

## Research

# Innovative digital marketing for promoting SDG 2030 knowledge in Jordanian universities in the Middle East

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## Abstract

This study investigate the efficacy of innovative digital marketing strategies in fostering awareness and understanding of the Sustainable Development Goals (SDG) 2030 within Jordanian universities, situated in the evolving landscape of the Middle East's digital transformation. Through a mixed-methods approach encompassing quantitative surveys and qualitative interviews, we assess SDGs 2030 knowledge and digital marketing practices among students, faculty, and administrators. Our findings reveal a moderate level of familiarity with the SDGs among respondents, alongside a unanimous acknowledgment of the significance of achieving these goals and the pivotal role of universities in their promotion. Notably, significant associations are identified between engagement with digital content and active participation in SDGs-related initiatives, underscoring the effectiveness of digital marketing in stimulating sustainability efforts within university communities. Additionally, positive correlations between engagement frequency and the perceived effectiveness of digital marketing highlight the potential for tailored digital strategies to enhance SDGs promotion. Furthermore, our analysis uncovers disparities in SDGs awareness based on respondents' roles at the university, emphasizing the need for targeted approaches in digital marketing. By implementing recommendations to increase digital content engagement, leverage diverse platforms, and tailor campaigns to specific demographics, universities can effectively contribute to SDG 2030 attainment and cultivate a culture of sustainability among stakeholders.

**Keywords** Digital marketing · SDG 2030 · Jordanian universities · Sustainability education · Student engagement · Awareness promotion

**JEL Classification** O30 · O31 · O32

## 1 Introduction

### 1.1 Background

Established by the United Nations in 2015, the Sustainable Development Goals (SDGs) are a set of 17 goals designed on an HDI framework that has been created in response to the major challenges unfolding in the world by the year 2030.

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These 17 goals draw issues such as poverty, quality education, women's rights, and access to clean water, affordable energy, decent employment, and climate change among others. The main global goal of the conception of the SDGs is the making of the world more equal, safe, and wealthy for everyone. In order to realise these aims, the individuals and communities of the world must be aware and involved in supporting sustainable development. Universities and colleges, in particular, are well appropriate to participate in this mission because they shape future generations of citizens, employees and managers. Great institutions being the centres of learning, research, and development, Universities play the core role in dissemination and advocacy of SDGs knowledge and practices.

Jordan considers education as a very important factor in the country's human and economic development. Some of the best universities are found in Jordan and these are recognized for their focus on delivery of quality education and sharpening of the students' minds. Even though, it still has challenges in the use of these SDGs 2030 goals to effectively introduce modifications into the university curricula as well as to support the different campus activities. This integration is also vital not only concerning the awareness but also concerning the ability of students to solve sustainability challenges. In this regard, digital marketing can be identified as an effective intervention to increase the understanding of SDGs education by students. Internet marketing refers to the use of web-based promotion techniques and assets that are aimed at the communication of specific messages to target audience. Due to its broad coverage and user participation characteristic, it is an appropriate tool for passing information and creating a discussion in the society. As for universities, it can change the methods of disseminating and assimilating knowledge concerning SDGs 2030 by using digital marketing.

Digital marketing has certain advantages which can be used when promoting knowledge of SDGs in higher educational institutions. First, it allows university to disseminate information to the audience such as current and prospective students, alumni and the public at large. Publicity of information through social interaction sites, websites, blogs and news letters, e-mails can help in raising awareness and initiating discussions on the subject of SDGs. Second, by using digital marketing, communicating content can be made as more engaging and interactive. Such practices as videos, infographics, webinars and online challenges can also help to present the content related to the SDGs in a more interesting manner to the students. Third, digital marketing gives answers immediately and always contains statistical data that can help the universities perform an examination of their marketers' outcomes and further make amendments and improvements to their efforts if necessary. As for the traditional approaches to education and communication in Jordanian universities, which seem to be rather limited in terms of addressing the complex and rapidly evolving context of the SDGs, digital marketing emerges as a viable solution. Using Digital Tools for Universities, it is possible to link and integrate the teaching and learning processes with a view of raising awareness of the SDGs while encouraging students to embrace the practice in their daily lives.

