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How does Digital Reflective Practice in Textile Design Education relate to Creativity?

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Abstract

This article reports the results of a multiple case study that sought to understand how textile design students engaged in Digital Reflective Practice (DRP) and how such engagement related to creativity. Theoretically informed by symbolic interactionism and constructivism, the study incorporated the views of textile design teachers, heads of departments and students in four different higher education institutions in Pakistan. The findings suggest that the use of digital tools for reflection in textile design studio courses can enhance students' creativity, self-consciousness or awareness, and understanding of tasks and concept development. The creative process also entailed new possibilities of expression, presentation and meaning making by revisiting their work.

Keywords: digital reflective practice, textile design education, creativity, design pedagogy, studio practice, multicase study.

Introduction

The textile industry plays a significant role in Pakistan's socio-economic development. Higher education institutions strive to produce skilled human resources for the textile sector through approximately 45 undergraduate programmes in textile design. Although reflective practice is expected to produce positive outcomes, there is limited awareness of it in Pakistani textile design education. Yet, the textile industry's requirements are constantly changing, and students need an aptitude for continuous learning to update themselves with new trends and technologies. Textile design students also use the internet and other digital tools in their studio assignments. Instead of traditional methods of reflection (i.e., journals and portfolio), it has been proposed that digital audio and video recordings should be used (McNally, 2021).

Using multiple case study methodology in four different textile design departments in Pakistan, our research explored the effect of Digital Reflective Practice (DRP) on the creativity of Pakistani undergraduate textile design students. In the context of this study, we define creativity as a phenomenon encompassing origin, process and product. It is an everyday activity, and it relates to creative problem-solving, often in poorly defined situations. The essential components that distinguish creativity from other phenomena are novelty and appropriateness based on social context and personal beliefs (Csikszentmihalyi, 1997; Gurcum, 2017; Plucker et al., 2004). DRP refers to the audio and video recording of reflections in a digital medium, reviewing of personal practices and observing processes recorded during design development (Coffey, 2014).

Reflective Practice, Design Pedagogy and Creativity

Reflective practice is rooted in the contributions of Dewey and Schon (Hébert, 2015). Watts (2019) indicated the need for the reflections to be critically grounded, rigorous, and methodical. Reflective practice is a tool for professional growth (O'Brien, 2016) in two well-recognized areas. It includes the development of a curriculum for better student learning and professional development, where the teacher develops and assesses strategies in their daily practice (O'Brien, 2016). It extended into research that informs educational practice in the broader context of society (McNiff, 2019). Pedagogy in art and design was described in Schon's (1991) work on the reflective practitioner with reference to architects' training. In the case of textile design teachers, the instructor usually gives a task to the students based on the aesthetical or technical problem. Students go through the developmental procedure and interact with teachers and peers in the journey of the progression. Evolution is a critical part of textile design education. Display and continuous critique enhance the quality of art and craftwork. Mass participation and the impact of technology have a continued effect on what is being taught in the studio design curriculum and its delivery. Reflective practice has a significant impact on creativity and critical thinking among students (Slade, Burnham, Catalana, & Waters, 2019; Donna & Holly, 2016;). When ideas of reflection are implemented in university classrooms, students transition more easily in class, are engaged in the learning process and process information and experiences. Reflection decreases stress and improves their creativity (Salvik, 2014).

Creativity in studio practice is essential for the production of innovative artefacts. Individual qualities, creative abilities and cultural atmosphere can influence creativity within a programme, an individual or even an artefact (Abdollah & Hossein, 2018). Hasirci and Demirkan (2007) consider students' creativity and process performance in the design studio to be linked. Creative students were more apt to work well on process-related tasks and likely to interact with other students in the class. The study of creativity and collaboration draws upon Piaget's (1980) constructivist theory and Vygotsky's (1978) sociocultural approach (Hämäläinen &

