The Impact of AI Infographic Slides on Students' Learning Experience in the Fundamentals of Management Subject

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ABSTRACT

Advancements in educational technology have enabled the use of Artificial Intelligence (AI) to generate visually engaging instructional materials, such as infographic slides. This study investigates the impact of AI infographic slides on students' learning experience in the Fundamentals of Management subject. A descriptive quantitative research design was employed, using a structured online questionnaire distributed to diploma students. The survey measured students' attention, memory retention, content clarity, engagement, motivation, and recommendation for future use. Findings indicate that most students responded positively, reporting increased attention, improved memory, clearer understanding, higher engagement, and greater motivation when AI-infographic slides were used. Most participants also recommended their continued use in future classes. These results highlight the potential of AI-generated infographic slides to enhance learning experiences and support the adoption of technology-driven visual materials in higher education teaching.

Keywords: AI infographic slides, student perception, attention, engagement, motivation, higher education

1. INTRODUCTION

Advancements in educational technology have transformed information delivery in higher learning institutions. Artificial Intelligence (AI) has become a key tool in this transformation, particularly through its ability to generate visually engaging instructional materials such as infographic slides (Lankow et al., 2012; Smiciklas, 2012). Infographics combine visual and textual elements to simplify complex information, making learning more efficient and appealing. When enhanced with AI, these visuals can be produced rapidly, tailored to learning objectives, and designed to suit students' cognitive needs (Clark & Mayer, 2016).

Despite the availability of AI-based tools, many lecturers—especially senior lecturers—continue to rely on traditional text-based slides. Research shows that text-heavy presentations often overload students cognitively, resulting in reduced attention, engagement, and comprehension (Mayer, 2009). Infographics have been shown to enhance memory retention, improve understanding, and increase motivation compared to conventional textonly materials (Paivio, 1990; Wong et al., 2020).

Therefore, this study aims to examine the impact of AI infographic slides on students' learning experience in the Fundamentals of Management subject. Insights from this study can encourage wider adoption of AI enhanced visual learning materials among lecturers and contribute to more effective teaching and learning experiences.

2. LITERATURE REVIEW

2.1 AI Infographic Slides and Students' Attention

Attention is critical for meaningful learning. Well-designed visual materials direct learners' focus to essential information while reducing distractions (Mayer, 2009). AI-generated infographics present content through

visual cues, color coding, and structured layouts, which can enhance classroom attention (Clark & Mayer, 2016).

2.2 AI Infographics and Information Recall

Dual Coding Theory suggests that information presented visually and verbally becomes encoded twice in the brain, strengthening recall (Paivio, 1990). Infographics summarize concepts into diagrams and charts that aid memory, supporting findings that learners retain more information when exposed to visuals (Brame, 2015; Wong et al., 2020).

2.3 Communicating Content Effectively Through AI Infographics

Effective instruction requires clarity and logical structure. Infographics enhance comprehension by visually representing relationships between concepts (Tufte, 2006; Kress & van Leeuwen, 2006). AI tools can summarize complex information into structured visuals, improving content delivery (Yildirim, 2016).

2.4 AI Infographics and Student Engagement

Multimedia visuals increase learners' engagement by creating dynamic learning experiences (Moreno & Mayer, 2007). AI-generated infographics can be updated quickly and customized with appealing designs, sustaining student interest and participation (Clark & Mayer, 2016).

2.5 AI Infographics and Learner Motivation

The ARCS Motivational Model highlights attention, relevance, confidence, and satisfaction as key drivers of motivation (Keller, 2010). Visual materials support these components by being visually appealing, reducing confusion, and providing a sense of achievement, which increases motivation (Bates & Poole, 2003; Yildirim, 2016).

3. METHODOLOGY

3.1 Research Design

This study employed a descriptive quantitative research design to examine students' perceptions of AI generated infographic slides in the *Fundamentals of Management* course. A survey approach was adopted to obtain standardized responses on attention, engagement, content clarity, memory retention, and motivation (Creswell & Creswell, 2018).