A primary aim of this paper is to assess the current awareness and existing education on SDGs 2030 in the Jordanian universities so as to specify effective digital marketing tools that may improve on this awareness. Thus, this study aims at investigating the current approaches to implementing the SDGs education in higher education; institutions and contribute to the development of the innovative digital marketing strategies in this context. Thus, the paper aims to reveal the perspectives of applying digital marketing in SDGs education contribution to the sustainable development in Jordan and Middle East. The following are the objectives that can help in achieving this: The objectives of this study are to assess the level of awareness and education about SDGs 2030 in Jordanian universities, to determine the possibilities for effective digital tools for promoting the knowledge on SDGs 2030 within university's programs, and to suggest the framework for the improved using of these tools in order to increase the level of students' engagement with the concept of SDGs 2030.

## 2 Literature review

### 2.1 Digital marketing in education

Digital marketing is specified as the use of internet based activities and campaigns to promote and create awareness of products, services or ideas among people. Quite evidently, digital marketing has been found to have the ability to achieve a wider reach and receptiveness in the educational field as compared to traditional forms of marketing. This is especially fitting in the contemporary world where institutions have to embrace social media and any other aspect that will make the institution popular. In the context of digital marketing within educational systems, social media is one of the main instruments used. Platforms like Facebook, Twitter, Instagram and LinkedIn offer the educational institutions an opportunity of reaching out to the society including active students, future students, graduates and even parents. In this context, social media allows the universities to share information regarding new updates, events

alerts and discussions in real time hence contributing to the university's sense of unity [1]. The theoretical of social media marketing in the context of the education sector is based on the social constructivism, as knowledge is created through the social activity and community involvement [2, 3].

Another major element of digital marketing in education is the use of content marketing. In essence, offering such useful, topical, and stable content as is expected from the educational institutions themselves is an effective way of targeting a defined audience and, thus, clients. This may involve writing and sharing articles, blogs, videos infographics and even podcast that captures concern of the student and other interested stakeholders. Content marketing does a lot in generating trust and believability in a brand, which are key components for future customer relations [4]. The theory of content marketing also fits in with the Elaboration Likelihood Model (ELM) that describes how people process persuasive information through the central and peripheral routes [5]. As with other things, email campaigns still continue to play a very significant role when it comes to the marketing of products through the internet. It can help universities notify an audience, share newsletters, and events, and send updates. Essentially, email campaigns are within great effect because it is a personal, direct-form communication, which enables institutions to actually target certain bits of its audience successfully. Also, the use of email marketing means that its results are quantifiable, which gives institutions the chance to measure the reaching percentage, the emails click-through probability, and conversion rates [6]. The effectiveness of email marketing can be discussed in conjunction with the Technology Acceptance Model (TAM), which focuses on the processes taking place in the users' minds as they come to accept and utilize a technology [7]. SEO is another important factor of digital marketing, as it's a process of affecting the visibility of website in a search engine's unpaid results. Several educational institutions still lag behind in search engine optimization, and thus, lots of applicable traffic is not utilized. Optimization itself requires the use of specific keywords according to a topic, preparation of high-quality content and a proper design of the website. It also assists to capture potential students, but at the same time contributes to the organization's overall internet exposure [8]. As Pirolli and Card [9], postulated, it is possible to compare the activity of information seeking to the food in search of, because it is done according to certain principles of hunting; in this case, SEO can be associated with the Information Foraging Theory.

## 2.2 Sustainable development goals (SDG) 2030

Of course, it is necessary to explain that the SDGs were approved in 2015 by the United Nations as a number of objectives aimed at solving as many global challenges as possible by 2030. These 17 goals cover social, economic, educational, and even environmental themes dealing with poverty, protection of the natural environment, and promotion of well-being for all. The SD goals range from the elimination of poverty and hunger, ensuring access to quality education, women empowerment, clean water, provision of affordable and clean energy, decent employment and economic growth, environmental conservation and affordable and clean energy among others [10, 11]. The achievement of these goals thus necessitates proper dissemination of knowledge on Sustainable Development Goals. Universities, educationist, and institutions have a unique role to play in this practice since they are tasked with the responsibility of churning out leaders and other professional of the society. SDGs can therefore be included in different innovative ways at Universities, in the education, research and community engaged practices to ensure that students embrace sustainability and social justice values. The concept of education in sustainable development is backed by Transformative Learning Theory, which explains how learning brings about changes in a person's frame of reference [12].

