



Revolutionizing Management Education: Exploring undergraduate students' perceptions of the use of infographics as an assessment method to foster inclusion, and boost engagement and academic performance



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Dr. Eleni Meletiadou
Associate Professor (Teaching)
London Metropolitan University

Track: Innovation track

Summary:

Infographics, blending “information” and “graphics,” are increasingly recognized as effective tools for assessment and learning in higher education. This study investigates the impact of using infographics as an assessment method in a Business and Management undergraduate course, with a particular focus on students’ perceived achievement, motivation to learn, and the promotion of inclusion for disadvantaged groups such as neurodiverse and low-achieving students. Utilizing a quasi-experimental design with 57 participants, students created an infographic as a mid-term assessment, complementing traditional written assignments and addressing concerns about monotonous assessment practices. Drawing on these findings and current literature, the study proposes a structured framework for the successful integration of infographics in management education, emphasizing inclusive design, clear objectives, and iterative feedback. Data collected through a post-implementation questionnaire revealed that over 76% of students perceived notable improvements in their academic performance, attributing these gains to enhanced affective development and strengthened intellectual, visual literacy, and information management skills. Furthermore, 92% reported increased engagement and motivation to learn. The findings suggest that infographics, when implemented within a clear framework, not only support academic achievement and engagement but also foster a more inclusive learning environment. The study concludes with implications for practice and recommendations for future research on the integration of infographics in management education

Keywords: Management Education, undergraduate students, infographics, assessment, inclusion, engagement, academic performance.

Word Count: 5449 words (excluding tables and references)



Introduction

Innovation and technology have become powerful drivers of transformation across society, business, and the global economy, offering benefits that touch nearly every aspect of daily life. However, these advances also bring significant disruption, with many professions rendered obsolete and more jobs likely to be replaced in the near future (Verhoef et al., 2021; Vial, 2021). In this environment, undergraduate students who lack advanced digital and creative skills may find themselves at a disadvantage in an increasingly competitive labor market (Goulart et al., 2022). Academic knowledge alone is no longer sufficient; students must also develop a suite of complementary skills, including problem-solving, digital fluency, visual literacy, and information management, to thrive in the digital age (Khan et al., 2022). Creativity, in particular, is highly sought after by employers, as creative professionals demonstrate adaptability, proactive thinking, and the capacity to generate novel solutions and strategies that drive organizational improvement and innovation (Di Battista et al., 2023).

Given these demands, universities-and especially Business and Management Schools-are called to adopt innovative teaching, learning, and assessment methods that foster creativity, digital literacy, and inclusion. This is especially crucial for disadvantaged students, such as those who are neurodiverse or low-achieving, who may struggle to reach their full potential with traditional, text-heavy assessments despite possessing strong soft skills like adaptability, empathy, leadership, and communication.

Literature Review

Recent research underscores the importance of “digital age” learning and assessment, highlighting the value of visual representation in supporting marginalized groups, such as students with dyslexia, by increasing engagement and aiding comprehension (Bonfield et al., 2020). Visual communication is widely recognized as more efficient than verbal communication, with the human brain able to process and retain visual information more quickly and durably than written or spoken text (Wickens et al., 2021). Infographics-an innovative and increasingly widespread visual representation method-have emerged as a particularly effective tool for both learning and assessment in higher education (Bhat et al., 2023; Jaleniauskiene and Kasperuniene, 2023; Ozdamli and Ozdal, 2018).

An infographic synthesizes concise explanatory phrases with visual elements such as tables, graphs, images, and diagrams to communicate information in an engaging, accessible, and memorable way (Parveen and Husain, 2021; Traborco et al., 2022). This format allows for the presentation of complex topics or research findings as story-like narratives, with clear introductions, main content, and conclusions, making them easy to follow and understand (Hunt, 2021; Tavanapour et al., 2023). While infographics were once the domain of professional designers using specialized software (Dick, 2020), the proliferation of user-friendly, low-cost, or free tools like Canva and Piktochart has democratized their creation, enabling students and educators alike to harness their potential. Infographics are now common



in research, journalism, conferences, and even everyday settings such as news and signage, attesting to their versatility and communicative power (Kelidou et al., 2020).

