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Digital reflective practice in textile design studio courses: perspectives from Pakistan

Digital Reflective Practice in Textile Design Studio Courses: Perspectives from Pakistan

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Abstract

This multiple case study aimed to investigate how digital reflective practice (DRP) influences the creative process of textile design students. Interviews were conducted with textile design instructors, heads of department, and students from four higher education textile design departments in Pakistan. The main themes elicited from the four case studies were teachers' and students' perceptions of DRP, challenges to its implementation, and prospects for DRP in the context of textile studio design. Digital technologies can improve students' creativity and comprehension of tasks in textile design studio courses through reflection. Furthermore, teachers can play a crucial role in helping students to utilise digital reflection technologies through mentorship.

Keywords

design curriculum, digital reflective practice, multiple case study, Pakistan, studio pedagogy

Introduction

Pakistan's socioeconomic development relies on the textile industry (Memon *et al.* 2020) with 45 undergraduate programs in textile design supporting the sector. However, the awareness and implementation of reflective practice within Pakistani textile design education remains limited, primarily focusing on teachers' reflective experiences. With the textile industry constantly evolving, it is essential that students learn to stay updated with emerging trends and technologies. In the realm of textile design education, students already utilise digital tools and the Internet in their studio assignments. Instead of conventional methods like journals

and portfolios, there is a proposition to leverage digital audio and video recordings as means of reflection (Hameed & Mimirinis 2023). Such a proposition would require to investigate how design students and educators perceive the role of digital reflective practice (DRP) in fostering creativity, skill development, and adaptability to changing industry requirements. By exploring their perspectives, strategies can be identified for effectively integrating digital reflective practices within the textile design curriculum. Through our study, we sought to shed light on the benefits and challenges associated with implementing DRP in the textile design higher education context. We also aimed to identify the potential ways in which DRP can contribute to students' conceptual development, task comprehension, and creative abilities as well as inform curriculum enhancements and pedagogical approaches that foster a dynamic, forward-thinking learning environment in Pakistan's higher education.

Digital reflective practice

For this study, DRP refers to the use of digital media to record reflections, review personal practices and observe processes during design development (Coffey 2014). Digital technologies offer new possibilities for the dissemination of texts, requiring new paradigms for rhetorical analysis and critical literacy (Benade 2015). Learning communities, mentoring, reflective journals, and teaching portfolios have all been utilised to promote reflection. The implementation of emerging technologies must be investigated as reflection becomes increasingly integrated (Mariah & Anette 2019). Digital technology can be used to reflect in a variety of ways, including online diaries, digital notebooks, reflective blogs, audio recordings, video journals, social networking sites, and e-portfolios (Bhattacharya & Mimirinis 2007; Doren & Millington 2019). For example, it has been shown that weblogs can be used as a journaling tool to assist pre-service teachers in reflecting on their practice because of their innovative, user-friendly interface and structure (Brailas *et al.* 2016). Mentor-mentee relationships can also improve through video-enhanced reflective practice leading to increased self-confidence and improved reflexivity during mentoring sessions (McNally 2021). It has been argued that video self-reflection can assist teachers in developing their core beliefs (McVee *et al.* 2017) and enhance students' creativity and innovation through a combination of reflection techniques and creative teaching (Sullivan 2021). Along these lines, Bernabeo & Michaelides-Mateou (2017) utilised video as means of enhancing teachers' reflections and enabling them to remember their teaching more effectively, while Sari *et al.* (2020) explored reflection video activities as part of a professional learning network and asserted that video recordings resulted in effective reflective conversations.

Even though artists and designers have acknowledged the importance of reflective practice, there are a few practical examples available (e.g., Lousberg *et al.* 2020). The use of digital tools for reflection, particularly visual and videography tools, is beneficial to artists and designers during the reflection process (Challinor *et al.* 2017). Due to the limited availability of digital audio and video recordings for use as reflective journals, practitioners may encounter some challenges as a result. In a phenomenological study exploring teachers' experiences, Greenwalt (2008) found that students expressed a desire to have their teaching captured on video, as well as a concern that they would be alienated because of

the camera's power. Therefore, video-based methods for reviewing teaching and learning allow participants to simultaneously play the roles of actors and critics (Körkkö *et al.* 2019).

