

Effectiveness of Using Animated Versus Static Infographics

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ABSTRACT

Infographics are a popular way to convey information in various contexts. They come in two formats, static and animated. A recent study aimed to determine which format was more effective in getting the audience to reflect on the information presented. The study used secondary research methodology and found that both formats were effective in conveying information, but animated infographics were more impactful in terms of comprehension, retention, engagement, and memorability. The study suggests that future research should use statistical and experimental approaches to validate these findings.

Keywords - infographics, animated infographics, static infographics

INTRODUCTION

Infographics visually represent information from various forms of imagery, such as images and data visualization forms [1]. Infographics combine verbal language with graphical drawings to communicate information concisely and interestingly visually [2]. Infographics offer several benefits for users since they simplify complex information into understandable formats, shorten lengthy details that needs to be communicated, and can be quickly developed for multiple contexts, including teaching, reporting findings, entertainment, media, and marketing. Various infographics exist, but the most commonly used ones are animated and static infographics [3]. Animated infographics are designed so that the elements are continuously moving or give the impression that they are, while static infographics do not integrate any motion into the graphics nor apply any animated effects or properties [1]. Animated infographics are typically used in television or social media advertisements that offer video capabilities and are used in smartphones as animated presentations [2]. On the other hand, static infographics are typically used in printed media such as posters, advertisements, diagrams in newspaper articles, or for website displays and screen views [2]. Various scholars [1, 2, 3, 4] have highlighted the success and effectiveness of using infographics in educational and other contexts, such as patient education and health promotion, mainly when interactions occur over electronic media such as smartphones, personal computers, or tablets. While both infographics are highly beneficial in their various contexts, researchers have sought to explore which is more useful in visual communication. This research paper aims to explore the two types of infographics and present a report on which one is more reflective.

LITERATURE REVIEW

Infographics are commonly used to convey information in a visual and easy-to-understand way [4]. Researchers have examined the effectiveness of different types of infographics, with a focus on comparing animated and static infographics [5]. In a study conducted by Hassan [2], the success of teaching science subjects to students using static and animated infographics as support materials was analyzed. The study found that both types of infographics can effectively teach complex subjects involving temporal and spatial data, as long as they are appropriately designed.

However, static infographics were found to be more effective in conveying the subject matter and functioning better as teaching aids than animated infographics [2].

Ismael and Al Mulhim [5] conducted a literature review that showed support for static infographics over animated ones, with one study suggesting that animated infographics sometimes provided more information than needed. In contrast, static infographics made comprehending complex information or subjects easier. Other studies indicated that the motion in animated infographics may distract the visual information being communicated, especially for audiences such as students [5]. Teachers preferred static graphics because they allowed students to navigate all the components of the infographic simultaneously, which allowed them to make more connections between the components since they were offered only the main data without any additional information [5]. In this context, static graphics seem to be preferred over animated ones for conveying complex information. However, other studies suggest that vibrant graphics are better.

One study found that animated infographics were more effective in teaching subjects such as mathematics at a lower grade because they increased their interaction with the information compared to a static infographic [5]. Suderman et al. [6] also agree in their study, where they identified that the dynamic elements of interactive infographics improved the processing memory of learners, which complements the emotional aspects of animated infographics. Doukianou et al. [7] highlight that the combination of animation, engaging presenters, and exciting data significantly increases the effectiveness of the presentation and the audience's ability to understand the presented information. However, the authors note that animated infographics are the most efficient, fastest, memorable, and most enjoyable way of giving information, with movement increasing the animation's effectiveness [7]. Animated infographics build upon a visual gradually and seamlessly so the audience can easily follow the information, increasing engagement and comprehension. However, the authors note that animated transitions may be distracting if not tactfully used for captivating and entertaining the audience [8]. Tei-Narth and Nantwi [8] evaluated the impact of infographics in teaching visual arts. They found that while static infographics were useful, animated ones were more impactful for the field because they increased comprehension. Other studies argue that animated infographics appeal to audiences and can deliver more information than static infographics, even on complex subjects like science [9]. Animated infographics were used in a study involving vocational students. The results suggested that animated infographics were effective, valid, and practical in improving concept comprehension and mastery, meaning they were highly reflective of the study's participants [10]. AlMashaleh agrees with this result in his research of Quran vocabulary retention among third-grade students, where animated infographics were found to be more impactful than static ones. However, the difference was not very significant [11].

Most of the studies [1, 2, 3, 5, 6, 8, 9, 11, 12, 13] are based on an educational context as the primary audience, such that the studies are conducted on the impact of static and animated infographics on students' understanding. However, some studies include other participants, such

as Alzain and Aldursuni [14], who evaluated the impact of animated infographics on employees' comprehension of labor laws. While the study found that animated infographics increased awareness and understanding of labor laws, it did not compare them with other infographics [14].

