

Enhancing the creative learning experience through harnessing the creative potential of digital and social media platforms in art and design educational contexts

Sama'a Al Hashimi

Department of Communication, Tourism, and Arts,
University of Bahrain,
P.O. Box 32038, Sakheer, Kingdom of Bahrain
Email: samaa.alhashimi@gmail.com

Abstract: Despite the advancements in social media technologies, the effectiveness of repurposing them for pedagogical purposes is yet to be evaluated as an educational approach in the conventional art or design classroom. The research analyses the potential role of digital and social media applications in enhancing the creativity of art and design students, and explores the benefits they bring to the creative process both for students and educators. It involves two experimental studies; the first study explores the use of a digital painting technique by 23 fine arts students, while the second study investigates the use of social media apps by 42 graphic design students. The study is undertaken in an experimental educational setting and aims to determine how digital media can be employed by educators to expand student's creative thinking. The findings examine the students' and educators' attitudes, preferences, and the challenges they face while incorporating these technologies.

Keywords: creativity; social media; education; innovation; repurposing.

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Biographical notes: Sama'a Al Hashimi is an Assistant Professor in Digital Media and Graphic Design at the Department of Communication, Tourism, and Arts. She earned her PhD and MA in Design for Interactive Multimedia from The Lansdown Centre for Electronic Arts/Middlesex University in London and her BA in Graphic Design/Fine Arts (Minor) from The Lebanese American University. She also holds a Higher Diploma in The Development of Academic Practice from York St. John University, UK, and she is a Microsoft Certified Educator. She is the Co-Founder of the BA Arts and Design Program at The University of Bahrain.

1 Introduction

Social media platforms and digital apps are becoming more common within the educational realm, and many educators have recently started exploring possible technological interventions to the creative processes involved in their teaching practices in an attempt to maximise their students' creativity. Some researchers believe that "creativity support tools built on information technology can facilitate existing patterns of creativity or open up new opportunities" (Neier and Zayer, 2015), but not many researchers examined how social media technologies can be utilised or repurposed to enhance creativity and innovation in art and design pedagogy and practice. Therefore, this paper aims to explore and evaluate the effectiveness of utilising digital and social media in augmenting creativity, in addition to the students' and their educators' preferences and patterns of interaction with social media platforms in art and design educational contexts, and the challenges they face.

In this section, the paper presents a general introduction and the outline of this research including the research questions, objectives, and significance. In the second section, it presents relevant literature related to the utilisation of emerging social media technologies to stimulate and enhance student creativity. In the third section, it analyses and evaluates the results and findings of the two experiments that are conducted as part of this research in an attempt to provide valuable recommendations to educators and aid them in their choice of the most effective tools and apps to utilise in graphic design and fine arts learning contexts. The fourth section analyses educators' attitudes and preferences for utilising social media platforms in art and design educational contexts. The last section discusses the conclusions and recommendations for the most effective uses of digital and social media applications to assist educators' in enhancing their students' creativity.

1.1 Research problem

To date, little research has addressed the effectiveness of social and digital media as inspirational sources for art and design students or artists and designers in general. Despite the presence of many social and digital media platforms and applications, art and design students and even their instructors may not have clear guidance on the most effective approaches to repurpose them for educational purposes in order to maximise the creative outcomes in the classroom. The fact that some art instructors may resist the use of technology in an art studio context or face challenges while using technology adds another degree of complexity to the situation. In addition, an understanding about the preferences and patterns of students' interactions with social and digital media platforms within art and design educational settings is missing. The literature does not articulate if they hold attitudes or have preferences about social media use in a design or a fine arts course. The main aim of this research paper is to fill this gap and understand what attitudes, opinions, and preferences students hold about using social and digital media platforms in an art or design classroom and more essentially, why they have those preferences and attitudes. Understanding student preferences can aid instructors in their implementation of social media in their courses through more effective approaches and strategies.

1.2 Research questions

This research attempts to find answers to the following questions through surveying students at the University of Bahrain and art and design instructors from four universities in Bahrain, in addition to conducting two empirical experiments:

- 1 How can the creative power of digital applications and social media platforms be harnessed to effectively enhance art and design students' creativity?
- 2 What are the challenges faced by art and design students, and their attitudes and preferences while utilising social media platforms in art and design educational contexts?
- 3 What are the challenges faced by educators and their attitudes and preferences while utilising social media platforms in art and design educational contexts?
- 4 What are the factors that impede art and design educators' use of social and digital media platforms to enhance creativity?

1.3 Research objectives

- 1 to explore the role of social and digital media platforms in fostering students' creativity
- 2 to encourage the inventive use of social and digital media and other forms of multimedia-based learning by educators and students to guide their innovative endeavours and support their creativity
- 3 to investigate the challenges faced by art and design students, and their attitudes and preferences while utilising social media platforms
- 4 to investigate the challenges faced by art and design educators, and their attitudes and preferences while utilising social media platforms to enhance their students' creativity
- 5 to identify the best practices and effective approaches for repurposing social and digital media platforms for pedagogical purposes.