Digital reflection can enhance teaching, integrated skills can be developed, sociocultural themes can be explored, and students can be motivated in their studies of textile design. Additionally, a textile designer's professional and personal growth requires the use of reflective practice. However, there is limited evidence about the ways in which Pakistani designers develop DRP, so it is difficult to determine the extent to which they are doing so. For examining the studio design process, we focused on the following two research questions:

- How do textile design students and educators perceive digital reflective practice?
- What is the perceived potential of DRP among textile design students and educators?

These questions have been addressed through a multiple case study analysis of four departmental cases in Pakistani higher education institutions and a detailed account of the methodology is provided here.

Methodology

The Higher Education Commission of Pakistan recognises 188 universities and higher education institutions, of which 45 offer undergraduate degrees in textile design. The practice of textile design in the studio is a significant component of most textile design courses. We chose as research sites four departments, offering undergraduate programs in textile design, focusing on their studio design courses. Our selection criteria included: the courses ran for a specific duration; the institutions encouraged creativity in students' work; students worked collaboratively and used technology in their creative work; and, the final products were evaluated by academic staff other than the instructors of the course.

The selected textile design courses were intended to provide students in the third semester and above with a solid understanding of industrial textile design skills, knowledge, and understanding. Students were required to complete assignments and practice in their studios during class periods, both face-to-face and online. Although the method was suitable for studio-oriented classes, the textile design instructors did not seem to have documented the process (Leavy 2017).

To facilitate the learning process in the design studio settings, a learning-by-doing approach was encouraged by the teachers. Through the process of understanding, exploring, and solving problems designed by the instructor throughout students' learning, various interactions with the instructor took place. Studio assignments often presented design problems that students had to solve by producing an original artefact (Ha-Brookshire & Hawley 2014).

The study included DRP using audio and video recordings along with studio assignments as an integral part of its methodology. For documentation purposes, students were required to record their design development process, either in class or at home. By recording themselves working on the studio project, the students conducted a reflective activity and then reviewed their recordings in more detail. A primary goal of the assignment was for students to examine and assess their

own learning and growth process throughout time. Utilising a simple video editing software, the students were able to arrange clips from the original footage into a five-minute presentation based on clips from the original footage. The students were required to present their design development from the beginning to the end of the final cut during their final presentation. A discussion about the recordings was held at the beginning of the semester. Throughout the entire learning process, students were able to access detailed instructions on how to use digital video cameras and editing software on the online learning management system. The students were also encouraged to ask questions if they had any difficulty, share their ideas, and work together.

Each case study had six stages: selection of case/department; planning of studio assignments; execution of studio assignments; first author's interaction with instructors; feedback from student participants; interview with head of department (HoD) (Hameed & Mimirinis 2023). Individual case study reports were compiled based on the information gathered from each case. The findings of each case study were grouped into two categories based on their similarities and differences (Stake 2006). Based on the analysis of the first case, we then used the findings from the first case to develop a framework for the rest of the cases. The framework allowed us to analyse similarities and differences in the remaining cases. We repeated this process with the remaining cases until new patterns emerged or were contradicted. Thus, we compared and analysed all the incoming data to ensure that the final analysis reflected participants' perspectives. Table 1 provides a breakdown of the 23 participants and the data generated through 39 interviews.

Each case study involved interviewing two teachers on three occasions: first during the preparation process of the studio project, then in the middle of the student assignment, and finally at the completion of the student work. A total of thirty-nine interviews were carried out, consisting of 24 interviews with eight teachers, 11 interviews with eleven students, and four interviews with four department heads. Interview transcripts were generated for each participant. Each transcript was iteratively read and salient patterns of each case were identified. Relationships between these patterns were examined within and across cases for similarities and differences (Yin 2014).

