



Assessing the Role of AI in Generating Content for Digital Brand Communications: The Case of a Midjourney Generated Campaign

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Abstract

Along with the accelerated developments we are witnessing today in the artificial intelligence (AI) field, a surge of academic studies is attempting to comprehend the correlation of AI to their disciplines. Marketing studies, for example, have been interested in exploring how AI supports and enhances decision making through Big Data and Machine Learning (Erevelles *et al.*, 2016; Cui *et al.*, 2006; Turban *et al.*, 2008) and understanding consumer behavior (Fileri & Mariani, 2021; Hofacker *et al.*, 2016). Furthermore, studies focusing on social media marketing in relation to AI have also focused on analyzing content to identify patterns of customer behavior and attitudes (Choi *et al.*, 2018; Xiang *et al.*, 2017) and customization of message according to customers' profiles (Huang and Rust 2020). Only a few studies focused on the impact of AI on generating content such as (Hsu and Liou 2021) and proposed that AI would support the generation of enhanced content which would influence consumers' attitudes. Nonetheless, in this paper we argue that like any marketing stimuli, first, AI generated content must be assessed for its fitness for the business objectives. Second, AI generated messages must be tested for its effectiveness. Accordingly, this paper proposes a model that could be utilized to assess the impact of AI generated visuals on customers' attitude towards the campaign. Data is collected from a real-life case study of a university that used Midjourney, an AI software program, in generating the visual content for its digital marketing campaign. In doing so, this paper contributes to the theory of higher education marketing in addressing AI capabilities in generating marketing strategy.

Subject Areas

Marketing

Keywords

Artificial Intelligence, Digital Marketing, AI-Generated Content, Visual Content Marketing, Social Media Marketing, Higher Education Marketing

1. Introduction

The effectiveness of AI in marketing has been the subject of extensive literature review, with researchers exploring various facets and applications of this technology. Several studies have focused on the adoption and implementation of AI in marketing, examining its implications and impact on consumer behavior [1]. Research in this area has shown that AI has the potential to systematically and effectively change the way companies connect and interact with their customers. These studies have developed conceptual models and identified research gaps, offering valuable insights into the implications of AI in the consumer sphere. Furthermore, some of the literature on AI in marketing focuses on customers' psychological reactions to AI, examining how consumers perceive and respond to AI-based technologies in marketing. These researches shed light on the factors that influence consumer acceptance and adoption of AI in marketing, as well as the potential benefits and concerns associated with its use.

2. AI and Digital Marketing

Along the growing attention marketers are giving to digital marketing as one of the major channels to interact and engage with current and potential customers [2] [3], the question of the role of AI in digital marketing thrives. Theodoridis and Gkikas (2019) [4] explored the relationship between AI and digital marketing on different levels. Specifically, they mentioned that AI can be used to personalize data and target audiences to increase conversions and revenues. They also discussed the role of AI in optimizing digital marketing campaigns, channels, and audiences. Additionally, AI can be used to generate and process data, providing new knowledge and unique opportunities to provide customers with products they really need. Some of the AI-powered marketing platforms that generate personalized content, improve customer satisfaction and increase conversions include Gupshup, Meetcortex, Atomic Reach, Evergage, SentientAscend and Messenger Chatbot [4]. The features of these platforms range from personalizing campaigns according to targeted customers, qualifying leads, and routing them to the right salesperson, to producing photo, video, and text content optimized for the audience and managing to reach customers through content deployment at the right times to drive results.

Visual aids are essential for every company's marketing strategy (especially the digital ones) in today's world, and artificial intelligence hybrids are proving a revolution. Mayahi and Vidrih (2022) explore the relationship between AI and visual aids, and how it can help businesses gain and retain loyal customers [5]. They

assert that generative AI can influence visual content for commercial purposes by allowing the content to be automated, without sacrificing quality. Using interactive media and other machine learning tools, companies can create unique, customized products that appeal to individual consumers. According to Mayahi and Vidrih (2022), this can lead to higher levels of communication and customer satisfaction [5]. Additionally, generative AI can help companies create the volume and variety of content they need, which can be particularly useful in social media marketing. The study also highlights the importance of considering ethical implications when applying AI to creative applications such as visual content marketing.