Vähäsantanen, 2011). Creativity is often considered the driving force behind the textile and apparel business. The human need for novelty and variety manifests itself in apparel and aesthetic demands, fashions and textile trends (Gurcum, 2017). The analysis of creativity in the academic design studio is a relative and sensitive phenomenon. Perceptions and definitions of functionality, aesthetic appeal and creativity can differ from assessor to assessor according to their experience, their theoretical influences and their culture (Cennamo & Brandt, 2012). Numerous observers, including the instructor, the students and their peers, may readily perceive an artefact or product as innovative. Csikszentmihalyi (1997) argues that creativity is a construction that is typically associated with a new and valued action, idea or object, and this depends upon the temporal and cultural context. For Good et al. (2016), on the other hand, creativity often refers to the environment, the process, the product and the individual. Batey and Furnham (2006) suggest that creative work comprises four interacting components: attributes of the item itself which are novel and suitable in relation to a specific sociocultural group; attributes of the individual(s) who generated the product; attributes of the individual(s) who assess the creativity of the product or output; and attributes of the environment. Competence in design is partially identified as the capacity to apply abilities and knowledge to a range of situations and projects. Depending on the design problem, the assessment of solutions or artefacts must also take account of things such as functionality and aesthetical appeal in addition to novelty or creativity. Nevertheless, in specific disciplines, an artefact or solution that is regarded as aesthetically pleasing, original and inventive is not always suitable for end-use (Sawyer, 2017). The assessment of creativity and artefacts depends upon novelty and utilisation, which differ by social context. An artefact or product can exhibit several degrees and elements of creativity. There are various components of creativity that may be affected by the design studio

environment, including instruction, specialist skills, social restrictions, and capacities for inventive thinking (Cennamo, 2016).

The continual reinterpretation of views is essential to the design process. It is a means to demonstrate the designer's suggestions in progress, supply a visual platform for analysis, and highlight areas that have to be reworked. Schon (1991) researched the reinterpretation that happens when designers participate in a design operation. He described the interactive process that happens when designers create as 'seeing and moving' (Schon, 1991). 'Seeing' pertains to the inspiring source, and 'moving' to the pencil's action during the creation of many sketches. The designer sees the sketches, looks for patterns and relationships among shapes, and repeatedly refines the sketches until a satisfactory solution is found. Schon's (1991) ideas about reflection can enhance creativity in the textile design studio environment (Banno, 2020). The studio education format may also be favourable to many reflection techniques, for both students and teachers. As mentioned above, the significance of reflective practice in textile studio design is evident. An understanding of these terms and concepts is critical if we are to grasp the different perspectives on reflection. Our literature review suggests that it is important to consider creativity as a construct in the context of textile studio design. Because creativity is a source of innovation and a component of textile design practice, it is related to problem-solving, and it is an explicit focus in most other design professions too. Digital Reflective Practice is an approach suggesting that an explicit focus on creativity within the studio design process may improve design outcomes. However, such an approach has not previously been studied, and more research is needed regarding the role of creativity in DRP. Hence the need for our study.

Digital Reflective Practice

There are multiple methods to use digital technology for reflection, such as online diaries, digital notebooks, reflective blogging, audio recordings, video journaling, and social networking (Benade, 2015). Brailas, Koskinas and Alexias (2016) considered weblogs as web-based journaling to have great potential as a unique mechanism that can enhance the development of student reflection. In relation to digital video and audio use to enhance reflective practice reported benefits included: improved mentor-mentee relationship quality, improved flexibility during the mentoring process (McNally, 2021), and increased student engagement and achievement (Kasey, 2018). Students can identify their problems while looking at their recordings and fix them for other creations (Daniel, 2017). Watching the video gave the subject evidence of changes that needed to be made and the time to self-reflect on how to best make those changes. When the subjects made these changes, they noticed that students became more engaged in their classes (McVee, Shanahan, Hayden, Boyd, Pearson & Reichenberg, 2017). Video-based tools offer participants the opportunity to play both actor and critic while allowing them to repeatedly look at teaching and learning from a new angle (Körkkö, Morales, & Kyrö-Ämmälä, 2019).