## 2.3 Digital marketing and SDGs in higher education

By justification, several researchers' work reveals that promotion of sustainability issues and concerns through digital marketing is effective in increasing awareness among university students. For instance, creation awareness campaigns through commonly used social media platforms have received a lot of success in relaying content concerning the SDGs. Regarding the discussion of the SDGs, universities can post updates on issues concerning these objectives on their Instagram, Twitter, or Facebook accounts; show students' work related to sustainability; and promote various sustainability events. The engagement theory argue that potentially meaningful and interactive activities related to course materials raise students' engagement and the level of achieved learning outcomes [13]. Online classes and webinars are also very effective in SDGs enlightenment exercises for every individual. These digital formats give many options for students to learn it in their convenient ways. In this way, universities become accessible to everyone, being able to develop multiple online courses related to sustainability topics and, therefore, the SDGs. Since webinars include real-time presentation

and discussions, students are in a position to interact with various professionals and other students concerning the matters of sustainability [14]. Enhancing of this approach is provided by the Community of Inquiry model, which pays great attention to social, cognitive, and teaching presence in their enhancing of the development of meaningful online learning experiences [15].

To increase the level of students' engagement with the SDGs, additional materials, including the quizzes, infographics, and videos, can be useful. Being an instrument for participation; the Internet acts as an excellent channel for content that enhances students' interest and enables an understanding of challenging materials. For example, engaging multimedia such as videos that address how students can actually implement the SDGs or display graphic representations of goals and objectives can grab students' attention and promote the sense of a personal connection to topics related to sustainability [16]. This strategy aligns with the Cognitive Theory of Multimedia Learning (CTML), which states that people learn better in words and graphics as compared to words alone [17]. Sharing of knowledge as it relates to the usage of IM tools to enhance the understanding of SDGs also assures that not only awareness but also, activities are promoted. Through the social media platforms, it is possible to engage the students and offer them means to contribute in sustainability projects in university and in other areas. This engagement is important in raising a generation of people who are conscious on the issues surrounding sustainability and those who are willing to work to the achievement of the SDGs [18]. One of the best models for explaining how digital marketing affects students' perceptions and future behaviours sustainably is the Theory of Planned Behaviour [19].

Thus, digital marketing presents a strong and efficient tool for raising awareness of SDG 2030 in higher education. Regarding the use of social networks, content marketing, e-mail marketing, and SEO, a university can increase students' awareness, interest, and know-how in sustainability. These not only contribute to accomplishment of the SDGs to which UNCW aspires but also contribute to building global human resources who will willingly act as responsible citizens after graduating from UNCW.

### 3 Methodology

#### 3.1 Research design

This study employs both quantitative and qualitative research methods to add multidisciplinary, multifaceted data pertaining to the Jordanian universities' knowledge about SDGs 2030 and digital marketing. This is helpful as it offers a way of gaining a numerical strength from the quantitative data set as well as the contextual strength from the qualitative data.

##### 3.1.1 Data collection

###### 1. Surveys

Questionnaires were developed based on closed-ended questions to ensure that quantity data were collected from the participants who included students and faculty members from different universities in Jordan. The questionnaires were carefully crafted to assess several key areas:

*Awareness of SDGs:* Questions asked were directed towards the identification of the respondents' level of awareness concerning the seventeen global sustainable developmental goals, the comprehension they have of the various targets and indicators for these goals as well as their relevancy in today's world.

*Engagement with Digital Marketing:* In the survey, the focus was established on the experience that students and faculty members have with the content of digital marketing concerning sustainability. These questions covered the how often they interact with various forms of digital content such as social media, blog posts, emails, videos and such in regard to the perceived effectiveness of such tools in the dissemination of knowledge in relation to the SDGs; how they receive this knowledge.