1.4 Research methodology and experimental procedures

This study implements a mixed method approach, and combines the qualitative and quantitative methods to analyse the results of the two empirical experiments and the two surveys that have been carried out as part of this research. These two experimental settings engaged two purposive samples. The first experiment involved 23 fine arts students in a digital painting workshop in order to explore the effectiveness of 'phone art' in fostering creativity in the art classroom. The second experiment involved 42 graphic design students in cartoon character design learning activities. In addition to the experiments, the students were surveyed using an online questionnaire, and another survey was completed by 16 art and design instructors from four different universities in Bahrain. The results are discussed towards the end of this paper.

2 Previous work on utilising emerging social and digital media technologies to foster creativity

This section covers what the existing literature conveys about the use of social and digital media to foster creativity in higher educational contexts, with particular focus on the art and design fields. A number of researchers reiterated the educational benefits of social media when used as a tool in the classroom, and suggested that social media has positive effects in education (John, 2017). However, these studies do not expand on the “reasons why the students might hold those positive evaluations” [John, (2017), p.6]. John (2017) attempted to understand what student attitudes are toward using social media in the classroom, and to explore the relationship between their attitudes and their perceptions of instructors who use social media. According to his findings, students can display a positive attitude toward using social media “if the participation was voluntary” [John, (2017), p.58]. A study by Corso and Robinson (2013, p.94) demonstrated that “using social media breaks down barriers between formal and informal education and learning and between lecturer and student, providing a support environment or community encouraging the creative side of the student to ‘come out and play’”. The study also suggested that opportunities for collaboration are greater through social media, which can facilitate creative thinking.

Previous work has looked at various technological interventions to the creative process to try to improve creative outcomes (Kim et al., 2017). Tiryakioglu and Erzurum (2011) explored Facebook as a tool to support learning, and they found that social media platforms positively influence communication and collaboration skills, and can be easily integrated into the educational practice without incurring any expenses. They argue that the utilisation of social media platforms can attract students’ attention and create more effective learning experiences. With the objective of designing an online platform that can lead to more creative collaboration between users, Friedrich (2013) created Owela, which consists of workspaces that allow communication and collaboration between developers and designers of digital media services. Similarly, Scratch is another online environment, which was designed to allow designers to create “interactive stories, animations, games, and art by combining and manipulating stacks of building-block-like commands” [Resnick et al., 2009; Pepler, (2013), p.8]. Igarashi (2000) developed a number of systems that allow artists to draw freeform drawings. One of the systems allows for drawing 3D elements by sketching their silhouettes, and another system automatically enhances the free form drawings that the artist draws. The interfaces of these systems were basic because he thinks that crowding the interface with many buttons, menus, and elements can impede the creative process. He also believes that such interfaces must be ‘fluent’ and ‘transparent’ in order to facilitate the early stages of creative thinking without requiring the user to use menus and buttons in order to achieve a certain target (Igarashi, 2000). Similarly, Kim et al. (2012) believe that creativity support tools especially dedicated to the early design process must be goal-directed, and the perception of aesthetics in the interface may affect whether designers prefer to use the platform and to “integrate it into their creative work space” [Kim et al., (2012), p.6].

This body of literature demonstrates that harnessing digital and social media applications effectively to positively enhance the creative process can improve creative outcomes, but there is still insufficient research on how to effectively employ the features of these applications in order to help art and design students think and design more creatively. It is also unclear what patterns of interactions with these applications would be

successful in leading to the most preferred experiences and most creative outcomes. Further exploration and analysis of such interaction patterns, preferences, and experiences is undertaken and the results are discussed throughout the rest of this paper.

3 Evaluating and analysing students' experiences, preferences and patterns of interaction with social and digital media platforms in art and design educational contexts

This section discusses and analyses the results of the two experiments that are conducted as part of this research, and mainly focuses on examining students' preferences and patterns of interaction with social and digital media platforms in an attempt to provide a more robust understanding on how social media can be beneficial in enhancing their creativity.

3.1 Analysing fine arts students' experiences, preferences and patterns of interaction with social media platforms to enhance their creativity

This part of the paper describes an experiment that examines the role of employing digital apps in fostering students' creativity. Dr. Salman Al Hajiri, an assistant professor at the University of Sultan Qaboos, uses a technique called 'phone art' with his students. He was invited by the University of Bahrain to give the BA Art and Design students a workshop to teach them this technique, which involves using smart phone apps to create artworks through photo manipulation. Twenty-three participants, 15 female and eight male, participated in the workshop and then answered a survey. The experiment fused digital art with traditional art. It initially took place in an art studio where students captured photos using their mobile phones and then learned how to photo-manipulate them using the following apps: photos using the following apps: WeTransfer, ArtRage, Sketches, Prisma, Adobe Capture, Adobe Clip, Adobe Draw, Adobe Sketch, Adobe Scan, Adobe Comp, PS Express, AutoDraw, PaintCan, PicsArt, Layout, and CamScanner.