However, a lack of research was found in Digital Reflective Practice in textile design education. Some studies related to other creative arts disciplines supported using digital video tools for reflection. Doughty, Francksen, Huxley, and Leach (2008) argued that there is an affirmative relationship between learning, creativity, and interactive reflection tools with benefits also extended in visual and performing arts (Kirk and Pitches, 2013; Doughty et al. 2008). There are some challenges associated with the use of digital video reflection. Students and teachers may view the video camera as a threat, an imposition in their classroom, an evaluative tool that keeps a lasting record and cannot be modified (Greenwalt, 2008). Teachers also may require support to learn how to use video as a tool for their learning especially in terms of utilizing it to dissect the details of the interactions represented and use them as evidence to draw interpretations of teaching and learning (Van Es, Tunney, Goldsmith, & Seago, 2014).

Methodology

The Higher Education Commission is the regulatory body for Pakistan's universities. Forty-five higher education institutions offer textile design undergraduate programmes with studio practice as the primary teaching method (Higher Education Commission, 2022). We conducted our research in undergraduate textile design course studio settings. Each individual case was a university department. The departments all shared common aspects: they all offered studio practice courses at the time of the research, and creativity was an intended feature of these courses. One of the critical features of the proposed study was the inclusion of DRP within studio assignments which was achieved as audio and video recordings. These required students to record their design development process in the studio class or at home. The students then reviewed their recordings in-depth for reflective purposes. The assignment's concept was to expand on outside observation and give students a chance to observe their process and review their learning and development. Students were instructed to choose clips from their original footage and use simple video editing software to arrange the chosen clips into a concise 5-minute final product of their submission. The final cut (video and audio) required students to show a beginning, middle, and end to their design development. This was a newly introduced approach and no such practice had taken place in any of the departments participating in the study. The following stages outline the development of the multicase study.

Stage 1: Selection of cases/departments

Initial communication was made with departments offering textile design courses to seek consent to conduct the study. Following local authorisations and an Ethics approval, the cases were selected based on the following criteria: i.) university with an undergraduate program in textile

design accredited by the Higher Education Commission, and ii.) relevant department having at least 4th semester of textile design, and iii.) students were at the 6th-semester level, so they should have an idea of studio designing. Four classes comprising 15 to 25 students each were selected to complete a textile studio assignment based on DRP with their course instructors.

Stage 2: Planning phase of studio assignments

Studio assignments were planned according to the DRP guidelines agreed by the instructors and the first author. Instructors were invited to a first interview to discuss creativity, Digital Reflective Practice, and their existing teaching method. The process led to each instructor of the four classes and the first author developing a framework for integrating DRP in the existing teaching and studio assignment.

Stage 3: Execution of studio assignment

The instructor applied the assignment in the textile design studio course. Students applied digital tools for reflection on-action and in-action. In this phase, participants developed designs in the textile design studio class. Students were introduced to the notion of DRP based on the guidelines proposed by the instructor and the first author. Students were also informed that this would be an optional activity and the use of DRP would not affect the studio assignment's grades. Although a voluntary activity, all students in each class completed the task provided by the instructor and submitted their assignments.

Stage 4: Interviews with instructors

After two weeks, course instructors were invited for a second interview to elicit views about students' progress and feedback the design development. In the textile design studio course, the instructor interacted with students every week to develop their designs. Mostly studio assignments lasted between four to six weeks. The purpose of the interviews was to discuss the challenges and possibilities of DRP and its relation to students' creativity. A final, third interview was conducted with the instructors to summarize their experience.

Stage 5: Interviews and survey with participant students

After executing the assignment based on DRP, data was generated through one-to-one online or phone interviews with self-selected students and an online questionnaire. The objective of the interviews and the online survey was to explore students' perceptions of creativity, their views about the implementation of DRP and its relation to creativity.

Stage 6: Interview with Head of Department (HoD)

One in-depth interview was conducted with the HoD of each department. Interview with HoDs provided a holistic perspective of DRP in textile design. The questions focused on whether the students used digital technology merely as a source or repository of ideas and models or, more fully, treating it as an integral part in all creative processes. HoDs were also asked about digital technology's value in the design context.