3. Marketing in the Higher Education Sector

After its rise in the 1980s, higher education marketing is witnessing its proliferation. The high competition in the sector as well as the change in digitalization leaves no room for debate over the need of applying marketing in the field of higher education. Like many other fields in marketing there are challenges over the conceptualization. Perhaps a solid approach to providing a direction is the use of other marketing concepts that helps explain the notion. As per Filip (2012), higher education marketing resonates with service marketing, social marketing, and the need fulfillment approach [6]. Research shows that social media strategies are being used by universities to cope with the environmental changes. Yet, there is a question over the effectiveness of doing so due to lack of profound strategy [7]. Indeed Maresova *et al.* (2020), argue that the most important element to social media by higher education is the quality not quantity [8]. On that sense, meaningful and attritive content was found to be more important than the frequency of posting. Also, Maresova *et al.* (2020), argue that that social media channels are so strong in influencing decision in the higher education and its worthwhile to invest resources in it as a communication strategy. As Demirer (2022) states, social media enhances building a brand and establishes relationship in the higher education sector [9].

4. Theoretical Background

Visual content has become a vital component in any marketing strategy. This is due to the fact that visual content is strongly related to our nature as humans. In the digital culture we have all become acculturated into the reliance on visuals. We have acquired the culture of a “selfie” [10]. To date, we are facing a new technological innovation, the invention of AI. The question thus becomes, how are consumers becoming acculturated to this new era? Consumer acculturation is used to refer to intercultural contact and the resulting change for consumers in contact with a new culture; marketer acculturation is used to refer to intercultural contact and the resulting change for marketers in contact with a new culture of consumers [11]. It is argued that despite the vast amount of research on consumer culture, there is a gap in addressing the advancement of the digital world and its undergoing digital culture [12]. Hence, in this study we argue that AI technology contributes to the acculturation as we embraced all those novel tools and strategies

for more engaging content on social media. While the consumer culture literature over the last decade has examined consumers' interactions with brands, companies, market institutions and market dynamics, it has fallen short of capturing the evolution of the digital world and the consequential implications on consumers' daily lives.

It is of no doubt that visual content is important to marketing strategy. Specifically, on social media, visual images are now more popular than text [13]. Thus, visual content has become a significant component in any marketing strategy. Accordingly, we have witnessed an enhancement of production and consumption of visual media by social media users [14]. From a strategy perspective, images were also linked to positive behavior outcomes such as engagement [13]. In fact, social media performance is primarily assessed through engagement [15]. Indeed, the brand benefits from many favorable outcomes from customer engagement with their content on social media (See the work of [16]-[21]). Despite that, there has been lack of research correlating visual content to engagement [14].

This synthesized the novelty of AI generated images that need to be examined from the consumer perspective. Despite that, there is a dire need for more research investigating customer interaction with AI in the realm of marketing [22]. Earlier research has divided content of social media marketing into creator-related, contextual, and content features [23]. Whereas content features were divided into visual and tactual contents. In this study we focus on visual images (not videos). Also, antecedents of customer engagement included message related antecedents such as the attributes of the message [24]. Message-related antecedents consist of the attributes of messages that marketers design and disseminate to customers that could impact the latter's engagement on social media. This study examines consumers' engagement with social media content that includes images designed using Mid Journey, an artificial intelligence technology that generates graphics using keywords. This research examines the differences between audiences' evaluation of AI generated content and non-AI generated. This comparison contributed to understanding what content would lead to more engagement.

The notion of visual grammar stems from the early insights of the seminal work by Halliday's (1985) [25]. Halliday proposed the systematic functional grammar procedure which is based on the notion that just like text, visuals have nonlinguistic meanings and so can be analysed similarly [25]. This led to the prominent rise of the network of visual grammar as proposed by Kress and van Leeuwen (2006) which proposes how to read visual images [26]. According to Kress and van Leeuwen (2006), images can be analyzed by drawing on insights from both linguistic and semiotics. Their seminal work in the field of visual communication identifies three main elements of visual grammar [26].