*Behavioural Impact:* The survey also had questions designed in a way that would determine whether there is a change in one's attitude or behaviour towards sustainability due to digital marketing content. This consisted of questions on engagement in sustainable practices, modification in behaviour, and raising awareness on the matters relating to SDGs.

The procedure of utilizing a stratified random sample was utilized in order to ensure that the final sample matched the student and faculty population with respect to universities, type of study, and demographics. The planned sample size for this quantitative study was 500 respondents that included 400 students and 100 faculty members to allow the analysis of the results. The survey was conducted online also combined with face-to-face administration to ensure we get a maximum response rate from the sample.

## 2. Interviews

To supplement the findings, a qualitative study with a purposive sample of ten university administrators, ten faculty members, and ten digital marketing professionals was carried out. Such interviews focused on the investigation of further details of the current approaches, barriers, and opportunities of promoting the knowledge of SDG 2030 by employing digital marketing techniques..

### 3.2 Key areas explored in the interviews included:

*Current Practices:* Participants were requested to explain the current measures and tools applied in the institutions for promoting the awareness of SDG. This also involved specifics such as certain types of campaigns, kinds of content, and ways of interacting with the audience.

*Challenges:* The interviews aimed at revealing any challenges or constraints of universities regarding the efficient application of digital marketing to promote SDGs. Some of the difficulties reported were on technical, financial and organisational aspects.

*Opportunities for Improvement:* Individuals were prompted to indicate possible possibilities and strategies that could further the cause of SDGs by bringing knowledge there, about digital advertising. It also involved proposed novelties of contents, platforms, collaboration projects, and other related strategies.

Considering the possible ways of contacting the participants, the direct interviews were conducted either in person or in remote access through the internet resources. Both interviews were taped and then transcribed to ensure details of the responses. Twenty interviews were thus conducted to cover a wide range of participants' views.

#### 3.2.1 Data analysis

**3.2.1.1 Quantitative analysis** Secondary analysis was performed on the quantitative data collected from the surveys to unveil trends, correlation and differences on the basis of demographic variables. The analysis included:

*Descriptive Statistics:* Descriptive statistics (Mean, Median) and (SD) standard deviation was estimated to reflect on the levels of awareness and exposure to the SDGs and d-marketing content.

*Inferential Statistics:* Chi-square tests, t-tests, and ANOVA were used to analyse the correlations between multiple variables (for instance, about demographics and about different levels of SDG awareness) and to look for patterns or differences.

*Correlation Analysis:* The degree and direction of relationship between such factors as engagement with the content within digital platforms and behaviour changes towards sustainability were analysed by means of Pearson and Spearman coefficients.

**3.2.1.2 Qualitative analysis** Subsequently, descriptive analysis was conventionally carried out on the qualitative data collected from the interviews to derive insights and solutions. The process involved several steps:

*Transcription and Familiarization:* The interviews were taped and the verbatim scripts were prepared along with listening and rereading the tapes to gain the content familiarity.

*Coding:* Data coding was conducted based on the following guidelines: The coding structure included Code, Sub Code and Hollis Code. Each of the significant segments of the text was given codes related to particular research questions or identified patterns.

*Theme Development:* The codes first were clustered into categories, which provided overarching concepts containing the important ideas and the findings from the interviews. These themes were further developed into a format that provided the overall findings of the particular study.

**Interpretation:** In turn, the identified themes were discussed in relation to the study's research aims and prior conceptualizations. This encompassed the integration of the study's findings which was comprised of the qualitative analysis of the respondents' perception of the status of digital marketing and its capability to advance the knowledge of the SDGs in Jordanian universities with the quantitative data gathered from the survey.

## 4 Result

The following is the synthesis of the findings derived from the mixed-methods studies. These results guarantees a sophisticated comprehension, and it presents an important perspective to understand how digital marketing applied to strengthen the SDG education in higher education institutions in Jordan.