The educational benefits of infographics are well documented. They can facilitate the synthesis and presentation of complex information, enhance memory retention, and support the development of critical thinking and information management skills (Tarkhova et al., 2020; Abbazzio et al., 2022). Their story-like structure mirrors traditional narratives, drawing students into the material and fostering deeper engagement. In the context of business and management education, exposure to infographics is especially valuable, as students will likely encounter them in professional settings and may be required to interpret or create them as part of their future roles (Toth, 2013). When implemented thoughtfully, infographics can replace lengthy written explanations in lectures (Anghel & Dahaila, 2019) and serve as vivid, concise alternatives to traditional written assignments (Alikina et al., 2020).

Moreover, infographics can be particularly beneficial for inclusion. Disadvantaged students—such as those who are neurodiverse or struggle with traditional written assignments—may find visual tasks more engaging and accessible, enabling them to demonstrate their understanding and creativity in ways that written tasks may not allow. This aligns with broader calls for social justice and widening participation in higher education, ensuring that all students have equitable opportunities to succeed.

The integration of infographics into management education offers a range of pedagogical benefits. First, infographics can increase student engagement by attracting and retaining attention through visually stimulating content. Research demonstrates that students are more likely to focus on and remember information presented visually compared to text-heavy materials (Wickens et al., 2021; Kress et al., 2020). Infographics also promote active learning, as students must analyze, synthesize, and creatively present information, rather than passively consuming content.

Second, infographics foster the development of digital and visual literacy skills, which are increasingly important in the modern workplace. By designing infographics, students practice organizing information logically, selecting relevant data, and making design choices that enhance clarity and impact. These skills are transferable to a wide range of professional contexts, from marketing and communications to project management and data analysis.

Third, infographics support collaboration and peer learning. Group infographic projects require students to negotiate ideas, divide tasks, and provide feedback to one another, building teamwork and communication skills (Rhodes et al., 2019). The process of creating and presenting infographics can also mimic real-world professional scenarios, such as pitching ideas to stakeholders or presenting research findings at conferences.



Fourth, infographics can enhance inclusivity and support diverse learners. For neurodiverse students or those who struggle with lengthy written assignments, infographics offer an alternative mode of expression that may better align with their strengths. This can lead to increased motivation, confidence, and academic achievement, as students are able to demonstrate their knowledge and creativity in new ways (Bonfield et al., 2020).

Despite these benefits, there are challenges to the successful integration of infographics in management education. Some students, particularly mature learners or those less confident with technology, may initially struggle with the dual demands of digital and graphic design. Educators must provide appropriate scaffolding, including training on design principles, access to user-friendly tools, and clear assessment criteria. There is also a risk of misuse or superficiality, as visually appealing infographics may mask weak content or lack critical analysis. It is essential that assessment rubrics emphasize both the quality of information and the effectiveness of visual communication.

Ethical considerations must also be addressed. Infographics, due to their persuasive power and accessibility, can influence opinions and decisions. Students must be taught to use infographics responsibly, ensuring accuracy, fairness, and sensitivity to the issues they address. Educators should monitor the process closely and provide guidance on ethical use of data, intellectual property, and respectful communication.

To maximize the impact of infographics in management education, a structured framework for their use is essential. This framework should begin with clear learning objectives and alignment with course outcomes, ensuring that infographic assignments foster relevant skills such as visual literacy, digital fluency, and critical analysis. Scaffolding is crucial: students benefit from preparatory sessions on design principles, access to exemplars, and detailed rubrics that clarify expectations and reduce anxiety about technical skills. Flexibility and inclusion must be prioritized, offering infographics as alternatives or complements to written assessments, which can be especially empowering for neurodiverse and disadvantaged students. Technical support and digital literacy development are necessary to ensure all students can participate fully, regardless of prior experience.

Iterative feedback and reflection should be integrated into the process, allowing students to refine their work and articulate their design choices and learning outcomes. Transparent, consistent assessment criteria-focused on both content and visual communication-help ensure fairness and clarity. Finally, opportunities for sharing and peer learning, such as presenting infographics in class or online, further enhance engagement and skill development.

While the benefits are significant, challenges remain. Some students, particularly mature learners, may initially struggle with the dual demands of digital and graphic design. Educators must be mindful of the potential for misuse or misinterpretation of infographics, especially given their persuasive power and accessibility. Close guidance and monitoring are required to



ensure that infographics are used ethically and effectively, and that students develop the ability to critically analyze both their own work and that of others.

