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Data analysis of digital interactive art through information technology

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C H R O N I C L E

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A B S T R A C T

The primary objective of this paper is the data analysis of digital interactive art on Jordanian university students using information technology. The study also uses information technology because of the opportunities that technology provides for an interactive nature between the innovative process, productivity, and high flexibility. The data is collected using a questionnaire, and the majority of the study population is made up of Jordanian university students. According to the findings of this study, Digital Interactive Art has a substantial influence on Jordanian University Students' Information Technology.

1. Introduction

Information technology (IT) and information systems have embraced digital interactive and participatory approaches. Users are a valuable component of developing and building services and products, according to IT research, because the customer co-creation process may favorably affect the amount of value of a technology design. As a result, the user's perspective is increasingly critical to the success and conclusion of service design (Taipale, 2021). The early twenty-first century has also seen an increase in the participatory nature of art, which is shared with others and in public. Our ideas of what art should be are already shifting as a result of the usage of digital technology in the arts to turn the viewer into a participant. The limits of creativity, curatorial design, performance, and display are always being pushed by anything from visual and aural art to gaming (Candy & Ferguson, 2014). In the space sector of current display design, digital art design is incredibly essential. It alters the appearance and meaning of contemporary display design. To improve the development of digital technology and the use of current technology in the field of art design (Li, 2021). Information technology has permeated every aspect of life, and most schools have implemented electronic computer technology and network information technology, with campus network facilities improving all the time. To acquire and absorb knowledge more effectively, more conveniently, and more rapidly, we must combine advantages and turn past conventional teaching techniques into contemporary intelligent teaching methods, hence continually improving learning efficiency. The majority of art education focuses on the teaching of skills rather than the art itself. All of these things stifle the growth of art education, as a result, the reform of a new art curriculum that satisfies the needs of quality education has raised the standing of art education and created room for it (Meng, 2022). Information and Communication Technology (ICT) has had an impact on practically every part of life, transforming different facets of these professions. In higher education, the effect of information and communication technology in the era of digitalization, globalization, and information is clear, the internet, in particular, and our reliance on digital devices, have changed the way we acquire and share knowledge (Habib et al., 2021).

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2. Literature Reviewer

In today's world, digitally developed interactive services are commonplace. In the display of art, as well as in cultural institutions, digital and interactive solutions are becoming more prevalent. Information technology, software design, digital art, and the art experience are all related fields of study, yet developing common interactive solutions for these poses obstacles. In the world of art, technological solutions are growing (Taipale, 2021). It also looks at the evolution of interactive digital art through the eyes of those who are incorporating assessment into their creative processes. Many of the interactive art system technologies and approaches described are applicable to broader Human-Computer Interaction problems as well as the Digital Arts community, in order to reach the art of innovation, creativity, productivity and flexibility (Candy & Ferguson, 2014). Information and Communication Technology has not only revolutionized and modified classroom learning and teaching techniques, but it has also mutated distant learning programs, resulting in reconfigured libraries and improved access to learning resources. As a result, there is a continuous upgrade of technology-assisted access to the digital world of knowledge. As a result, the digital world provides useful knowledge in a variety of sectors (Habib et al., 2021).

Interaction art is a psychological and social phenomenon that occurs frequently. Interaction is the interplay and influence between the interacting objects and participants in a wide sense. Interaction, in a restricted sense, refers to the form and degree of interaction between people or between people and things in certain contexts and social settings (Hui, 2014). In order to achieve the art of innovation, creativity, productivity, and high flexibility, various types of partnerships between art and technology are made possible by the emergence of numerous new types and genres of art at the intersection of art and technology, as well as by the increasing use of technology by artists and the introduction of new tools and technologies. Examples include interactive art installations, generative art, computer art, internet art, software-dependent art, digital interactive art, and more. The distinction between genres is typically hazy when they intersect. Due to the lack of mutually exclusive characteristics, certain genres are not clearly defined and some of them overlap with others. One genre is frequently developed from another and each subgenre or subcategory might have numerous subgenres or subcategories (Ahmed, 2018).