TABLE 1 Data Summary of Four Cases

	Teachers interviewed (three times each)	No. of students interviewed	No. of HoDs interviewed
Case study 1	2	3	1
Case study 2	2	2	1
Case study 3	2	3	1
Case study 4	2	3	1
Total number of participants	8	11	4
Total no of interviews	24	11	4

Results

The multiple case study approach allowed for a breadth of views among students, teachers, and HoDs to be captured across different institutional settings. The analysis of the cases produced three significant themes related to all four cases: perceptions of DRP, challenges in the implementation of DRP, and prospects for DRP in the context of textile studio design.

Perceptions of DRP

A consistent theme across all the textile design studio courses was that the existing DRP format facilitated reflection among practitioners. Before the assignment began, the teachers in case study 1 and case study 4 were already familiar with reflection and reflective practice. Case Study 1 Teacher 1 (CS1T1) mentioned that *'one cannot move forward in design without reflection'*. Due to the COVID-19 pandemic, most universities went online from March 2020 onwards, which received positive, mixed, and neutral feedback from participants in case studies 1, 2, and 3. Claiming online education affects students' creativity, CS4T1 opposed online art and design education. Nevertheless, digital reflective processes were described as free of technical issues in all cases, while teachers highlighted the importance of reflection e.g. *'whatever they [students] produce, a reflection element is there'* (CS1T1).

Students mostly welcomed the use of digital tools in their assignments. They considered that mobile phones were the handiest tool for recording and documentation. The students' views were close to their teacher's perspective. They confirmed the use of social media, did not report any technical problems in digital recordings, and foresaw that those digital tools would have much scope in education. In the second case study, Case Study 2 Student 1 (CS2S1) and CS2S2 were quite familiar with audio and video technology in higher education, but they were unaware of terms such as *'reflective practice'* and *'digital reflective practice'*. CS3S1 emphasised documentation through DRP by saying that *'it is human nature that they cannot memorize everything, so we can use it afterwards if we have documentation'*. CS3S2 was also inclined toward the recording of the assignment through digital tools. She said, '*I think that if we are recording our assignments and stuff like that, we will give others an idea of how we did an assignment studio assignment and how they will do it. So, it would be an idea to go through*'. She also pointed out that recording and documenting thoughts and design would benefit the later generations and gave preference to digital media over the traditional way of reflection. Both CS3S1 and CS3S2 expressed that the view that *'the mobile camera is the beneficial way to record certain things. All must do is click a button and then record whatever'*.

Challenges in the implementation of DRP

Teachers' accounts pointed to a range of themes, including self-presentation skills in front of a camera, a comparison with students' attitudes toward early and secondary education, and the perceived failure of Pakistan's education system to encourage critical thinking. CS1T2 mentioned time management as a major problem during the textile design process. CS2T1 focused on students with conditions such as autism and hearing impairments, and the attention required to support them in the application of DRP. Generally, the perceptions of HoDs regarding the design studio education and reflective practice models converged with those of teachers, particularly in terms of training requirements. The implementation of

DRP would be hampered by lack of training, according to Case Study 1 Head of Department (CS1H). In addition to the lack of training, HoDs also mentioned a lack of infrastructure and digital tools. Moreover, they discussed the camera shyness of female students and the cultural restrictions that were imposed on them. The interviews with HoDs revealed two distinct themes that differed from those revealed in interviews with teachers and students. CS2H stated that bureaucracy at Pakistan's public institutions stifled change, yet CS3H projected that some senior academic staff would reject DRP because they did not want to leave their comfort zones. CS2H said that *'some of the challenges that must be overcome when implementing the DRP are bureaucratic processes in institutions and technophobic attitudes among senior faculty members'*. To overcome these obstacles, she suggested providing training and technical assistance to help teachers become more familiar with the new system.

Students were overwhelmingly in favour of using digital tools in their education. It was found that mobile phones were the most convenient means of recording and documenting their work. There was a broad consensus among students about the challenges associated with DRP, which echoed the arguments presented by teachers. Communication in English, time management, training in the use of digital cameras, and family/cultural restrictions faced by female students were among the issues raised. According to CS1T2, Pakistan's art and design education emphasises handwork. In some ways, the education system discouraged the widespread use of digital tools such as Photoshop because it supported creativity through manual design rather than using digital means. For CS4S2, *'it might be difficult for many designers to stop during design development and record a video'*. Students regarded video reflection beneficial for organising their thoughts, although also acknowledged it might be burdensome. The studio course should prioritise instructing students in the optimal use of digital technologies, while also promoting manual design.