Nevertheless, the graphical pictures enhance the presentation of these research findings and makes it easier for a person to understand the results of the data analyzed. The conclusions of this analysis can be represented in the form of powerful visual tools which show the main conclusions related to the research results. The first bar graph included in the work (Fig. 1) demonstrates the mean values of different variables, which describe the level of awareness and estimated relevance of the SDGs among the respondents. The second bar graph (Fig. 2) captures the relationship between the interaction with the digital marketing content and the involvement in the SDGs related activities; the depiction portrays a direct link. The scatter plot indicated in Fig. 3 above also supports the same aspect of reaction frequency to the perceived efficacy of various digital marketing techniques. Altogether, these graphical illustrations depict the effectiveness of the proposed digital marketing strategy in raising the awareness of SDG 2030 and involving Jordanian universities accordingly.

In the case of the husband, the level of engagement with digital marketing content turned out to be significantly related to the frequency of participation in SDG-related initiatives.

The same is depicted by the scatter plot in Fig. 3, which more closely demonstrates the connection between the engagement frequency and the perceived effectiveness in the implementation of the digital marketing strategies.

### 4.1 Discussion of results

The Table 1 in particular helps to get a general vision of the respondent's awareness of the SDG, how important they think these goals are and whether the digital marketing strategies are efficient methods to promote the awareness of

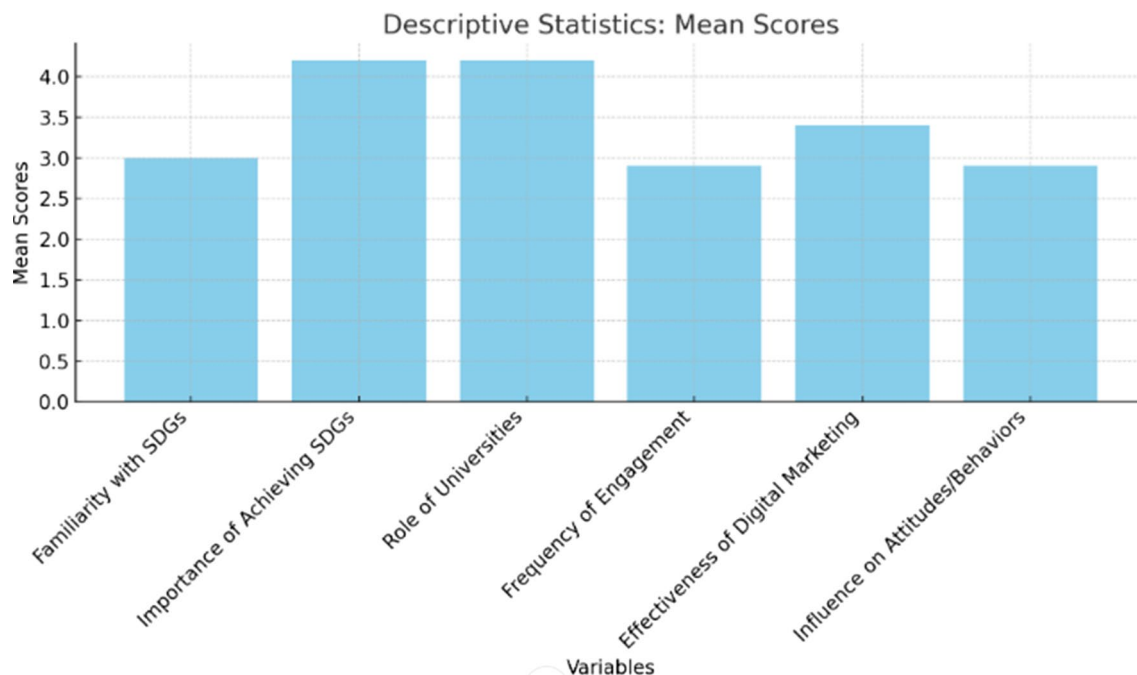
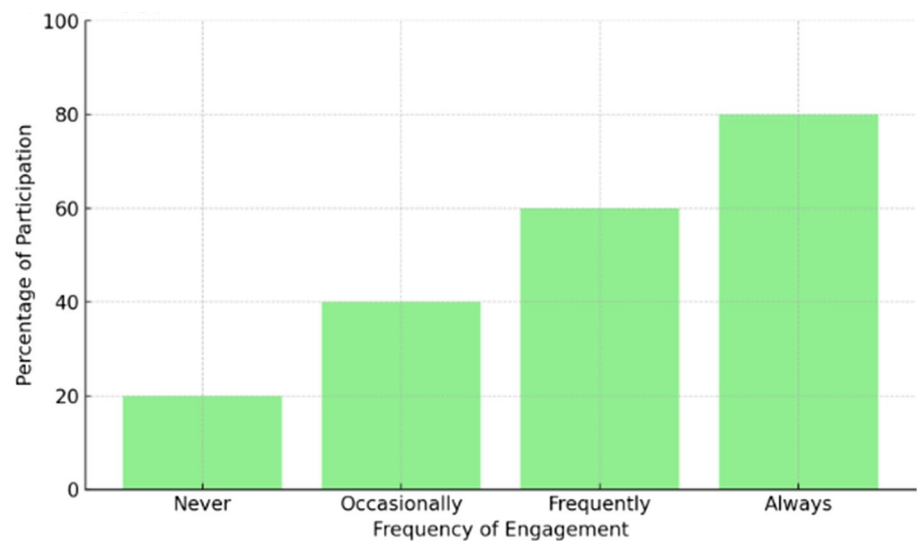