Figure 1 One of the artworks produced by a student during the phone art experiment (see online version for colours)



Then the students printed their artworks on 40 × 60 cm canvases, and transferred them outdoors where they used acrylic colours to apply paint to the artworks (Figure 1).

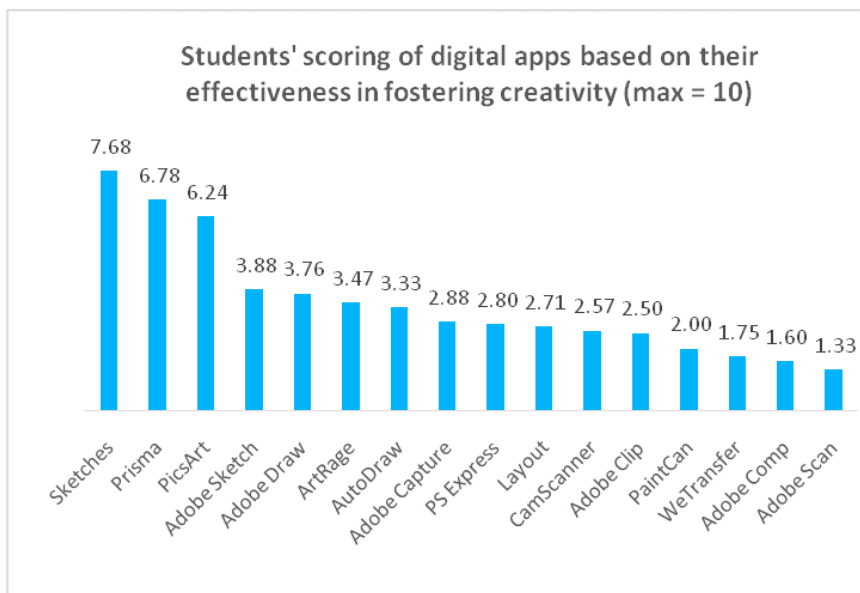
The qualitative analysis involved interviewing Dr. Al Hajiri, as well as empirical observation of the students' patterns of interaction and semi-structured interviews with them. On the other hand, the quantitative analysis involved data collection from an online questionnaire, which was filled by the students who participated in the workshop.

According to Dr. Al Hajiri, the students found this technique interesting and impressive. He taught them how to fix a wooden frame around the canvas and pulled the cloth around it, which is what a classical artist would do, and even though some of them were not artists, many of them (52%) felt empowered by the use of the digital apps, and stated that these apps assisted them in creatively producing aesthetically-pleasing artworks.

When asked about the challenges that they faced during the experiment, 52% of the students stated that they did not face any challenges, 24% faced technical difficulties, 14% felt that their attention was distracted by these apps, and 14% stated that the time was insufficient. One of the challenges that some of them also faced was that they were not able to install some of the Android apps on their iPhones. Concurrently, Dr. Al Hajiri stated that he also faced difficulties in encouraging his students or even his colleagues to use this technique as some of them resisted due to their technical incompetence and lack of awareness. So, he actively started publishing news articles that describe the technique and its benefits until people started attending and enjoying his workshops. He also added, *"I strongly encourage professors to employ digital painting applications and experiment with them as they can open many possibilities. It is very important to introduce these techniques to students and make them part of the curriculum. The most important starting point is for professors to start using these apps and become experienced in using them and once they do, they shall be able transfer their skills to their students and employ a more digital dimension in teaching fine arts"* [Al Hashimi et al., (2019), p.324]. Annum (2014) agrees with Dr. Al Hajiri as he remarked that some academics are skeptic about the effectiveness of digital tools in painting, and they believed that the graphics that are generated by a computer are artificial, commercial, dull, and lack creativity. Nevertheless, Annum emphasised that digital painters can reduce the public resistance and negative opinions about digital paintings through producing digital paintings that convey standards which meet the aesthetic qualities and expectations of spectators. Similarly, Wagner and Jiang (2012, p.175) indicated that some people believe that "randomly or algorithmically produced outcomes, by definition, cannot be creative, no matter how unique". Dr. Al Hajiri, however, does not think that Phone Art or other forms of digital painting will threaten hand painting, which is an intrinsic behaviour and was present and remained so ever since cave drawings existed. He believes that Phone Art mainly differs from hand painting in the artists' use of an electronic surface instead of the surface of paper to draw. According to him, one of the advantages of Phone Art is that it could make the process faster. Similarly many students (52%) believe that there are advantages from using digital apps for painting, and most of them (76%) found the experience beneficial. Some of the participants suggested that digital apps allow the user to create paintings in a very short time, and that the process is, new, enjoyable, easy and useful. This seems to correspond to Henriksen et al. (2016) belief that "one of the key affordances of digital technologies is that content or knowledge can be created, shared, and discovered much more quickly and easily" [Henriksen et al., (2016), p.90].