In our implementation with undergraduate Human Resource Management students, infographics were used to create authentic learning experiences that connect theory to real-world practice and foster lifelong learning skills (Adams Becker et al., 2018). The primary challenge lay in supporting students through the learning curve of infographic creation and ensuring responsible use. Our experience and the literature suggest that, when guided by a robust framework, infographics can significantly enhance engagement, comprehension, and inclusion, preparing students for the demands of the digital workplace and supporting diverse learners in reaching their full potential.

Research Focus, Rationale, and Questions

In light of the evolving demands of the digital economy and the shifting landscape of higher education, this study is positioned at the intersection of innovation, assessment, and inclusion within management education. While the literature acknowledges the growing importance of digital and creative skills for employability (Verhoef et al., 2021; Vial, 2021), and highlights the pedagogical value of visual communication (Wickens et al., 2021; Kress et al., 2020), there remains a gap in empirical research on how alternative assessment methods-specifically, infographics-can be systematically leveraged to foster both skill development and social justice in business and management programs.

The central aim of this research is to investigate the effectiveness of infographics as an assessment tool in undergraduate management education, with a particular emphasis on their impact on student achievement, motivation, and inclusion. This focus is driven by the recognition that traditional assessment methods, which are predominantly text-based, may inadvertently disadvantage certain groups of students-especially those who are neurodiverse, have learning differences such as dyslexia, or are otherwise low-achieving despite possessing strong creative or interpersonal skills. By offering a multimodal alternative, infographics have the potential to democratize assessment and provide a platform for diverse learners to demonstrate their understanding and creativity.

Specifically, this study seeks to address the following research questions:

1. To what extent does the use of infographics as an assessment method influence undergraduate students' perceived academic achievement and motivation to learn in a business and management context?
2. How do infographics as an assessment tool foster inclusion, particularly for disadvantaged groups such as neurodiverse and low-achieving students?



3. What are the perceived benefits and challenges associated with the implementation of infographics in assessment, from the perspectives of both students and educators?
4. How can a structured framework for the use of infographics be developed and integrated into management education to maximize their pedagogical impact and inclusivity?

The research is grounded in the premise that assessment is not merely a mechanism for measuring learning, but a powerful driver of it. By shifting the focus from traditional, written assignments to more innovative, visually oriented tasks, educators can potentially enhance student engagement, facilitate deeper learning, and support the acquisition of skills that are directly relevant to the modern workplace (Goulart et al., 2022; Khan et al., 2022; Di Battista et al., 2023).

Furthermore, the study is informed by the principles of Universal Design for Learning (UDL), which advocate for flexible, accessible, and inclusive educational practices. The integration of infographics as an assessment tool aligns with UDL's emphasis on providing multiple means of representation, engagement, and expression, thereby supporting a broader range of learners. In summary, this research is designed to fill a critical gap in the literature by providing empirical evidence on the educational value of infographics in management education, articulating a clear framework for their implementation, and exploring their potential to advance both skill development and social justice. The findings are intended to inform curriculum design, assessment policy, and teaching practice in business and management schools, with implications for higher education more broadly.

Research Methods

This study employed a **quasi-experimental, mixed-methods research design** to investigate the impact of infographics as an assessment tool in undergraduate management education, with a particular focus on student achievement, motivation, and inclusion. The methodology was informed by best practices in educational research on innovative assessment and visual communication tools.

Participants and Setting:

The research was conducted in a Business and Management undergraduate course at a UK university. A total of 57 students participated, representing a diverse cohort that included neurodiverse and low-achieving students. The course traditionally relied on written assessments; however, for this study, an infographic assignment was introduced as a mid-term assessment, complementing the final written examination.



Intervention Design:

Students were tasked with creating an infographic that synthesized key concepts from the course and communicated them in a visually engaging, concise, and accessible format. To ensure equitable participation and skill development, the intervention was scaffolded with structured support:

- Introductory workshops on infographic design, including principles of visual communication, data selection, and ethical use of images and information.
- Access to user-friendly, free infographic software (e.g., Canva, Piktochart).
- Distribution of exemplars from previous student cohorts and a detailed grading rubric to clarify expectations and assessment criteria.
- Opportunities for formative feedback, including peer review and instructor comments on draft infographics.