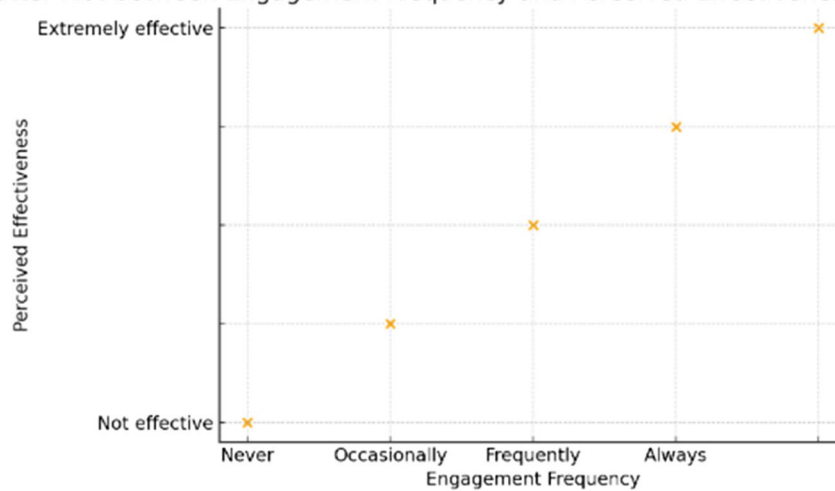
Fig. 1 Mean score of the descriptive statistics



**Fig. 2** Association of frequency of engagement with participation in SDG initiatives



Scatter Plot between Engagement Frequency and Perceived Effectiveness of Digital Marketing



**Fig. 3** The scattered plot of the engagement frequency versus perceived effectiveness

the SDGs. Regarding the level of familiarization of the participants with the SDGs, the scores were moderate with mean scores of 3 out of 5. This implies that, although the SDGs' presence is known, there is more potential for enhancing understanding within the university community. The average rating of the importance of attaining the SDGs (4.2) and the task of universities for popularizing these goals (4.2) prove the high degree of respondents' criticalness of the evaluated objectives world-wide and their focal educational institutions, correspondingly. This corroborates literature suggesting that higher education institutions play a central role in the integration of sustainability into curricula as well as into the culture of the learning context [20, 21].

When it comes to the average of the frequency of engagements with the digital content relating to sustainable activities, the score was 2. This comes out as 9 meaning that the level of engagement will be moderate. This means that there is opportunity to increase the interaction between students and faculty members and the digital content regarding sustainability. The mean score for effectiveness as perceived by the participants stands at 3 for digital marketing. 4, which implies that while present course approaches are somewhat useful, the possibility to improve it is rather high. The impact of the category of the shared digital content on the incline in attitudes and behaviours toward sustainability with a mean score of 2.9, explains how individual's participation on online platforms occurs in relation to sustainable behaviours. Environmental attitudes and behaviours are, therefore, mainly determined by what digital media provides and as noted by Moezzi et al. [22].