Prospects for DRP in the context of textile studio design

There were diverse perspectives from teachers across the four cases. Most of the teachers suggested that training and workshops should be provided before the formal implementation of DRP. The fact that students use digital tools in their everyday lives does not mean that they do not require support when using them for academic purposes. Along with reflection, prominent themes of flexibility and adaptability were also evident – for example, the use of videos at convenient points in the design process, as well as the use of a variety of artistic media to present the product. Comparing DRP with conventional journal writing, CS2T2 and CS4T1 believed that the former was significantly faster.

CS3H recommended that students would be assigned a mock reflective practice as a requirement to participate in the class. According to CS1H and CS4H, the academic administration should pass on training to the teachers who in turn pass it down to the students. There was also an argument that students should have the freedom to use any language they choose (CS1H and CS3H), while CS2H suggested using social media to share digital reflections with others. Some students felt that formal training would enhance the impact of DRP, as would the freedom of choice regarding language and the sharing of videos on social media platforms. For CS2H, *'students and even teachers need preparatory sessions before applying DRP in class'*. Most of the suggestions from HoDs resembled the teachers'

ideas for improvements, while all of them emphasised the need for flexible implementation of DRP.

The positive effect of DRP on students' creativity was a prominent theme throughout most of the interviews. Faculty members generally agreed that DRP affected the creativity of their students. Teachers pointed out that DRP enhanced students' awareness of the design process. The back and forth process of reflection helped the students analyse and re-analyse their progression. Reinforcement through repetition, confidence, and presentation skills were other aspects discussed by teachers. CS2H and CS3H argued for a positive relationship between DRP and creativity as they believed it enhanced the expression, consciousness, and student-teacher knowledge transformation. Although CS4H was not in favour of the presented model, she also discussed that repetition of any idea with words might enhance the probability of generating some new ideas. CS2H introduced the concept of 'Soliloquy'. She noted that ideas develop when one talks to oneself with words and this is essential in the practice of digital reflections. CS2H also deliberated that the back and forth thought process enhanced the possibility of innovative idea generation.

In contrast, CS1S3 supported that idea generation, creativity, or out-of-the-box thinking stem from reflecting manually rather than digitally. However, this was her initial idea. In the end, she also accepted that *'many students in my surroundings are comfortable to explain the work verbally'*. She further explained that students performed well in jury and discussion sessions during and after the assignments, and stressed the freedom of language, which was reflected in their digital reflective journals. CS1S3 also shared her experiences talking in Urdu (the national language of Pakistan) in front of the camera. She said it was difficult at the beginning, but *'when I started talking, I felt that I was not talking to myself, so It became easy for me'*. Our study provided insight into how the DRP affected the students' creativity and how they applied it to their own work. Additionally, this was an opportunity to discuss how design thinking can help them in the future.

Discussion

This study provided an authentic account of textile design students, heads of department, and students' perceptions of DRP as well as its potential in the future in the Pakistani higher education context. Participants in each case study shared their understandings of reflective practice and how textile design studios were conducive to encouraging reflection. A desk critique model of studio practice was identified by teachers in two of our case studies. Based on our multiple case study analysis, we found that departments did not seem to follow any reflective practice model or offer formal support for DRP. Despite the discomfort initially caused by the video, teachers and students found it to be an effective tool for professional development. Nagro (2020) reported that all participants expressed satisfaction with the process of self-confrontation through video, despite its initially stressful nature. For Paige *et al.* (2019), video feedback provides participants with essential feedback. Despite the initial stress associated with video recordings of themselves, students indicated that they would use them again in the future for the development of their designs. As a result of this discomfort, Lowenthal (2021) recommended that using video should be optional, based on teacher preference, and conducted in safe environments where risk-taking is encouraged and supported

without fear. In addition, Lowenthal (2021) recommended that teachers provide clear instructions and feedback to students to maximise their learning potential. Moreover, teachers should allow students to take breaks between recording and reviewing videos to support them and allow for discussion of the videos with their peers.