3.2 Population and Sample

The population consisted of diploma students enrolled in the Fundamentals of Management course.
Convenience sampling was employed, selecting students who were readily available and willing to participate (Etikan et al., 2016). A total of 80 students participated.

3.3 Data Collection Instrument and Procedure

Data were collected using a structured online questionnaire developed based on multimedia learning and infographic design literature. During the lecture, AI-infographic slides were used, and students were instructed to engage with the lesson. At the end of the class, participants completed the online questionnaire via Google Forms voluntarily and anonymously.

3.4 Data Analysis

Data were coded and analyzed using SPSS. Descriptive statistics, including frequencies and percentages, summarized demographic characteristics and responses to study variables.

4. FINDINGS

4.1 Demographic Profile of Respondents

Demographic Variable	Category	Frequency	Percentage
Gender	Female	54	67.5%
	Male	26	32.5%
How often lecturers use text-based slides	Often	37	46.3%
	Always	32	40.0%
	Sometimes	11	13.8%

Table 1 presents the demographic characteristics of the respondents.

The findings show that most respondents were female (67.5%), while 32.5% were male. This indicates that females formed a larger portion of the sample.

Regarding teaching practices, most respondents reported that their lecturers frequently use text-based slides. Specifically, 46.3% stated that lecturers "Often" use text-based slides, followed by 40.0% who indicated "Always." Only 11 respondents reported "Sometimes."

This suggests that traditional text-heavy slides remain the dominant teaching material used by lecturers.

4.2 Descriptive Analysis of AI Infographic Slides

Item	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
AI infographic slides improve attention	0.0	0.0	7.5	48.8	35.0
I remember information better	0.0	1.3	10.0	40.0	40.0
Slides effectively communicate content	0.0	0.0	10.0	47.5	33.8
Slides keep me engaged	0.0	1.3	8.8	42.5	38.8
Slides motivate me to learn	0.0	0.0	12.5	43.8	35.0
Recommend slides for future use	0.0	0.0	12.5	33.8	45.0

The analysis of students' perceptions revealed overwhelmingly positive responses toward AI-infographic slides. In terms of attention, 48.8% of students agreed and 35.0% strongly agreed that the slides improved their attention, while 7.5% were neutral and no students disagreed. Regarding memory retention, a total of 80% of students (agree + strongly agree) indicated that visuals helped them remember information better, with only 1.3% disagreeing and 10% neutral.

For content clarity, 81.3% of respondents found the AI-infographic slides effective in communicating the content, while 10% were neutral, and no disagreement was reported. More than 80% of students (42.5% agree

+ 38.8% strongly agree) reported feeling engaged throughout the presentation, highlighting the interactive and visually appealing nature of the slides.

Regarding motivation, 78.8% of students agreed or strongly agreed that the AI-infographic slides motivated them to learn, indicating strong acceptance of the slides as a motivational learning tool. Finally, a combined 78.8% (33.8% agree + 45.0% strongly agree) of students expressed that they would recommend the continued use of AI-infographic slides in future classes, demonstrating overall endorsement of this teaching method.

The results clearly show that AI-generated infographic slides positively influence students' learning experiences. Most students reported improved attention, memory retention, content understanding, engagement, motivation, and support for future use. Including all Likert-scale categories ensures transparency and confirms that the majority of respondents had favorable perceptions, with minimal neutrality or disagreement.

5. DISCUSSION

The findings of this study demonstrate that AI-generated infographic slides positively influence students' learning experiences in the Fundamentals of Management course.

5.1 Attention

A total of 83.8% of students (48.8% agree + 35.0% strongly agree) reported that AI infographic slides improved their attention. This aligns with Mayer's (2009) Cognitive Theory of Multimedia Learning, which emphasizes that well-designed visual materials reduce cognitive overload and help students focus on essential content. The visual cues, structured layouts, and appealing designs provided by AI-infographic slides appear to have effectively directed students' attention during lectures.