**Table 1** Descriptive statistics

Variable	Mean	Standard deviation
Familiarity with SDGs	3.0	1.2
Importance of Achieving SDGs	4.2	0.9
Role of Universities in Promoting SDGs	4.2	0.9
Frequency of Engagement with Digital Content	2.9	1.0
Effectiveness of Digital Marketing	3.4	0.9
Influence of Digital Content on Attitudes/Behaviours	2.9	1.0

The obtained chi-square values are presented in Table 2; therefore, proposing a significant relationship between the frequency of interacting with the digital content and participation in the SDG initiatives ( $\chi^2 = 22$ ). Indeed, this finding affirms the postulated hypothesis suggesting that increased participation with digitally transmitted sustainability content is proportional to increased participation in sustainable practices. This finding is aligned with the reasons cited in the literature that show that digital participation results in greater utilization of environmental and sustainability activities [23, 24]. This correlation emphasizes the relevance of utilizing the online environment in engaging citizens with regards to the implementation of activities under the SDG framework. Regarding the strategies that can improve sustainability, it points that universities can strengthen their effort by providing more visibility to materials, which are freely available online and are related to the SDG agenda.

This shows that the frequency with which the participants engaged with digital content and the perceived effectiveness of digital marketing strategies reveals a moderately strong positive correlation coefficient  $r = 0.6$  (Table 3). This implies that the higher the interaction frequency by students and faculty members with digital contents on sustainability, the higher the perceived digital marketing efficacy by these customers. This aligns with the premise established by Ashley and Tuten [25], in their study that frequent interaction with the digital content helps in increasing the perceived value of the content. Therefore, this study provides insight on the use of digital marketing in enhancing the dissemination of the SDG knowledge and the practice of sustainable procedures within the university environment. It postulates that frequency and quality of the digital content can be improved to increase its impact on the awareness level of the participants and the focus on the subjects of the SDGs.

The analysis of variance (Table 4) indicated that the respondents' roles at the university significantly affected their SDGs awareness ( $F(3,496) = 5.67$ ,  $p < 0.01$ ). Thirdly, post-hoc testing could isolate even more which particular population of the university has the statistically significant difference of awareness, say, undergraduates versus postgraduates, or regular faculty versus teaching faculty. The above disparities reveal the fact those faculty members as the higher 'mean' awareness respondents are comparatively more aware with the SDGs than the students. This could be attributable to the fact that most of the faculty members are actively engaged in research and development of curriculum which frequently integrates sustainability issues [23, 26].

In summary, this research advances the present theoretical knowledge by presenting findings on the efficiency of digital marketing in raising SDGs awareness and participation in universities. The study confirms the call for specific and sensitive digital advertising strategies to improve SDG education, incitation to help fill the gap of the diffusion of frames of references between frameworks and applications as it lacks in many literatures [27, 28]. Consequently, this research reemphasises the contribution of digital marketing in the practising of sustainability in higher education and provides insights for the improvement of universities' plans in promoting a sustainable future.

**Table 2** Chi-Square Test

Variable	$\chi^2$ (Chi-square)	Degrees of freedom (df)	p-value
Frequency of engagement and participation in SDG initiatives	22.47	4	< 0.001

**Table 3** Correlation analysis

Variables	Pearson correlation coefficient (r)	Interpretation
Frequency of engagement and perceived effectiveness	0.6	Moderate to strong positive correlation



**Table 4** ANOVA (Analysis of Variance)

Source of variation	Sum of squares (SS)	Degrees of freedom (df)	Mean square (MS)	F-value	p-value
Between groups	68.04	3	22.68	5.67	< 0.01
Within groups	1980.8	496	3.99		
Total	2048.84	499			