Data Collection:

Data were collected using a post-assignment questionnaire designed to capture students' perceptions of the infographic assessment. The questionnaire included both Likert-scale items (measuring perceived achievement, motivation, skill development, and inclusion) and open-ended questions for qualitative insights. Participation was voluntary and responses were anonymized.

Data Analysis:

Quantitative data from the questionnaires were analyzed using descriptive statistics to identify trends in student perceptions of achievement, motivation, and inclusion. Qualitative responses were analyzed thematically to extract recurring themes, challenges, and suggestions for improvement. This approach allowed for a nuanced understanding of both the measurable outcomes and the lived experiences of students engaging with infographic-based assessment⁴⁵⁶.

Ethical Considerations:

The study received institutional ethical approval. All participants were informed of the study's aims and procedures, assured of confidentiality, and provided informed consent prior to participation.

**Limitations:**

While the quasi-experimental design and mixed-methods approach provided rich data, the study was limited by its single-institution setting and the self-reported nature of student perceptions. Future research could expand the sample size, include control groups, or employ longitudinal designs to assess the sustained impact of infographic assessment on learning outcomes.

This robust methodological approach ensured that the findings would be both credible and relevant to educators seeking to implement infographics in management education

Preliminary Analysis and Initial Results from the First Phase*Preliminary Analysis*

The implementation of infographics as an assessment tool in undergraduate management education yielded several notable findings, consistent with both the quantitative and qualitative data collected from students. The responses indicated a strong positive perception of infographics, with over 76% of students reporting that their academic performance improved considerably due to this assessment method. Students attributed these gains not only to enhanced affective development but also to the strengthening of intellectual, life, visual literacy, and information management skills. Furthermore, 92% of students reported that infographics improved their engagement and motivation to learn, highlighting the potential of this approach to foster deeper learning and inclusivity.

Skill Development and Engagement:

Students consistently highlighted that the process of creating infographics required them to synthesize information, make critical decisions about content selection, and communicate complex ideas visually. This aligns with findings from the literature that infographics support the development of digital literacy and visual communication skills essential for modern workplaces (Wickens et al., 2021; Kress et al., 2020; Bhat et al., 2023). Several students, particularly those who self-identified as neurodiverse or typically underperforming in written assessments, expressed that the visual and creative nature of infographics allowed them to demonstrate their understanding and creativity in ways that traditional written assignments did not permit.

Inclusion and Accessibility:

The data revealed that infographics served as a more inclusive assessment method, especially for students who found lengthy written assignments challenging. Many neurodiverse students and those with dyslexia reported that the visual format of infographics made the assessment



more accessible and less intimidating, echoing the findings of Bonfield et al. (2020). The multimodal nature of the assignment provided these students with an alternative means of expression, supporting the principles of Universal Design for Learning and widening participation in higher education.

Challenges and Support Needs:

Despite the overall positive reception, some students reported initial anxiety and difficulty with the technical and design aspects of creating infographics, particularly those with limited prior experience in digital design. These challenges underscore the importance of structured scaffolding, clear instructions, and access to exemplars and technical support (Imperial College London, 2022; Darcy, 2019). Students valued the preparatory workshops, detailed rubrics, and opportunities for formative feedback, which helped mitigate these challenges and set realistic expectations.

Quality and Assessment:

A recurring theme in the feedback was the need for transparent and consistent assessment criteria. Students appreciated the use of rubrics that balanced evaluation of both content and design, and they found peer review and instructor feedback critical to improving their work. The importance of focusing on the quality of information and the clarity of communication, rather than professional graphic design skills, was emphasized in both student reflections and the literature (Darcy, 2019; Toth, 2013).

Framework for the Successful Use of Infographics in Management Education

Drawing on the findings of this study, best practices from the literature, and case studies from other institutions, the following framework is proposed for the successful integration of infographics in management education:

1. Clear Learning Objectives and Alignment

Begin by defining explicit learning outcomes for the infographic assignment, ensuring alignment with course objectives and relevant management competencies. Clearly communicate to students how infographics will foster skills such as information management, visual literacy, critical thinking, and effective communication (Darcy, 2019; Sweetland Center, 2013).