Most of the participants indicated that they benefited from the Phone Art experiment. When asked to rank the digital apps according to their effectiveness in fostering creativity during the experiment, most students considered Sketches and Prisma to be the most effective, followed by PicsArt, Adobe Draw, Adobe Sketch, AutoDraw, and ArtRage [Al Hashimi et al., (2019), p.324]. They considered the remaining apps to be considerably less effective (Figure 2).

Figure 2 Students' scoring of the digital apps that they used during the phone art experiment based on their effectiveness in fostering their creativity (see online version for colours)



Many students (57%) supported the combined use of hand painting and digital apps, thus emphasising Dr. Al Hajiri's belief that young artists' continuous use of smart devices and technology positively influences their attitudes towards the use of digital tools for painting. He believes that they use these devices to get inspired at any time and to practice art anywhere without sensing the limitations of space in an art studio; They can get inspired, paint, save their paintings, and access them later on while doing their daily activities. This is one of the factors that lead to their preference to use digital apps.

In the next experiment, the same factor is also reiterated by some of the participants, who expressed their preference to use digital apps instead of papers to sketch their ideas because these apps allow them to save their designs and artworks.

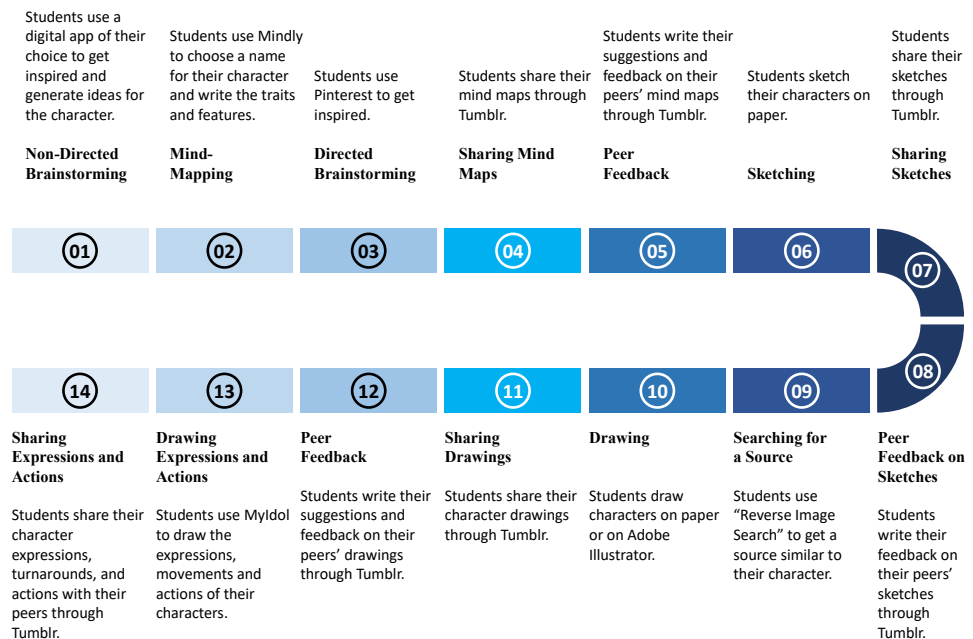
Annum (2014) suggested additional factors that lead to some users' preference to use digital tools to paint. The first factor is that these apps allow the user to undo and redo their strokes and effects. The second factor is that the virtual palette may contain a large number of colours, gradients, and shades. The third factor is that the user can choose any canvas size and even resize it later on. The fourth factor is that users who suffer from allergic reactions to turpentine, can use digital tools comfortably without risking their health.

Based on all the above observations and findings, Dr. Al Hajiri believes that Phone Art fosters students’ creativity and problem-solving skills because it encourages them to come up with various technical and artistic solutions through the use of the numerous features that are available in digital apps. He thinks that these features provide the user with many options, including easily posting the artworks on social media platforms, and allow for repeated experimentation and trial and error without any concern about the colour and material expenses or the loss that may occur due to damaging the canvas.

3.2 *Analysing graphic design students’ experiences, preferences and patterns of interaction with social media platforms to enhance their creativity*

The second experiment examines the role of utilising digital and social media applications to foster creativity in design. It was undertaken in a computer lab during one of the lectures of a course titled The Art of Digital Illustration. Forty-two students (nine males and 33 females) participated in the experiment, which involved a sequence of learning activities and tasks, and lasted for approximately four hours (Figure 3). The students’ ages ranged between 19 and 23 years and they were in their second academic year. The main expected outcome was to design a unique cartoon character (Figure 4). The students were instructed to employ various apps and platforms during every stage of the experiment. These apps are listed in Figure 5.