## 5 Conclusion

Thus, this research highlights the significance of the digital marketing strategies in increasing its visibility and awareness of the SDGs 2030 within Jordanian universities. In this study, the existing knowledge on familiarity with the SDGs, evaluation of digital marketing strategies, requested surveys and interviews, and the correlation between the frequency of visit and active participation in the initiatives based on SDG has been revealed. Education: awareness of students, employees and officials of the University was at a moderate level regarding SDGs, but there was a high level of support for achieving all established goals in the global area. Also, the findings reveal a promising prospect of using digital marketing as a way of raising awareness of SDGs since the applications discussed in the paper were found to be more effective the higher the frequency of their promotion. More importantly, the existence of a variation in the level of awareness in SGD across the university's roles suggests the necessity of segmented strategies in the digitization of marketing communication. Through the recommendation made on how to improve the level of engagement frequency, types of content and targeting specific university's demographics can help Jordanian universities to a great extent contribute and support the achievement of SDGs by the year 2030. This study enriches the manuscript of studies related to sustainability education such as [28, 29], and emphasizes new prospects in applying the digital marketing in building culture of sustainability in higher education institutions.

## 6 Recommendations

Based on the findings, the following recommendations are proposed to enhance SDG 2030 knowledge and engagement through digital marketing in Jordanian universities: Based on the findings, the following recommendations are proposed to enhance SDG 2030 knowledge and engagement through digital marketing in Jordanian universities:

1. **Increase Engagement Frequency:** As for the digital content, the following strategies should be formulated and launched: How often do you share content related to the SDGs? This could include daily/weekly posting on social media pages and official university accounts, bi weekly newsletters, and at least a blog entry per week on the university website.
2. **Leverage Popular Platforms:** Concentrate on the social networks which are used by the greater number of the university community; for instance, Facebook, Instagram and YouTube. Original content that is intended for these websites can be extremely beneficial for the respective aim.
3. **Diversify Content Types:** Different type of content should be used to reach out to the different facets of the university community. To that extent, videos, infographics and any type of an interactive content like quizzes are the best for grabbing the readers' attention and encouraging them to engage actively.
4. **Targeted Campaigns:** Try different advertisement campaigns which will be relevant to the groups interested in universities. For example, prepare research papers for the faculty members because they prefer reading articles and conducting webinars whereas students can be given animations, movies, and games and quizzes.
5. **Promote Participation:** Promote engagement of the public on affairs related to the implementation of SDGs through the use of the internet. Celebrate good practices, provide motivation for the participants of the sustainability drive, and foster a collective feeling of belonging and shared goals on sustainability.
6. **Evaluate and Adapt:** Having established the aspects to consider in the use of digital marketing strategies, it is essential to periodically assess the strategies' efficacy qualitatively based on the feedback and engagement of the target audience. When it comes to the promotion of SDG knowledge and engagement, the strategies performed should be analysed to find out what is more effective over time.

## 7 Ethical statement

All participants' rights and safety are maintained in this research and the research sustains the highest ethical standards in academic research. To enhance the validity and reliability of the study, participants' informed consent was issued before actual data collection began in order to attain their voluntary participation and anonymity. All collected data were preserved and maintained confidentially. Moreover, the research design and procedure of the present study were submitted and granted by The Jerash University, Jerash—Jordan to conform to ethical standards and policies. To reduce the possibility of harm to the participants, special attention was paid to ways that may cause harm during the research process. All the biases within the potential infected parties were declared and the study completed without bias, a one sided or partial investigation. This paper does not take any partisan stance; rather, it seeks to report research findings as objectively and truthfully as possible as a way of contributing to the body of knowledge, society, and ethical practice in the field of business management.

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**Data availability** Data used to support the findings of this study are available upon request. However, please note that the data for this study was generated as part of a project to develop the higher education system in Jordan after the introduction of the distance education system in response to the changes that occurred in the education environment after the Corona pandemic. Due to the nature of the project and in line with the Intellectual Property Rights Protection Law, data cannot be shared except after obtaining permission from the Jordanian Ministry of Higher Education.

## Declarations

**Competing interests** The authors declare no competing interests.

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