5.2 Memory Retention

Regarding information recall, 80% of respondents agreed or strongly agreed that the slides helped them remember content better. Dual Coding Theory (Paivio, 1990) suggests that presenting information both visually and verbally strengthens memory encoding. By summarizing concepts through diagrams, charts, and icons, AI-generated infographics enabled students to encode the information more effectively, improving retention and comprehension.

5.3 Content Communication

Approximately 81.3% of students found AI-infographic slides effective in communicating content. This supports prior research demonstrating that visuals can simplify complex ideas and make abstract concepts more understandable (Yildirim, 2016; Tufte, 2006). The AI-generated slides allowed the instructor to present structured, clear, and concise explanations, improving overall understanding.

5.4 Engagement

More than 80% of students reported increased engagement (42.5% agree + 38.8% strongly agree). The rich visual design, dynamic presentation, and interactive features of AI-infographic slides likely contributed to heightened emotional and behavioral engagement (Moreno & Mayer, 2007). Students appeared more interested and attentive, suggesting that visual learning materials enhance classroom participation and focus.

5.5 Motivation

Regarding motivation, 78.8% of students agreed or strongly agreed that the slides encouraged them to learn more about the topic. The ARCS Motivational Model (Keller, 2010) posits that attention, relevance, confidence, and satisfaction drive motivation. AI-infographic slides addressed these elements by providing visually stimulating, easily comprehensible, and relevant content, fostering a sense of achievement and motivation to learn.

5.6 Recommendation for Future Use

A combined 78.8% of respondents indicated that they would recommend using AI-infographic slides in future classes. This suggests not only acceptance but also endorsement, indicating that students recognize the benefits of AI-generated visual materials over traditional text-based slides.

The results consistently highlight that AI-infographic slides improve multiple dimensions of learning: attention, memory retention, content clarity, engagement, motivation, and willingness to adopt such materials in the future. These findings reinforce the notion that integrating AI-powered visual tools into higher education teaching can significantly enhance learning outcomes.

Moreover, given that many lecturers still prefer text-heavy slides, these results provide strong evidence to encourage professional development and adoption of AI-based instructional tools. Incorporating AIinfographic slides into standard teaching practices may lead to improved student satisfaction, engagement, and learning performance.

6. CONCLUSION

This study examined students' perceptions of AI-generated infographic slides in the Fundamentals of Management course. The findings indicate that AI-infographic slides positively influence multiple aspects of learning, including attention, memory retention, content clarity, engagement, motivation, and recommendation for future use. Most students reported enhanced attentiveness, better understanding, and increased motivation when exposed to visually enriched AI materials compared to traditional text-based slides.

These results highlight the potential of AI-generated infographic slides as an effective instructional tool in higher education. The integration of AI into teaching not only supports students' cognitive processes through dual coding and multimedia learning principles but also enhances engagement and satisfaction. Consequently, AI-infographic slides represent a promising approach to modernizing teaching methods and improving learning outcomes.

7. RECOMMENDATIONS

Based on the study findings, the following recommendations are proposed:

Encourage Adoption of AI-Infographic Slides: Lecturers should consider incorporating AI-generated infographic slides into their teaching practices to improve students' attention, understanding, and engagement.

Professional Development: Institutions should provide training and workshops for lecturers, particularly senior faculty who rely on text-based slides, to enhance their skills in creating and using AI-infographic slides effectively.

Integration with Curriculum Design: AI-infographic slides should be embedded into lesson plans and course materials where appropriate, especially for complex or abstract topics that benefit from visual representation.

Further Research: Future studies could explore the long-term impact of AI-infographic slides on academic performance, knowledge retention, and learning motivation across various subjects and student levels. Comparative studies between AI-generated and manually designed infographics could also provide additional insights.

Student Feedback Mechanisms: Regular collection of student feedback regarding visual learning materials can help lecturers continuously improve the design and effectiveness of AI-infographic slides.

By implementing these recommendations, higher education institutions can enhance teaching quality, improve learning experiences, and foster greater student engagement and motivation.

Ethical Considerations This study obtained informed consent from all participants and ensured anonymity of responses.

Data Availability The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Conflict of Interest The author declares no conflicts of interest.

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