Figure 3 The stages of the experiment, which involved a series of learning activities (see online version for colours)

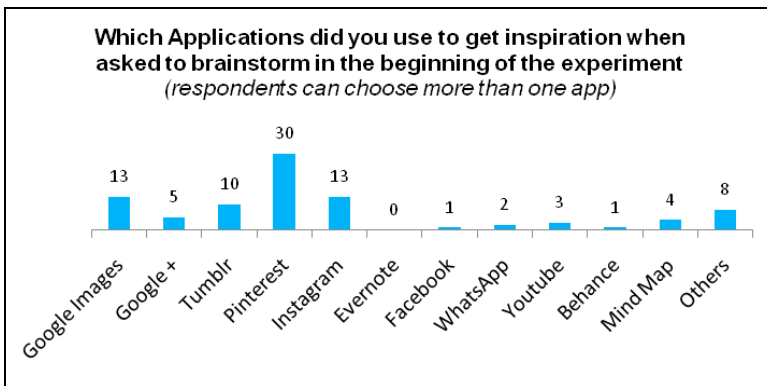


Source: Al Hashimi et al. (2019)

Figure 4 Some of the cartoon characters that students sketched during the experiment (see online version for colours)



Figure 5 Students' rankings of the applications that they used to get inspiration (see online version for colours)



Upon completion of all the stages of the experiment, students were asked to fill a questionnaire and they were also interviewed. Moreover, they were encouraged to keep on posting any photos and videos that would allow viewers to follow their progress on Tumblr (<https://uob-funoon.tumblr.com>) for two months until they submit their completed projects. During these two months their engagement (posts, comments, and likes), was analysed by the researchers and compared with the survey findings. This analysis was performed to allow students to benefit from the valuable experience that Robin (2016) refers to in the following statement;

“Students who have the opportunity to share their work with their peers may also gain valuable experience in critiquing their own and other students’ work, which can promote gains in emotional intelligence, collaboration and social learning.” [Robin, (2016), p.19].

These gains, valuable experience, and other opportunities that are provided through the use of social media are also evident from the survey results of this study. When participants have been asked if they published any of their works in any digital or social media platform, most of them (68%) answered ‘yes’, some of them (27%) answered ‘sometimes’, and only a very limited number of participants (5%) answered ‘no’. Most of them indicated that they have previously published their artworks on Instagram, Pinterest and Tumblr respectively. Among the surveyed students, 43.75% stated that they believe that sharing their artworks on social media is beneficial, and 43.75% stated that it is beneficial to a certain extent, while 12.50% believe that it is not beneficial.

One of them noted that he finds it useful to publish his artworks because the feedback he gets helps him generate more creative ideas. Another student indicated that she likes to exchange artistic and creative ideas through social media. A third student stated that social media platforms help her promote and market her creative ideas. A fourth student stated that these platforms help him achieve fame and gain larger number of followers. A fifth students wrote that he uses social media to archive his work.

During the first stage of the character design experiment, the students were asked to brainstorm and were instructed to use any app that may help them in the creative process. Most of the participants (94%) used Pinterest as an aid to generate creative ideas. Some participants used Instagram (41%) and Google Images (41%), and even less participants used Tumblr (31%). A limited number of participants used Google+ (16%), Mind Map (13%), You Tube (9%), Whatsapp (6%), Behance (3%), and Facebook (3%) respectively (Fig. 2). This remarkable preference for Pinterest is again stressed when the participants were asked about the apps that they plan to use again in the future as the majority of them (97%) stated that they plan to reuse Pinterest for brainstorming, (67%) plan to use Tumblr, and (44%) plan to use Mindly. Only a limited number of participants stated that they plan to reuse Myidol (16%) or Reverse Image Search (13%).

The results clearly indicate that students mostly preferred Pinterest, Instagram, and Google Images to generate ideas, followed by Tumbler and Mindly, respectively. Other apps were less preferred and ranked as less effective for the purpose of getting inspired while drawing cartoon characters. Seemingly, students have a preference for Pinterest because it allows users to gather content in ‘themed boards’ and supports ‘social content creation’ through allowing users to like artworks by other users and save, organise and share their favourites (Kim et al., 2017). Additionally, since searching is considered “part of a larger creative process” (Kim et al., 2017), the image search feature in Pinterest as well as Google Images, which allows users to search for images that are similar to a

specific image, allows for faster, smarter, easier, and more linked and uninterrupted flow of ideas, and exploration;

“In addition to searching, inspirationalists will want rapid browsing to more effectively support exploration, similar to what many people do in bookstores or libraries. web sites with high branching factors (many links per page) support exploration by making what is available more visible.” [Shneiderman, (1999), p.17]

In addition to facilitating exploration, recall, saving, publishing, collecting, associating, and discovery, both Instagram and Pinterest allow users who have shared interests to find each other, access each other’s ideas, and think and create collaboratively together. Pinterest also has secret boards which allow users to save their pins privately, anonymously and comfortably. This may also be another reason that led to a greater preference for this app as well as Instagram, which allows users to get feedback that may help them in enhancing their artworks either as comments, which can be viewed publicly, or as direct messages which can be viewed privately. According to Corso and Robinson (2013, p.96);

“creativity is conducive in spaces where learners are emotionally comfortable [...] It is acknowledged that creativity thrives in a culture of recognition and supportive environments and communities where there is an opportunity to speculate, question, challenge, share, build and reflect on ideas.” [Corso and Robinson, (2013), p.96]

Another reason, which may have contributed to students’ preference for Instagram is that it provides prospects for gaining recognition, and creative people like their efforts and ideas to be recognised and appreciated (Corso and Robinson, 2013). The ‘likes’ feature in Instagram allows students to feel that their artworks are being appreciated and rewarded by audience’ recognition and number of views. In addition, the explore function in Instagram allows for exploration, which is also an important characteristic of the creative process. Both Instagram and Pinterest allow users to explore and preview hundreds of ideas and images in one page and one second.

