief explanations would be easier to understand. Meanwhile, Female Student 2 did not provide additional suggestions.

Based on the students' responses, it can be concluded that simplicity in design and clarity of visual elements are top priorities for enhancing the effectiveness of infographics. This aligns with research that shows well-structured infographics can improve students' comprehension and retention. As Davis & Quinn (2014) noted, *"Infographics with clear, well-organized visual elements help improve both attention and retention"* (p. 3). This research highlights the significant impact of clear visual structure on students' memory.

Moreover, Yildirim (2016) emphasized that *"Using limited and non-distracting colors, along with brief but clear text, ensures the viewer's focus remains on the key messages"* (p. 129). This underscores the importance of selecting non-distracting colors and using concise yet clear text to effectively convey the main messages of an infographic.

Additionally, research by Lazarus et al. (2020) found that creative visual elements, such as relevant icons or diagrams, can enhance students' motivation to learn. By leveraging a combination of supporting visual elements and text, infographics can facilitate the learning process more effectively.

Furthermore, interactive technologies such as animations or dynamic infographics that allow user interaction can provide a more immersive learning experience. According to a study by Alsharif (2019), *"Interactive infographics enable learners to explore information at their own pace, fostering better understanding and engagement"* (p. 87). This technology holds the potential to make infographics a more engaging learning medium in the digital era.

These suggestions offer clear guidance for improving the quality of infographic design in education. By focusing on simplicity, clarity, and the use of effective colors and visual elements, infographics can become a more accessible and comprehensible learning tool. Support from technology can further enhance the appeal and effectiveness of infographics in the context of modern learning.

CONCLUSIONS

Infographics have proven to be an effective and engaging learning tool for students. Visual elements such as illustrations, color combinations, and structured layouts facilitate understanding and improve memory retention of the material. Based on the interviews, students believe that infographics can simplify complex information, provide an enjoyable learning experience, and motivate them to become more engaged in the learning process. Research supports this view, with findings indicating that infographics can accelerate understanding several times faster than plain text. However, challenges such as confusing layouts, overly dense designs, and irrelevant visual elements may reduce the effectiveness of infographics. By integrating simple design principles and focusing on the core message, infographics can become an optimal and relevant learning medium for the digital generation.

RECOMMENDATIONS

To enhance the effectiveness of infographics, their design should be kept simple, with a structured layout and a logical flow of information. Visual elements such as illustrations and colors should be used appropriately and not excessively, to support understanding without distracting the reader.

Additionally, the information presented in infographics should concisely focus on key points, supplemented by explanatory text for sections that require further interpretation. It is also important to maintain a balance between text and visuals so that the design is not only aesthetically pleasing but also effective in conveying information. Both lecturers and students are encouraged to undergo training on the principles of infographic design to produce learning materials that align with academic needs. With these steps, infographics can be used more effectively as a creative and impactful learning medium.

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