The usefulness of digital media interactive technology in the advancement of film and animation is evaluated, and it is discussed how it may help with animation education. The report then goes into great detail about the specific uses of digital media interactive technology in animation design and production, including the specific uses of digital media interactive technology in film and television animation, further enhancing animators' use of digital media interactive art, fusing digital media interactive art technology with other science and technology, and fusing digital media interactive technology with non-digital media. The effect of interactive art technologies for digital media on 3D animation design is then examined (Li & Wang, 2021). Also, Considered Interactive Digital Art is a type of digital interaction art. It is a popular art form that combines information technology. Through digital technology, this type of art performance may be found in a variety of art areas, including sculpture, painting, and installation art. Following technological advancements, artists produce Digital Art using a variety of simple applications. The most appealing characteristic of Interactive Digital Art is 'participation,' or 'interaction,' which allows viewers to engage with the artwork. Interactive is a repurposed art form that generates a new changed product based on the specified criteria and distributes it to the audience because this creates the art of innovation, creativity, productivity and flexibility (Lee et al., 2014).

As a result, digital curation has emerged as a prominent topic in museum studies. On-site museum experiences enhanced by digital technology may not only reinforce traditional museums' social and educational purposes but also raise the value of cultural assets in the digital era. Despite the fact that digital technology has grown increasingly popular at cultural institutions such as museums and art galleries in recent years, there has been little systematic research on the concerns of on-site engagement and visit personalization (Li & Liew, 2015). Digital art also incorporates digital technology into the creative process or exhibition display. Crypto art is concerned with authenticated digital artworks and is tied to block chain technology. The parameters normally employed for copyright (royalty monetization or otherwise) are modified to the specific scenario at hand in valuation profiles. The improved usability of digital channels is generally counterbalanced by a lack of exclusivity when compared to conventional art (Moro Visconti, 2021).

Interactive art is a type of art in which the artists and the audience are in close contact. It was doomed from the start because of modern technology. Virtual Reality is a technology that arose from the maturation of computer technology. Its inception has opened up a world of possibilities for interactive art, particularly in terms of interaction and multi-sensory experience. Additionally, while discussing the impact of virtual reality technology on the future growth of interactive art, start by discussing how these two mediums have an effect on artists before moving on to how they have an impact on creators of interactive art (Wang et al., 2018). As platforms like web pages, smartphone applications, and other platforms become more complicated, designers are placing a greater emphasis on the user experience. Building stronger connections with the audience based on emotion, vision, hearing, feeling, and other senses can help visual communication design adapt to changing requirements and difficulties on a regular basis (Zhou, 2020). As a result, new technology designers and localizers must address cultural and territorial elements. The Diamond Model is built on a more suitable physical metaphor than previous meta-models of culture, and it goes beyond culture to a meaningful spectrum of territorial characteristics. The Diamond Model also serves as a foundation for cutting-edge design tools like dramatic drawings, which blend actual examples with contextualized tales to effectively explain the influence of cultural variations on the user experience (El-Qirem & Cockton, 2011). As a result, the focus

of this research will be on the influence of digital interactive art on Jordanian university students, as indicated by "innovation, creativity, productivity, and high flexibility" in information technology.