2. Scaffolding and Student Preparation

Provide preparatory sessions or resources on infographic design, including tutorials on flow, structure, colour schemes, and the use of graphics and data. Share exemplars of previous student work and clear rubrics to set realistic expectations and reduce anxiety about design skills (Imperial College London, 2022; Newcastle University, 2023). Emphasize that



assessment focuses on the quality and organization of information, not professional graphic artistry.

3. Inclusive and Flexible Assessment Design

Offer infographics as a complementary or alternative assessment to traditional written assignments, supporting inclusion for neurodiverse and low-achieving students. Allow for individual or group work, and encourage diverse approaches to presenting information visually. Ensure accessibility by considering color contrast, font size, and alternative text for images (Bonfield et al., 2020; Darcy, 2019).

4. Technical Support and Digital Literacy Development

Ensure students have access to user-friendly design tools and technical guidance. Embed digital literacy and ethical use of data as part of the assignment, including the importance of accurate representation and proper citation (Darcy, 2019; Newcastle University, 2023).

5. Iterative Feedback and Reflection

Integrate formative feedback opportunities, such as draft reviews or peer feedback, to guide students through the design and content selection process. Require a reflective component where students explain their design choices, what they learned, and how the infographic communicates their message (Darcy, 2019; Toth, 2013).

6. Transparent and Consistent Assessment Criteria

Use a detailed rubric that evaluates not just visual appeal, but also clarity, accuracy, relevance of content, and effectiveness in communicating key ideas. Train assessors to ensure consistency and fairness in marking, possibly through calibration meetings (Imperial College London, 2022; Sweetland Center, 2013).

7. Accessibility and Sharing

Ensure infographics are accessible to all students, considering color contrast, font size, and alternative text for images. Encourage sharing of completed infographics within the class or wider community to promote peer learning and engagement (Darcy, 2019; Newcastle University, 2023).

8. Continuous Improvement

Collect student feedback post-assessment to refine the process and resources for future cohorts. Review the impact on student achievement, motivation, and inclusion, and adapt the framework as needed (Darcy, 2019).