Despite some of the features that are embedded in social and digital media tools and which allow artists and designers to enhance their creativity, there are some obstacles and challenges which are noteworthy. To explore these challenges, the surveyed students were asked about the obstacles and challenges that they faced while attempting to generate creative ideas through the digital and social media platforms in this experiment. One of the students stated that he was distracted, and another student faced technical difficulties.

Based on the interviews conducted by Kim et al. (2017, p.6) as part of their attempts to design online creative communities, the researchers reported the following challenges that users might face while using these platforms for creative processes;

“Some participants described their use of existing social media platforms for sharing art as oriented around exposure; they also described these platforms as not very useful for feedback, but use them anyway because they want to reach as many potential fans as possible [...] Attempts at sharing the process behind their own art work was met with various barriers, with four participants describing the interface design of these existing platforms as the main obstacle [...] These interviews suggested that despite the popularity of creative communities online, and despite a desire to share and get feedback on process,

many creators do not find the social and technical affordances of existing communities appropriate for process-oriented content.” [Kim et al., (2017), p.6]

These challenges, however, must not deter students or academics from harnessing social and digital media and designing learning environments and activities that support creative thinking, and which most students believe are useful and necessary. The majority of the surveyed students in this study (84.38%) generally think that technology enhances creativity, 78% found the experiment beneficial, and 75% of the students expressed their desire for teachers to employ these techniques. One of them said, “These methods help to develop the student’s style and diversify teaching methods”. Another student said, “These tools increase my interest and enhance my creativity”. Hence, educators, as much as students, need to “critically reflect on their creative activities” (Allen et al., 2012), and attempt to have positive attitudes towards the use of technology in the classroom.

4 Examining educators’ attitudes, preferences, and challenges while utilising social media platforms in art and design educational contexts

Given the findings of the experiments in this study, modern educators must hold positive attitudes toward encouraging social and digital media implementation in their classrooms as a learning tool that would help students to accomplish their goals and their learning outcomes creatively. Previous research has suggested that these technologies enable students “to control their own learning” and “to learn at their own pace or even expand on the opportunities already offered to them. It allows for students to constantly engage in education, rather than assume education happens only in a classroom” (John, 2017). During in-depth interviews by Neier and Zayer (2015, p.8), students expressed that “instructors who use social media in the classroom are considered innovative and at times, more sensitive to students’ needs”.

In order to explore the challenges and the preferences, attitudes, perceptions that art and design educators in Bahrain hold about their students’ use of social media in the art studio or computer lab, a survey was distributed to 16 Art and Design educators from 4 different universities in Bahrain. The educators who were surveyed as part of this study also supported the use of social and digital media in their classrooms and most of them seemed to have positive attitudes towards the incorporation of these technologies into the educational and especially the creative process.

When asked about the extent of their use of social and digital media apps to foster their students’ creativity and to inform their practice, 11 of the educators indicated that they always use such apps (Figure 6). Among the platforms that they prefer to use are Instagram, Pinterest, Snapchat, Youtube, Behance, Devianart, Livestream, ArtStation, Podcast, and Audible. When the educators were asked to rank the platforms according to their effectiveness in assisting them in fostering their students’ creativity, most of them chose Google Images as the most effective followed by Pinterest, Behance, YouTube, Whatsapp, Instagram, Facebook, Evernote, and Tumbler respectively (Figure 7). Although the educators’ preference and rankings of Google Images and Pinterest as most effective seem to partially correspond to students’ rankings and preferences (Figure 5), the educators need to give more attention and recognition for the importance of Instagram in enhancing creativity, from the students’ perspective.