First, Reputational meaning which entails focusing on the label of the meaning represented in the visual [27]. This includes people, places and things along other elements presented. Kress & Van Leeuwen (2006) states that narrative means that there is a participant, goal and action, which is a prominent strategy of storytelling [14] [26]. Indeed, Lim & Childs, (2020) argue that visuals on Instagram with high

narrative led to stronger brand connections that those without narrative [28]. Similarly higher narrative score was found to lead to higher content engagement [29].

Second, Interactivity, which is the various attitude one establishes towards the subject in the visuals. According to Kress & Van Leeuwen (2006), this includes 1) contact gaze; 2) distance and 3) angle [26]. Contact gaze is the establishment of contact with viewer, distance is distance between subject and viewer and angle is low angle and that suggests power over the viewer, eye-level which indicates equal power and high angle which means power of viewer. Contact gaze was found to lead to higher engagement on Instagram [30]. Petras *et al.* (2016) found that close ups lead to higher engagement [31]. With regard to distance Dhanesh *et al.* 2023 found that Facebook data reflected that the three points of view led to different user engagement [14].

Third Compositional which focuses on how the different aspects come together to produce the output. It can be viewed from a framing and salience approach [14]. Framing is the extent of elements given an identity of belonging or distance and salience is the extent of prominence of some elements in the pictures over others [26]. Limited work was found on the role of framing in determinant of user engagement, hence the addition to our research. However, brand prominence in advertisements was found to affect user engagement [30].

5. Methodology

This research followed a quantitative content analysis approach to quantify engagement in relation to the occurrence of the variables on Facebook visual content. The model applied was a visual semiotic approach based on the posts on Facebook by a higher education brand in Egypt. The visual semiotic approach draws upon theories and concepts from both linguistics and semiotics to provide a framework for reading and analyzing visual texts. Just like texts, visual content also uses its own grammar to encode meanings through images and their compositional techniques for example (Kress and Van Leeuwen, 2006) that can be later decoded by audiences. The choice of higher education sector was due to the rising notion of higher education marketing [32]. Also, the competition faced by higher education sector in Egypt is growing more intense hence there is a need to provide recommendations into winning marketing strategy using visuals on Facebook. Despite that, still more research is needed in applying marketing to higher education [33]. The university selected was based on an initial pilot study conducted by the researchers where page activity criteria were considered [33]. Hence network size and page activity were considered.

6. Procedure

The posts captured for analysis included both AI and non-AI generated visuals. Also, the engagement was collected in terms of likes, shares and comments for each of the selected posts. selected between the dates of May to November 2023. This is purposive sampling as the researchers were chooses the sample based on some criteria that the researcher has set as referred to by Ármannsdóttir [34]. The

coding procedure followed was Structural coding, this is due to the fact that pre-determined elements in relation to literature, framework and research objectives were considered before the coding as indicated by MacQueen *et al.* [35] and Guest and MacQueen [36].

To answer our research questions, we chose a digital campaign launched by the Arab Academy for Science, Technology and Maritime Transport (AASTMT) online during the summer of 2023. AASTMT is a university that has multiple campuses in Egypt and the campaign aimed to create awareness regarding the programs offered in its new campus in Alamein city. The visuals of the campaign were generated using Mid-journey, an artificial intelligence (AI) platform that creates visuals based on textual descriptions. The campaign included twelve posts, some of which included more than one photo. The posts were mainly published on their official Facebook page, and some were cross shared on their Instagram page as well. We also chose another twelve posts with still images, but not generated using AI, that were published on the same page and during the same period (summer 2023) to be able to compare the engagement across the different posts. We considered the number of likes, shares and comments for each post as an indication to the engagement they received. We also coded the different possibilities for each factor in the theoretical framework as demonstrated in **Table 1**.

Table 1. Narrative and visual engagement elements in ai-generated and non-ai-generated social media posts.