Although DRP can be an important component of textile design education, it is not without challenges. Furthermore, our participants reported that female students were especially affected by camera shyness and self-consciousness. In Pakistani society, female participation in social activities is less encouraged. Mehmood *et al.* (2018) report that female students find it difficult to use digital media, especially in remote areas. Our rural-based institution faced more challenges in this area compared to the other three institutions selected for our study. In case studies 2 and 4, time management (Khan *et al.* 2019) and the bureaucracy of Pakistani higher education also posed challenges to DRP implementation. It is important for universities to adopt technology-based learning solutions that are tailored to the needs of female students in order to overcome these barriers. In addition, universities should foster an environment where female students feel comfortable using digital media.

Lack of critical thinking among Pakistani students (Cassum & Gul 2017) is another challenge to the prospects for DRP. Participants in our study initially self-criticised on a personal and educational level. Even though self-criticism at the individual level had little impact on reflective outcomes regarding their practice, self-criticism at the educational level was crucial for their reflective outcomes because participants could connect their appearance, voice, and mannerisms with their practice, resulting in higher reflective outcomes. Critical thinking ability was one of the most significant outcomes. After superficial evaluations, it was deemed necessary to conduct a deeper, more thoughtful review of their performance. Students often find it difficult to watch themselves on video for the first time and to manage the inner critic (Herrmann-Werner *et al.* 2019). By refocusing their attention on more critical aspects of their videos while reviewing and editing them, they were able to achieve their objective. Instead of focusing on superficial aspects of their performance, they set aside their self-judgements. As a result of this exercise, the students gained a better understanding of their own strengths and weaknesses, and were able to improve their performance and become more successful in their studies because of this experience.

In our case studies, students used video tools to observe, recall, and confirm their own thoughts and those of external observers. There has been evidence that digital videos can aid memory and provide confirmation of practitioner-observer reflections. It was observed that there were gaps in participants' memory, design process, and/or behaviours that were not apparent to them in the context of studio practice. Events beyond the immediate context of the classroom could also be preserved and replayed. Our participants were able to further reflect on their experiences by combining video reviews with reflective notes from external observers. By doing so, they were able to gain a more comprehensive understanding of their practices and identify areas for improvement. Lastly, it allowed them to monitor their progress over time.

DRP has become a relatively new phenomenon in Pakistani higher education. It is necessary for educators and students to undergo training to implement this concept in studio practice. Instructional design emphasises the importance of providing feedback to learners. The traditional view of feedback is that it is intended

to improve convergent thinking and decision-making rather than inform students of right or wrong answers. The process of giving feedback about creative outcomes involves ambiguity, so a definite and straightforward response is unlikely to be helpful. To learn design and creativity, Schön (1987) proposed that the guidance of a master might be beneficial. Coaches in architecture design studios and piano master classes have previously provided examples of critical thinking experiences and activities with which to engage students. We found that educators and students agree that DRP should be incorporated into curricula and weighted in academic assessments.

In terms of the second research question regarding the potential of DRP, participants in all four cases anticipated using DRP in textile design studio courses. It would be beneficial for textile studio practitioners to develop DRP skills. It will require collaboration to be implemented at different scales. A more innovative and active approach to teaching and apprenticeship is required to prepare students for digital transformations and agile learning. The existing cross-disciplinary and playful design pedagogy, however, lacks technology-related approaches, and resistance to change persists. Universities and other educational institutions should invest in the use of new technologies, such as augmented reality and virtual reality, to provide students with hands-on experience and enable them to develop more advanced DRP skills.