Figure 6 The extent of the surveyed educators’ use of digital and social media applications to enhance their students’ creativity (see online version for colours)

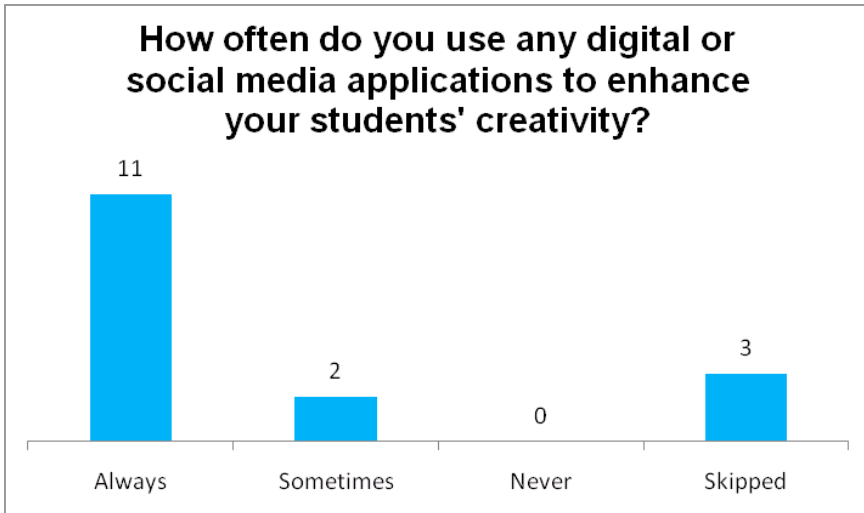
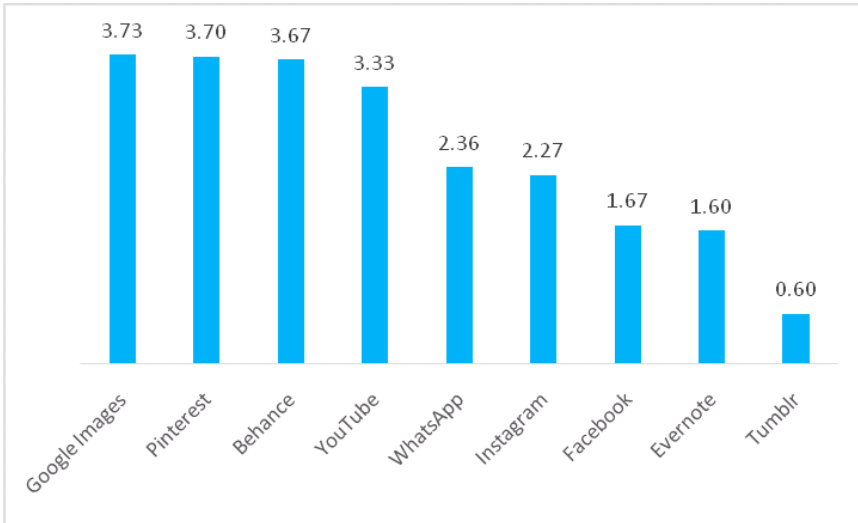


Figure 7 The surveyed educators’ rankings of the applications and platforms from the most effective (5) to the least effective (1) in helping them foster their students’ creativity (see online version for colours)



To further emphasise their positive attitudes towards the use of social media in the classroom, some of the educators stated their perceived benefits, predictions, and prospects. One of the educators stated, “social media will be a primary pedagogical tool in the future”. Another educator stated, “social and digital media stimulate and motivate students, and help them get out of the monotony in the classroom as they encourage students to search more and also create an entertaining educational atmosphere”. This opinion about the effectiveness of social and digital media in minimising monotony seems to correspond with yet a third educator’s opinion;

“With every new generation I notice the lack of patience and the speed of feeling monotony and boredom. The more diverse, modern and suitable for their personal use the tools and resources are, the more likely it is for their attention to increase and for their creativity to be enriched. Creativity is strongly related to inspiration, and multimedia helps me a lot in inspiring them.”

Not only did the educators encourage students to post their artworks and projects on social media, but one of them indicated that her job as an art and design educator has encouraged her to post her artworks for her students. She remarked, “I noticed that my personal involvement in posting my artworks on social media also motivates my students, stimulates their creativity, and creates a beautiful competition between them and me as their instructor”.

One of the surveyed educators believes that not only are students’ social media accounts may be effectively harnessed for their students’ benefit, but also their educators’ accounts may be positively exploited for their advantage. He stated;

“Unfortunately there aren’t many academics who have a large number of followers ... Sometimes I think if I had a huge number of followers, that will inevitably contribute to motivating them to ask me to publish and promote their work on my social media accounts, and help them get more job opportunities .. and that’s what I will attempt to do in the coming years .. I have curiosity about the effect of the academic who has a greater reputation and is more active on social media on his/her students and their creativity. I would like to investigate the quality of the opportunities that this academic can provide them if his or her online fame is exploited in their service.”

The above statement suggests a demand for more research on the effect of the educators’ promotion of their students’ artworks on social media in enhancing these students’ creativity, and encouraging them to produce artworks that are more creative and qualified to be posted by their instructors.

To further stress the positive attitudes of most of the surveyed academics, one of them listed the following benefits of employing digital and social media in the educational practice;

- 1 helps to present the educational material in a more thought-provoking and in-depth manner, and makes the educational process more interesting, thus achieving the desired educational goals and learning outcomes
- 2 helps students to shift from the traditional passive learning attitude to a more active attitude
- 3 attracts students, grabs their attention, and helps them gain an impactful learning experience
- 4 provides an interactive learning environment that focuses on the learner, and allows for more effective nonlinear interaction between the student and the educational material
- 5 helps the student to form a more concrete image and understanding than if only non-concrete vocabulary was used
- 6 helps to clarify the concepts and ideas presented (audio – pictures – video-text).