Narrative	1 = Narrative: Main action and goal present/Main action present 2 = Non-narrative: Main action absent
Content Gaze	1 = Indirect gaze: Main character looks away from the viewer 2 = Direct gaze: Main character looks at the viewer directly 3 = NA (visual does not include people)
Shot Size	1 = Close up shot: intimate and close personal distance 2 = Medium shot: far personal distance 3 = Long shot: close social distance, far social distance, public distance
Camera Angle	1 = Low angle 2 = Eye-level 3 = High angle
Framing	1 = Connection through similarities and rhymes of color and form; through vectors that connect elements; absence of empty space between elements 2 = Disconnection through contrasts of color or form; through framelines, and empty space between elements
Depth	1 = Narrow Depth of Field 2 = Large Depth of Field
Quality	1-High resolution of photo/professional lighting 2-Low resolution of photo/natural lighting

7. Findings

A textual analysis for each of the selected images was done according to the coding. In addition, descriptive statistics analysis was done to further understand and interpret the data. Our findings included the average number of likes, comments and shares for each post as well as the correlation between each of the visual factors and the engagement with the post. While the weighted average number of comments among the posts with AI and non-AI generated photos is similar (54 comments for the posts with non-AI photos and 53 for the ones with AI photos), there is a clear variance in the number of likes in favoring the posts with AI generated photos (average number of likes for the posts with AI photos is 973, compared to 372 likes to the posts with non-AI generated photos). On the other hand, a variance in the average number of shares demonstrated more engagement with the posts that included photos that were not generated by AI (33) in relation to the ones that included AI generated images (11) (See [Table 2](#)).

Table 2. Weighted average number of comments, likes, and shares for AI-generated and non-AI generated posts.

	Weighted Average Number of Comments	Weighted Average Number of Likes	Weighted Average Number of Shares
Posts with AI generated images	53	973	11
Posts with images not generated by AI	54	372	33

We assume in this case that the increase in number of likes (or reactions on Facebook such as love, care, ... etc.) in the posts that include AI generated photos, represent the audiences' positive reaction towards the visual itself. While the increase in the number of shares of the posts with non-AI generated material includes the tendency to share the useful information included in the post rather than the aesthetics of the visual itself.

7.1. AI Generated Photos and Comments

Furthermore, the statistical analysis of the data uncovered a strong correlation (0.91) was found between the number of AI generated images included in a post and the number of comments, which means that the posts that included more than one AI generated images received higher number of comments. The narrative, content gaze, shot size, and camera angle were also found to be correlated to the number of comments on the posts with AI generated images. Photos that demonstrated a narrative with a main character looking directly at the viewer in a medium shot and an eye-level camera angle received more comments.

7.2. AI Generated Photos and Likes

The data also demonstrated a weak correlation (0.09) was found to exist between the shot size (long, medium or close) and the number of likes in the AI generated

images. Also, an inversely related correlation exists between the narrative, number of photos in a single post, content gaze and the camera angle and the number of likes in the posts with AI generated photos. This means that posts that included a single AI generated photo with the main character looking directly at the viewer, but without a narrative and the camera is positioned at an eye-level or at a low angle received more likes.

7.3. AI Generated Photos and Shares

A weak correlation was found between the number of shares and the camera angle and shot size. However, a correlation was found between the narrative, content gaze, number of posts and the number of shares. Posts that included more than one AI generated image and demonstrated a narrative with the main character(s) looking directly at the viewer received a greater number of shares.

7.4. Non-AI Generated Photos and Comments

On the other hand, posts with photos that were not generated using AI showed correlation between the number of comments and the non-narrative, character gaze, shot size, framing, number of photos in the post and overall quality factors. This means that posts with only one high quality picture with professional lighting with a character looking towards the camera in a medium or a close-up shot received more comments. However, the results have also revealed that non-narrative pictures (where the main action is absent) and with no contrast of color or form still received more comments. Our assumption here is that the viewers were interested more in the content of the post rather than the visual itself, for example a post about a specific event or admission key dates. The comment on such posts usually asks for more information regarding the posts' message. The results have also demonstrated a weak correlation between the depth of field and the comments on the posts with non-ai generated photos.

7.5. Non-AI Generated Photos and Likes

The number of likes on these posts have also revealed a correlation with all the analyzed factors. Posts with a single photo that included a narrative with a medium or a close-up high-quality photo and professional lighting, with contrast and connection of color and form received more likes. There is also a strong correlation between the narrow depth of field (images with blurry backgrounds that shows more depth) and the number of likes. This confirms our hypothesis that the visual aesthetics influences the viewers' reaction to the post expressed in the form of a like.