3. Hypothesis Development

According to Habib et al. (2021), modern technology, management systems, and information and communication technology are critical for the learning and administration of many activities in higher education. The feasibility of management information systems, learning management systems, and digital campuses in this part of the world is a hopeful sign for other institutions and developing nations. According to Taipale (2021), the usability of the virtual art exhibition had no direct impact on the participants' art experience, but it did have an impact on immersion, which influenced the art experience. Overall, the study model and explanatory variables explained 54.5 percent of the difference in art experience (R^2=0,545). According to Li (2021), among the three functions of gesture action, voice command, and keyboard command, the keyboard command has the most influence, obtaining 100% accuracy. Although the gesture and speech instructions are more than 90% accurate, there remains a small margin of error. Viewers must engage with the displays in order for interactive art exhibitions to achieve their intended aim. This kind of experimentation is fostered by interactive digital art, which creates the experience using digital technology (Jackson, 2017). According to Hui (2014), students who are taught using digital interactive art technology get better achievements than students who are taught using traditional techniques. The advantage was evident in each metric as well as in the test results. As a result, using digital multimedia technology in architecture art lessons allows professors to effectively distribute information while also assisting students with comprehension. The research by Ahmed (2018) relates to the user's impact over the system's processing or output in digital interactive art, but also alludes to the user's engagement and being a part of the artwork in pure interactive art. These distinctions are connected to the various definitions of contact that we have identified in other domains, such as process control, reciprocity, communication via a medium, and interpretation of some communication. Furthermore, Li and Wang's research (2021) examined the practical use of digital media interactive art technology in 3D animation design, such as game design, cinematic post-production, and movie commercial. It is intended that interested parties pay special attention to the use of digital media interactive technology in animation design and get a complete grasp of the technology's relevance and usefulness. End-users throughout the world, on the other hand, utilize technology to carry out activities that appear more natural and are more in line with their cultural and personal preferences. According to the data, senior Arab users thought the Health design was acceptable because of its cultural significance. When developing mobile UI for older users, it is vital to consider cultural standards and their behavioral applicability (Alsswey & Al-Samarraie, 2020). The following hypotheses were established based on the preceding:

H_1: *There is a significant positive impact of innovation on information technology among Jordanian university students.*

H_2: *There is a significant positive impact of creativity on information technology among Jordanian university students.*

H_3: *There is a significant positive impact of productivity on information technology among Jordanian university students.*

H_4: *There is a significant positive impact of high flexibility on information technology among Jordanian university students.*

4. Methodology

The goal of the study is data of digital interactive art on Jordanian university students using information technology. And because of the potential of an interactive nature between the inventive process, productivity, and high flexibility that information technology gives, the data was obtained utilizing a questionnaire. The majority of the study population is made up of Jordanian university students. In addition, the frequencies and percentages of study sample characteristics were retrieved, as shown in Fig. 1:

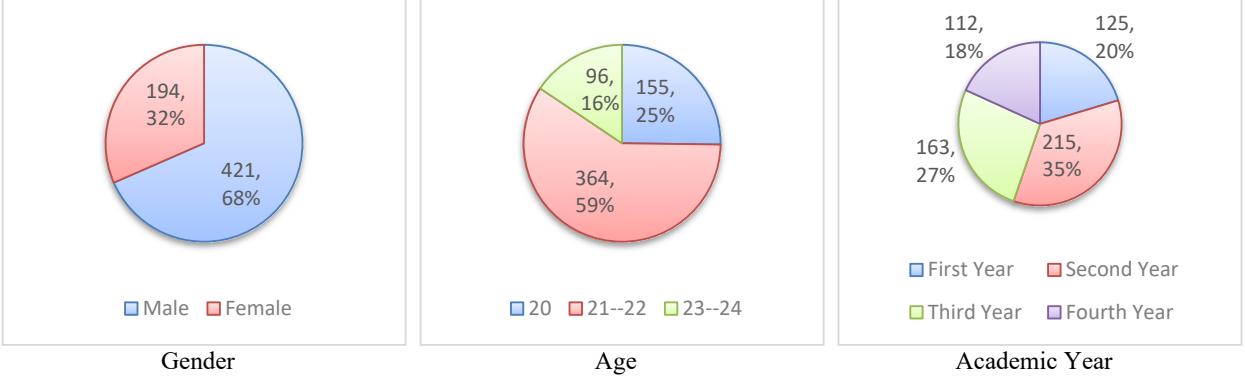

Fig. 1. Frequencies and percentages for the characteristics of the study sample

Fig. 1 reveals that 615 questionnaires were gathered, with a male answer rate of 68.4 % and a female response rate of 31.6 %, indicating that male respondents dominated this study's respondents. In terms of age, 59.1 % of respondents were between the ages of 21 and 22, 25.2 % were between the ages of 20 and 20, and 15.7 % were between the ages of 23 and 24, the results revealed that 34.9 % of respondents were in their second year, 26.5 % were in their third year, 20.3 % were in their first year, and 18.3 % were in their fourth year. Cronbach Alpha was applied to the sample to guarantee instrument reliability, and the greatest reliability value was 0.87 for the Innovative, 0.84 for Productivity, 0.80 for Information Technology, 0.78 for the Creative, and 0.76 for the High Flexibility, demonstrating acceptance of dependability. Table 1 contains the specifics.