Despite all the afore-mentioned benefits, and even though one of the surveyed academics suggested that social media platforms help students to get inspiration and ‘feed their eyes’, another academic expressed his concerns and disagreement stating; “Sometimes it can limit the students’ creativity to wanting to copy what they see in front of them”. Although plagiarism is a very legitimate concern, it is important to also note that the same apps that may open up opportunities for plagiarism, can be used by instructors to detect plagiarism. The ‘image-search’ feature in Pinterest, and many other apps may assist instructors by allowing them to upload their students’ artworks and search for similar artworks. In addition, encouraging students to post their work-in-progress on Tumbler or other relevant platforms, helps the instructor keep track of their progress and ensure that the work has not been copied or done by someone else.

When the surveyed academics were asked about the obstacles that may hinder their employment of digital applications to enhance their students’ creativity, they ranked instructors’ limited awareness of applications that can enhance students’ creativity as the main obstacle, followed by their weakness in using these applications. To overcome these obstacles, they gave suggestions to encourage and facilitate the use of technology by academics to enhance students’ creativity. One of the suggestions was to establish professional development programs for teachers through giving them professional courses and workshops that raise their awareness about existing effective social, digital, and multi-media platforms, and teach them how to employ these platforms in teaching. Another suggestion was to increase the flexibility of higher education administrations, and allow teachers to take risks, explore, experiment, and think out of the box rather than “obstructing their creative endeavors to introduce and incorporate new technologies into the learning process”. It is very important for academics to keep up to date with the influx of emerging applications and platforms.

These were some of the concerns, obstacles or challenges that were stated in the survey, but more challenges have been suggested in other similar studies. A study by Shneiderman (1999) suggested similar concerns to the one indicated above. The study stated that “using creativity supports such as simulations and composition tools may restrict imagination to only what is possible with these tools”; “Fear that others will plagiarise compositions or steal inventions is another legitimate concern”.; “Students who choose to use these in the classroom occasionally find themselves using them for other activities, like accessing social media, whether the instructor is aware or not” (Shneiderman, 1999).

Further challenges were also found in another study by John (2017) about student attitudes and instructors’ perceptions on social media use in the classroom. The study investigated students’ attitudes and instructors’ perceptions of the use of social media in the classroom. The following are some of the challenges that were indicated by the participants [John, (2017), p.30];

“Some of the participants viewed their social media profiles as solely their own and wanted full ownership of those profiles. They wanted anything that they put on their profiles to be a choice that they make. They did not find the idea that their posts or tweets be influenced by an instructor or by an assignment appealing. Those students who did not want to engage with social media in the class justified that by saying that it was no longer their personal page if the posts on it were based of their instructors’ requirements. Another reason that students opposed the idea of using social media in the class was because it changes who the audience of their profiles might be [...] when students are asked to visit a link to an article or engage in a discussion about a topic on

Facebook, they could easily be distracted by the other features provided by Facebook.” [John, (2017), p.30]. Moreover, the continuous alerts of shares and likes may also be a source of distraction to students from the actual creative process.

Further follow-up studies are necessary to provide additional ways to overcome the above-mentioned challenges and maximise the benefits of social and digital media use in the classroom, especially for art and design learning environments.

5 Conclusions

This study derived qualitative and quantitative results through the implementation of a mixed-method approach. Experiments, observations, empirical evaluations, questionnaires, and semi-structured interviews were conducted to gain a rich understanding of the preferences, experiences, opinions, and attitudes that art and design students hold, the benefits they gain, and the challenges they face in the social platforms and online environments they use to enhance their creativity and to share their work.

The findings of the two multimedia-based experimental settings in addition to the surveys and interviews showed that there were positive effects on the creative process when social and digital media platforms were implemented. These platforms can provide pedagogical benefits, which can assist educators in enhancing students’ creativity.

The paper developed a new understanding of how social and digital media can provide art and design educators with opportunities to leverage their students’ creativity. It outlined the potential benefits of harnessing social and digital media technologies in educational contexts, and demonstrated that they can enhance students’ creativity due to the sharing, exploring, commenting, collecting, and saving features that are incorporated in the mostly preferred platforms, which are Pinterest and Instagram. Another factor which may have led these platforms to be ranked by the participants as the most effective for inspiration and sharing creative artworks is their interfaces, which are picture-dominant.

However, the paper also outlined some challenges that were encountered by instructors and students in this study as well as other studies. This necessitates further research about the challenges, negative attitudes, and even user interface issues that may affect the effectiveness of a digital platform in enhancing creativity, and demands the development of specifically-designed user interfaces or platforms to support artists’ and designers’ creative work. It is hoped that the findings of this study may give insights on artists’ and graphic designers’ patterns of interaction with social media and digital apps, which would aid the developers of the proposed user interfaces.

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