Steps to Successful Infographic Integration

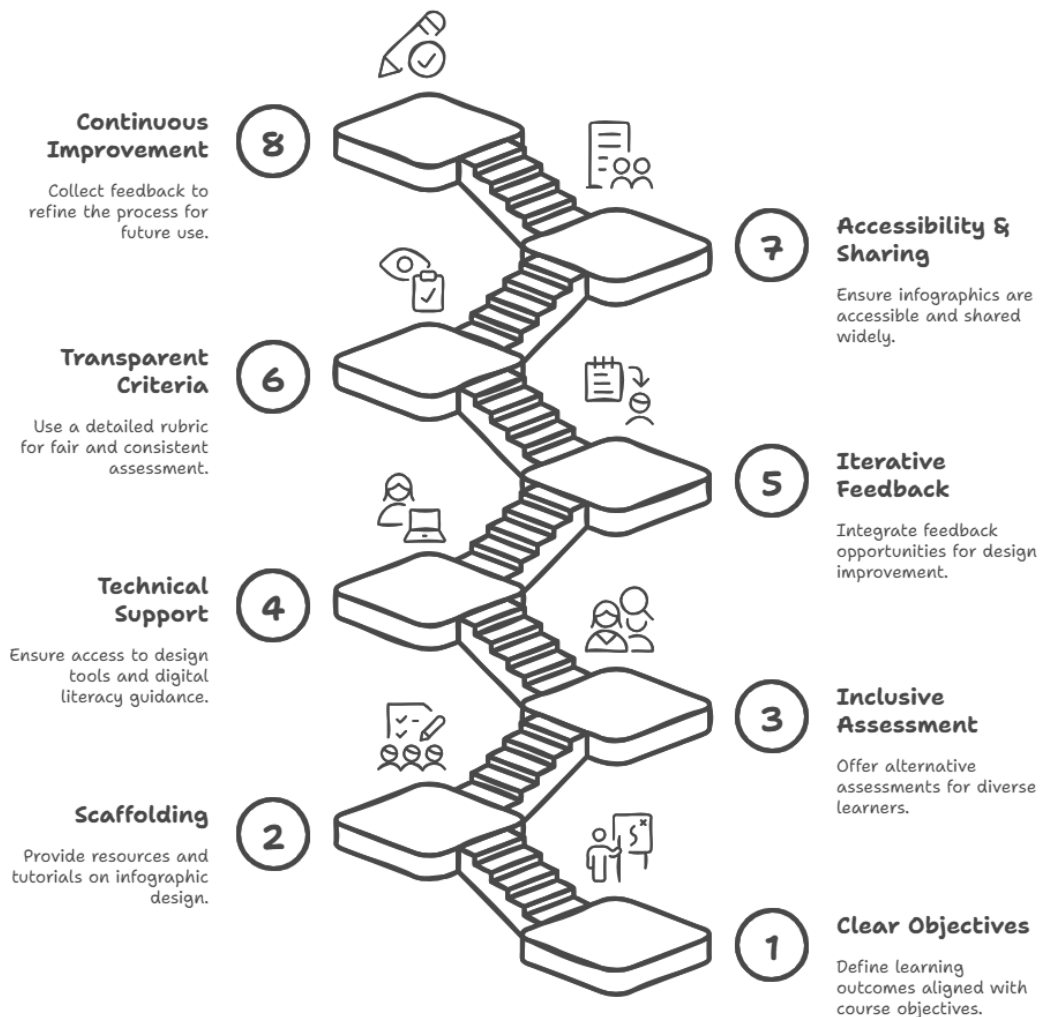


Figure 1. Visual Summary of the Framework

Synthesis

The preliminary analysis demonstrates that when infographics are implemented within a clear, supportive, and inclusive framework, they can significantly enhance student engagement, motivation, and achievement in management education. The framework outlined above addresses both the pedagogical and practical challenges identified by students and educators, ensuring that the use of infographics is purposeful, accessible, and effective. This approach not only prepares students for the demands of the digital workplace but also supports a more equitable and engaging learning environment for all.



Discussion Point and Further Development

The findings from this study provide compelling evidence for the value of infographics as an assessment tool in undergraduate management education, particularly in fostering engagement, skill development, and inclusion. This discussion situates these findings within the broader literature, critically examines the implications for educational practice, and addresses both the opportunities and challenges associated with integrating infographics into business and management curricula.

Infographics and the Development of 21st-Century Skills

The results of this study align with the growing consensus that digital and creative skills are essential for employability in the contemporary labor market (Verhoef et al., 2021; Vial, 2021; Goulart et al., 2022). The overwhelming majority of students reported that the infographic assessment not only improved their academic performance but also enhanced their digital literacy, visual communication, and information management skills. These findings echo previous research demonstrating that infographics require students to synthesize complex information, make critical decisions about content selection, and communicate ideas in a concise and visually compelling manner (Khan et al., 2022; Wickens et al., 2021; Kress et al., 2020).

Furthermore, the creative process inherent in infographic design fosters adaptability, innovation, and problem-solving skills that are highly valued by employers (Di Battista et al., 2023). By engaging with infographics, students are challenged to move beyond rote memorization and passive consumption of information, instead actively constructing knowledge and demonstrating their understanding through creative expression. This aligns with constructivist theories of learning, which emphasize the importance of active engagement and the construction of meaning through authentic tasks.

Engagement, Motivation, and Inclusion

A particularly noteworthy finding is the positive impact of infographics on student engagement and motivation. Ninety-two percent of students reported increased motivation to learn, attributing this to the engaging, visually stimulating, and creative nature of the assessment. These results corroborate the work of Bonfield et al. (2020), who found that visual representation can be especially beneficial for marginalized groups, such as neurodiverse students, by attracting their attention and increasing their engagement.

The inclusive potential of infographics is further underscored by the experiences of neurodiverse and low-achieving students in this study. Many of these students reported that the visual and multimodal nature of the assessment provided them with an alternative means of demonstrating their knowledge and creativity, reducing the barriers associated with traditional



written assignments. This supports the principles of Universal Design for Learning and aligns with calls for more inclusive and accessible assessment practices in higher education.

Framework Implementation: Opportunities and Challenges

The framework developed from this study offers a structured approach for the successful integration of infographics into management education. Key elements-such as clear learning objectives, scaffolding, inclusive design, technical support, iterative feedback, transparent assessment criteria, and continuous improvement-were all identified as critical to the positive outcomes observed.