7.6. Non-AI Generated Photos and Shares

Posts that included non-AI generated photos also revealed a correlation between the number of shares and the narrative, shot size, framing and the number of photos. Posts with a single medium sized or close-up photo, where the main action

was absent, and a disconnection of contrast or color form existed were shared the most. This reinforced that the number of shares were motivated more due to the value of information included in the post rather than the visuals' aesthetics. This was further proved through the weak correlation between the number of shares and the content gaze (it does not really matter whether the character is looking to the camera or not; or even if a character exists in the photo), depth of field and overall quality.

8. Discussion and Implications

Social media marketing is becoming more and more important for the higher educational marketing sector. With the intense competition, the different universities want to differentiate themselves. Specifically in Egypt, where different models of higher education exist, the competition becomes intense. AI can be a valuable marketing tool in the higher education market. But neglecting the human creativity and strategic thinking can lead to uninspired visuals. Whilst AI tools can boost engagement on social media, they must be used strategically.

Previous literature shows that customers engage for various reasons [16]. Limited studies have investigated the impact of the content started on social media and the engagements behaviour [37]. In this paper we argue that engagement behavior would be different based on the different aesthetics of the visuals presented. In fact, we argue that AI generated photos can present interesting new implications to the field.

First the number of AI visuals per single post leads to more comments. This means that the audience are attracted to the storytelling context provided by the multiple visuals. Further to that, our findings support the notion that social media marketing should showcase the human content. In fact, it is clear from the findings that engagement was in favor of AI visuals where the main character looked directly at the audience. Hence a connection between the buyer and the brand [38]. Also, this means that when it comes to higher educational marketing posts on Facebook, users would be more engaging with visual content that provides an equal power [26]. Hence, the audience wants to feel they have equal weight to the subject of the visual. Especially with this being in the context of higher education, the audience are in favor of a visual that makes them feel "able", rather than overlywhelmed or dominated.

We argue that the highest determinant of likes generation to an AI visual was contact gaze. This indicates that in higher education marketing, audience are in favor AI visuals that provide the emotional connection and provides credibility and trust. Specifically, we contribute to previous work done on Instagram which supports that contact gaze is important for likes [30].

With regards to shares, narrative and contact gaze are the most determining factors of actual content shares by audience. We conclude that Narrative through AI visuals provide the overarching theme that leads to actionable outcomes, hence content shares. Further to that the emotional connection created by the contact

gaze motivates audience to share the story presented through AI visuals. With regards to non-AI generated Photos, what drives engagement is what is being sent in the message or content more than the visual itself.

We argue that whether elements as narrative, contact gaze, or shot size were considered or not, in non-AI visuals what drove comments was the “message”. To demonstrate, as shown from the screen shot below, the actual comments on these visuals were asking for more information which indicating that the information presented is what drive the comments. On the other hand, the visual aesthetic differed with likes and shares. Indeed, more likes were generated when the photos included all the analyzed factors. This comes in line with previous research that indicated that the photo format provides more likes than comments [37]. This indicates a very strong implication to purpose of the post (See **Figure 1**).



Figure 1. Comments on a Non-AI generated post asking questions directly related to the content of the post.

Hence AI visuals provide a silent communication yet loud impact. Findings show that what matters is the targeted behavioral engagement as an outcome to the social media strategy. In this study we conclude that AI visuals can lead to positive behavioral outcomes while considering the different visual aesthetic elements. Indeed, it is not the mere adoption of the technology but rather adjusting the visual to match the outcome needed.

9. Limitation and Future Study

This study has mainly focused on the data publically available through Facebook in the Field of higher education marketing. In the future elements such as campaign intentions, advertising speedster and KPIs must be included in the analysis. Also This study has focused on one organised but compared between both AI and non-AI visuals in the future more than one organization from the same industry could provide valuable insights. An experimental design could provide interesting future implications where users would be manipulated and indicate which content the AI or non-AI that they favour. Studies can also explore the sustainability of using AI generated content in digital marketing strategies for universities [39]. Further to that, the platform could provide additional findings, for instance, next studies should provide a comparison between Facebook and Instagram.

Conflicts of Interest

The authors declare no conflicts of interest.

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Appendix

The following is a Google Drive link to the non-AI posts that were used for analysis in this article.

https://drive.google.com/drive/folders/16_YvK0rrQ6V3GN5KKckCa8S4ATV0nUC