Table 1
The results of the Cronbach Alpha for measuring the reliability N= 615

Variables	N. of Items	Alpha (a)
Innovative	5	0.87
Creative	5	0.84
Productivity	5	0.88
High Flexibility	5	0.87
Information Technology	7	0.78

In addition, the mean and standard deviation for the Digital Interactive Art domain and the Information Technology means of this study were retrieved. As a result, Table 2 shows the results.

Table 2
Descriptive Statistics of Variables N= 615

Variables	Mean	Standard Deviation
Innovative	4.09	0.72
Creative	3.94	0.54
Productivity	3.77	0.69
High Flexibility	3.81	0.59
Information Technology	3.91	0.74

Table 2 shows that the highest mean value was 4.09 for the “Innovative” denoting high agreement degree, for the variable which is “Creative” the scored mean of 3.94 also denotes high agreement degree, similarly for the variable “Information Technology” high agreement degree was also obtained at 3.91 scores of the mean, for the variable which is “High Flexibility” the scored mean of 3.81, the lowest mean was 3.77 for the variable of "Productivity" by medium agreement degree.

5. Results

5.1 Multicollinearity Analysis

Table 3 presents the summary of the multicollinearity analysis.

Table 3
Multicollinearity Analysis

Variable	Tolerance	VIF
Innovative	.451	2.184
Creative	.377	2.115
Productivity	.536	1.820
High Flexibility	.389	2.625

Note: The Dependent Variable is Information Technology

When the Variation Inflation Factor (VIF) number is less than “10.0” and the Tolerance value is larger than “0.05”, multicollinearity arises. SPPS was utilized to do a multicollinearity study. Table 3 shows that the below tolerance value is 0.389 and the maximum VIF is 2.625. This shows that all tolerance values are larger than “0.05” and all VIF values are below “10.0”. As a consequence, there are no difficulties with multicollinearity between the variables in this study.

6. Multiple Regressions Analysis

Multiple Regression analyses were utilized to determine the link between the Impact of Digital Interactive Art encompassed (Innovative, Creative, Productivity, and High Flexibility) and Information Technology on Jordanian University Students.

Table 4
Result of Multiple Regressions test

Variable	"t"	sig	(β)	R^2	"F"	sig	Result
Innovative	5.420	.000	0.315	0.701	211.325	0.00	Accepted
Creative	6.023	.000	0.133				
Productivity	**4.419**	.000	0.269				
High Flexibility	4.215	.000	0.177				

Note: The Dependent Variable is Information Technology

Table 4 reveals that Digital Interactive Art has a statistically significant impact on Jordanian University Students' Information Technology. In this example, the "F" value was 211.325, which was statistically significant at 0.00. The R^2 coefficient was 0. 701. Furthermore, Digital Interactive Art looks to play a growing role in Jordanian University Students' Information Technology. Where the t value for Creative was 6.023, for Innovative it was 5.420, for Productivity it was 4.419 and for High Flexibility, it was 4.215. As a consequence, all hypotheses were accepted.

7. Conclusions

As technology advances and pervades teaching techniques for numerous courses, digital multimedia-assisted teaching has become an essential method in education. To direct educational activities for architecture majors and perform experiments, a digital interactive art technology teaching style is used, where the study aims to the data analysis of digital interactive art through information technology on Jordanian university students. The results of this study show that Digital Interactive Art has a significant impact on Jordanian University Students' Information Technology. Furthermore, Digital Interactive Art looks to play a growing role in Jordanian University Students' Information Technology.

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