Opportunities:

- **Skill Development:** The framework ensures that students develop not only subject-specific knowledge but also transferable skills in digital literacy, visual communication, and critical thinking.
- **Flexibility and Accessibility:** By offering infographics as an alternative or complementary assessment, educators can accommodate diverse learning styles and needs, supporting inclusion and equity.
- **Peer Learning and Collaboration:** Opportunities for sharing and presenting infographics foster peer feedback, collaboration, and a sense of community within the classroom.

Challenges:

- **Technical Anxiety:** Some students, particularly those with limited prior experience in digital design, initially struggled with the technical aspects of infographic creation. This highlights the importance of scaffolding, access to user-friendly tools, and ongoing support.
- **Assessment Consistency:** Ensuring fairness and consistency in the assessment of infographics can be challenging, particularly when balancing content quality with visual design. The use of detailed rubrics and assessor training is essential to address this issue.
- **Superficiality and Misuse:** There is a risk that visually appealing infographics may mask weak content or lack critical analysis. Educators must emphasize the importance of substance over style and provide guidance on ethical and responsible use of visual communication.

Implications for Practice

The findings of this study have several important implications for educators and curriculum designers in business and management education:



1. **Curriculum Design:** Infographics should be integrated into curricula not only as assessment tools but also as instructional strategies, supporting the development of digital and creative skills across the program.
2. **Faculty Development:** Educators require training and support to effectively implement infographic-based assessment, including familiarity with design tools, principles of visual communication, and inclusive teaching practices.
3. **Policy and Institutional Support:** Institutions should recognize the value of alternative assessment methods and provide the necessary resources, infrastructure, and policy frameworks to support their adoption and sustainability.
4. **Student Support:** Targeted support for students, particularly those with limited digital skills or confidence, is essential to ensure equitable participation and success.

Limitations and Directions for Future Research

While this study provides valuable insights, it is not without limitations. The research was conducted within a single institution and focused on a specific cohort of undergraduate management students, which may limit the generalizability of the findings. The reliance on self-reported data may also introduce bias, and the short-term nature of the intervention precludes conclusions about the long-term impact of infographic assessment on learning outcomes.

Future research should seek to address these limitations by:

- Expanding the sample to include multiple institutions, disciplines, and student populations.
- Employing longitudinal designs to assess the sustained impact of infographics on skill development, academic achievement, and employability.
- Investigating the perspectives of educators and employers regarding the value and transferability of skills developed through infographic-based assessment.
- Exploring the integration of infographics with other innovative assessment methods, such as digital storytelling, video presentations, or interactive media.

Conclusion

In conclusion, this study demonstrates that infographics, when implemented within a clear and inclusive framework, can significantly enhance student engagement, motivation, and achievement in management education. The structured approach outlined here addresses both pedagogical and practical challenges, ensuring that infographics are used purposefully and effectively to support diverse learners. As the demands of the digital economy continue to evolve, equipping students with the ability to communicate complex information visually and creatively will remain a critical priority for business and management education. The adoption of infographics as an assessment tool represents a meaningful step toward more inclusive, engaging, and future-ready curricula.



References

- Abbazio, J. M., and Yang, Z. S. (2022). Are Infographics worth it?: An assessment of information retention in relation to information embedded in Infographics. *Music Reference Services Quarterly*, 25(4), 99-130.
- Adams Becker, S., Brown, M., Dahlmstrom, E., Davis, A., DePaul, K., Diaz, V. and Pomerantz, J. (2018). NMC Horizon Report: 2018 High Education Edition. Louisville, CO: EDUCAUSE.
- Alikina, E. V., Falko, K. I., Rapakova, T. B., and Erickson, S. (2020, May). Developing infographic competence as the integration model of engineering and linguistic education. In *Proceedings of the Conference "Integrating Engineering Education and Humanities for Global Intercultural Perspectives"* (pp. 692-698). Cham: Springer International Publishing.
- Anghel, A.A., and Dahaila, V.L. (2019). An educational application of graphic facilitation. *Journal of Industrial Design and Engineering Graphics*, 14(1), 269-272.
- Di Battista, A., Grayling, S., and Hasselaar, E. (2023). Future of jobs report 2023. *World Economic Forum*, Geneva, Switzerland.
- Dick, M. (2020). *The infographic: A history of data graphics in news and communications*. MIT press.
- Dur, B. (2014). Data visualization and Infographics in visual communication design education at the age of information. *Journal of Arts and Humanities*, 3(5), 39-50.
- Carmi, E., Yates, S. J., Lockley, E., & Pawluczuk, A. (2020). Data citizenship: Rethinking data literacy in the age of disinformation, misinformation, and malinformation. *Internet policy review*, 9(2), 1-22.
- Flick, U. (2018). Triangulation in data collection.
- Goulart, V. G., Liboni, L. B., and Cezarino, L. O. (2022). Balancing skills in the digital transformation era: The future of jobs and the role of higher education. *Industry and Higher Education*, 36(2), 118-127.
- Hunt, S. (2021). Tell your research story: visualization, design, & messaging.
- Islamoglu, H., Ay, O., Ilic, U., Mercimek, B., Donmez, P., Kuzu, A., and Odabasi, F. (2015). Infographics: A new competency area for teacher candidates. *Cypriot Journal of Educational Sciences*, 10(1), 32-39.