Ismael and Al Muhim evaluated the general impact of infographics on reflectivity, which still leaves a gap in understanding which one between static and animated infographics is more reflective [5]. Further, the authors only focused on static and interactive infographics, leaving a gap in the effectiveness of animated infographics. However, Shemy [15] studied the impact of animated and static infographics on students' thinking and cognitive load scale. They found that animated infographics were more impactful because they had multiple multimedia elements and stimuli that complemented students' learning styles. The study notes that the presentation of information in an orderly and sequential manner increases the student's understanding of concepts [15].

Target Audience

The results of this study aim to evaluate the effectiveness of static and animated infographics across different audiences, placing a particular emphasis on educational contexts. The study seeks to enhance the understanding of infographics among students and educators of all levels, from primary to higher education, to enrich their learning outcomes and experiences. Additionally, the study will extend its examination to various fields, including health communication, media, and marketing, based on the effective presentation of data. By expanding the target audience scope, the versatility of infographics in academic and professional settings will be demonstrated, highlighting their relevance as the primary visual communication tool. The findings will provide valuable insight to content creators regarding the types of infographics and their impact on different groups within academic and professional settings, enabling them to effectively utilize visual aids to achieve their communication goals.

METHODOLOGY

The study utilized secondary research methodology to address the research phenomena. Snyder [16] observed that secondary methodology involves summarizing findings from previous researchers to glean valuable insights for knowledge development. In the current study, the researcher sampled data from quality databases. The databases used in selecting articles were ScienceDirect, Scopus, and JSTOR. Torres-Carrión et al. [17] found the database to contain quality articles that are critically appraised. The selection of articles was made through the use of the following keywords. Animated infographics OR static infographics and effectiveness of static infographics. The study only included peer-reviewed articles that were critically appraised. Further, the study selected articles comparing the efficacy of static infographics to that of animated infographics. Additionally, articles were published between 2016 and 2024 to ensure findings align with the current technological advancement in infographics education.

Comparative Analysis

The effectiveness of static and animated infographics was compared based on findings from existing literature across the selected studies. The researcher conducted thematic analysis to identify common themes in the differences between the two types of infographics. Equally, the study examined conclusions from previous researchers based on the effectiveness of each kind of infographic. Findings are presented in table format.

Evaluation of Selected Articles.

Every article selected in the current study was critically appraised. Long et al. [18] found that examining methodological rigor used by previous researchers is essential to ensure studies utilize quality articles. The quality of the articles was evaluated by assessing methodological soundness, potential biases, and strengths of the conclusions drawn. The above was essential to ensure the study synthesized trustworthy knowledge in generating current findings.

Data Analysis

The synthesis of information from the selected articles was through thematic analysis. Clarke and Braun et al. [19] highlighted that thematic analysis involves evaluating data trends and grouping findings into themes addressing the research context. Utilizing thematic analysis, the researcher summarized findings and discussions from previous researchers. Translating evidence from the earlier researchers through thematic analysis allowed the study to draw applicable findings and discuss and draw implications on the effectiveness of static and animated infographics based on the existing literature.

FINDINGS

The studies reviewed in this document will serve as the data source for the current study. The analysis of the results will be presented in a tabular format to summarize the impact and effectiveness of static and animated infographics. The findings of the study suggest that animated infographics are more effective compared to static infographics, especially in making information relative. Table 1 illustrates this. The results indicate that animated infographics are more impactful because they provide more information, are engaging and interesting, and offer a seamless blend of graphics and information. As a result, the audience reflects more on the information, enabling them to understand and remember concepts better.

TABLE 1. Results of the Analysis

Animated Infographics	Static Infographics
Effectiveness of communicating complex information [5, 6, 7]	Effectiveness of communicating subject matter and complex information [1, 5]

Increase the audience's interaction with information [5]	Provide only necessary information [5]
Dynamic elements of animated infographics improve processing memory [7]	Ability to navigate all components at once, hence making more connections [5]
Interesting, engaging, and memorable [7]	
Seamlessly and gradually build upon visuals which increase interaction and comprehension [8,]	
Provide more information than static infographics [9]	
Increase cognitive thinking and retention of information [11,14]	
Use of multiple multimedia and sequential presentation of information, which increases comprehension.	

CONCLUSION AND FUTURE WORK

Based on this secondary data analysis, it appears that animated infographics are more beneficial and effective than static ones. They are particularly useful in increasing the audience's reflection on the information presented to them. Animated infographics are more effective in enhancing comprehension, retention, and engagement than static ones, thus encouraging more reflection. These results support previous studies, but further experimental research is necessary to validate them scientifically and statistically. Understanding the difference in effectiveness between the two types of infographics will allow for more appropriate use of infographics for different purposes. Future studies should also consider using infographic contexts beyond educational purposes to ensure the validity of the results.

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