Teachers' attitudes toward DRP can impact their preference for manual reflections or digital methods. Some teachers may view digital practices as a valuable tool that enhances students' creativity and supports their learning process. They may perceive digital reflective practices as an innovative approach providing unique exploration and experimentation opportunities. On the other hand, teachers who have reservations about technology adoption might be more inclined to rely on traditional manual reflection methods and consider digital practices incapable of fully replacing or replicating the benefits of manual reflections. Several studies have explored the relationship between teachers' digital capabilities and attitudes toward technology adoption. For instance, Snelson (2010) contended that teachers with higher digital skills who were more comfortable using technology tended to have more positive attitudes toward integrating technology into their teaching practices. In addition, Ertmer *et al.* (2012) found that teachers' knowledge and proficiency with technology can influence how they perceive its effectiveness. During this study, participants agreed that video recordings of reflection were a new phenomenon in the Pakistani higher education context. To implement this idea in studio practice, educators and students need training. To support digital reflection, participants suggested providing institutions and organisations with digital recording equipment and software.

Conclusion

In this study, we distinguish between two types of reflection: implicit or common-sense reflection, and reflective practice. Common-sense reflection is the inherent capacity of individuals to engage in self-examination and contemplation. In textile design education, this often takes the form of oral reflection through dialogue (Hatton & Smith 1995). Reflective practice, on the other hand, is a specific model or concept situated in a particular educational tradition. It involves a systematic and structured approach to reflection, which includes documenting and

analysing the reflective process (Schön 1983). Our research highlights that while common-sense reflection may exist to some extent, structured reflective practice, particularly through video documentation, is not prevalent in the textile design education landscape in Pakistan. This is supported by the absence of HEC-recognised journals in Arts and Design from Pakistan, a lack of repositories for art and design assignments, projects, and limited published books in the field (Baqai & Siddiqui 2020).

Artists and designers however may find reflective practice to be an invaluable tool for developing their professional skills. In this study, we have demonstrated the perceived benefits, challenges, and complexities of utilising DRP in studio practice in Pakistani textile design education. In DRP, students are encouraged to engage in self-reflection and critical thinking, both of which are essential components of creative practice. Artists are also encouraged to develop a sense of ownership and agency, which enables them to develop their own unique approach to their work. Furthermore, DRP enables artists to better understand their context and take responsibility for their work.

Pakistani textile design curriculum does not harness students' interest in technology and digital tools, according to some study participants. The use of different tools and strategies is necessary to promote active learning. Additionally, textile design studio practices require flexible learning methods. A teacher's clarity and motivation are crucial since this will be reflected in their students. Active learning and agile education methodologies should be supported between students and teachers or between designers and employers without feeling threatened academically. Providing feedback and support is also an important component of the agreement that will help the students succeed. As a conclusion, teachers must be flexible and willing to adapt their teaching strategies to the unique needs of their students.

In Pakistan, art and design researchers need to investigate studio pedagogy strategies in the local context. To understand (a) how digital reflection differs from traditional reflection and (b) how the quality and strategies of digital reflection affect the creative process of design development, it is essential to establish a common language and theoretical framework. Textile design practice should incorporate digital reflection and creativity, and these topics should be vigorously debated in the future. As a result, we found that several factors impact students' ability to reflect on the design process and evaluate their creative abilities. Further research is required to identify the most effective means of encouraging students' digital reflection and creativity.

During our study, we focused on local and contextual applications of DRP. In learning environments that produce successful designs, there are likely to be a few differences from those that produce traditional instruction and assessments. This sort of research is lacking in Pakistani higher education, which makes the insights of this study an important contribution to the field. A digital reflection can be of great assistance to textile design students in developing their studio designs. Our participants started to develop a self-directed understanding of their understanding through the design assignments and concept development for novel products. Students in textile design gained an understanding of the changes they needed to make through video-based learning and had the opportunity to reflect on how to achieve those changes. Students became significantly more engaged in their classes because of these changes, which in turn resulted in increased academic confidence.

In our study, design educators and students valued DRP and gained some insight into the design process, but their exposure was limited by their incapacity to provide critical feedback. Feedback and the development of robust reflective capacity require specific actions on the part of professional development facilitators. There is still a great deal to be explored regarding the impact of DRP on student creativity. Students can increase their creativity, efficacy, and achievement using the DRP method. Professional development facilitators must be trained and supported to develop an effective DRP system. Further research is required to determine the most effective and context-sensitive methods for implementing DRP in studio courses.

Acknowledgements

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