Kelidou, E., and Siountri, K. (2020). The use of Infographics as an educational tool for the upcoming digital transition. In *International Conference on Cultural Informatics, Communication & Media Studies* (Vol. 1, No. 1).

Khan, N., Sarwar, A., Chen, T. B., and Khan, S. (2022). Connecting digital literacy in higher education to the 21st century workforce. *Knowledge Management & E-Learning*, 14(1), 46-61.

Kress, G., and Van Leeuwen, T. (2020). *Reading images: The grammar of visual design*. Routledge.

Meacham, M. (2015). Use infographics to enhance training. *Talent Development*, 69(8), 76-77.

Michel, F., & Traifeh, H. (2024). Bridging the Gap: Exploring Challenges and Recommendations for Aligning Higher Education with Future of Work. In *EDULEARN24 Proceedings* (pp. 5351-5360). IATED.

Nowell, L. S., Norris, J. M., White, D. E., and Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International journal of qualitative methods*, 16(1), 1609406917733847.

Ozdamli, F., and Ozdal, H. (2018). Developing an instructional design for the design of infographics and the evaluation of infographic usage in teaching based on teacher and student opinions. *EURASIA Journal of Mathematics, Science and Technology Education*, 14(4), 1197-1219.

Parveen, A., and Husain, N. (2021). Infographics as a promising tool for teaching and learning. *Journal of Emerging Technologies and Innovative Research*, 8(8), 554-559.

Rhodes, D., Johanesen, P., and Abud, H. (2019, July). Animations and Digital Interactivity. Presentation at Biomedicine Learning & Teaching Forum. Monash University, Clayton.

Slimi, Z., & Carballido, B. V. (2023). Navigating the Ethical Challenges of Artificial Intelligence in Higher Education: An Analysis of Seven Global AI Ethics Policies. *Tem Journal*, 12(2).

Tarkhova, L., Tarkhov, S., Nafikov, M., Akhmetyanov, I., Gusev, D., and Akhmarov, R. (2020). Infographics and their application in the educational process. *International Journal of Emerging Technologies in Learning (IJET)*, 15(13), 63-80.

Tavanapour, Shahla, Azizeh Chalak, and Hossein Heidari Tabrizi. "Students' Attitudes Toward Using Infographics on Learning Vocabulary in the EFL Classes." *Research in English Language Pedagogy* 11, no. 2 (2023): 302-316.



Toth, C. (2013). Revisiting a Genre: Teaching Infographics in Business and Professional Communication Courses. *Business Communication Quarterly*, 76(4), 446-457.

Traboco, L., Pandian, H., Nikiphorou, E., and Gupta, L. (2022). Designing infographics: visual representations for enhancing education, communication, and scientific research. *Journal of Korean Medical Science*, 37(27).

Ursyn, A. (2023). *The Transfer of Knowledge Through Art and Visualization: Novel Technologies, Professional Collaboration, and Visual Communication of Science-Based Projects*. Taylor & Francis.

Wallace, P. M. (2010). Finding self: a qualitative study of transgender, transitioning, and adulterated silicone. *Health Education Journal*, 69(4), 439-446.

Wickens, C. D., and Carswell, C. M. (2021). Information processing. *Handbook of human factors and ergonomics*, 114-158.

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., and Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of business research*, 122, 889-901.

Vial, G. (2021). Understanding digital transformation: A review and a research agenda. *Managing Digital Transformation*, 13-66.