Coding of the interview data involved moving through descriptive, patterned and interpretive coding (Creswell, 2013). Subsequently, we performed individual data analysis for each case,

summarising and categorising the data according to similarities and differences (Stake, 2006). The data analysis process continued until new patterns of similarity and contradiction emerged. We conducted data comparison and analysis to ensure the inclusion of participants' perspectives on digital reflection (Ponelis, 2015). In summary, the first author interviewed two teachers from each department, making a total of eight teachers. Each teacher was interviewed three times, i.e., in total 24 in-depth interviews with teachers were conducted. Three students from each department were interviewed after the completion of their assignments, except for the department in case study 2, where two students were interviewed. Thus, the first author interviewed a total of 11 students. Additionally, the first author interviewed one HoD in each case, a total of four in-depth interviews. We also collected 82 student responses to an online questionnaire eliciting student views on Digital Reflective Practice as part of their studio assignment: 18 from case study 1, 22 from case study 2, 23 from case study 3, and 19 from case study 4.

Results

We present the results in response to the two themes explored in this study i.e., perceptions of creativity, and the effect of DRP on creativity.

Perceptions of creativity

Uniqueness, novelty and fusion were the major themes emerging from teachers' interviews across all four cases. Different teachers proposed different ways to achieve these. They discussed problem-solving, critical thinking, the generation of ideas, and imagination as salient features of creativity. Case study 1 teacher 2 (CS1T2) associated creativity with problem-solving and

acceptance of new and innovative ideas. However, she believed that creativity is a subjective phenomenon: ‘it is a space in which one can construct, deconstruct, make things, and not get much material into it. It is just a thought, and one can mould and construct things in one’s thoughts.’ CS2T2 affirmed that ‘Creativity is different for different people; everyone has their own observations and experiences.’ CS3T2 pointed out that an important aspect of creativity is ‘how we report, respond, reason and relate or reconnect.’ In the fourth case, CS4T1 considered creativity as an experience explored in art or design school: ‘some people can explore it before they are actually in the field or before they have experienced anything like there are a lot of self-taught artists who have been working with their different materials, different ideology, different concepts’. Others discussed different aspects of creativity, pondering whether creativity was inborn or could be developed through learning. CS2T1 also addressed this issue, saying that there was no solid definition of creativity, and that creativity – like any other skill – varied from person to person.

Students’ perceptions of creativity were similar to those of teachers. Originality, uniqueness, and novelty were the persistent themes in most of the interviews. Case study 1 student 1 (CS1S1) said that creativity was all about generating new ideas: ‘Creativity is about combining the generation of ideas and doing some new things or innovative things.’ Similarly, CS1S3 noted: ‘Creativity is the development of ideas and thoughts. People think in a specific direction, so creativity is when one thinks outside the box’. CS2S1 considered that ‘in textile design, functionality is added to the creative process outcome’ while in the third case study, CS3S1 described creativity as ‘the contrast to copy-pasting in design’. Finally, for CS4S2 ‘creativity is manipulating an ordinary thing in a new way.’

Problem-solving was identified as another significant aspect of creativity. Like the teachers, the case study 1 HoD (CS1H) presented the idea of fusion as the unconventional use of conventional norms. CS3H supported this idea, explaining that creativity could be achieved through the blending of deliberation and spontaneous action. CS4H claimed that creativity resulted from 'inner intuition' and 'natural skills', while CS3H described creativity as an inborn talent nurtured by mentorship and the environment. A summary of the emerging categories of perceptions of creativity is presented in Table 1.

Table 1. Summary of multicase analysis: Perceptions of Creativity

Categories	Case Study 1	Case Study 2	Case Study 3	Case Study 4
Inborn skill vs developed through learning	Creativity is subjective	Creativity different for different people	Inborn talent nurtured by mentorship and environment	Self-taught vs learned process
Originality and novelty	Innovation; thinking outside the box	Originality and novelty	Originality	Novelty and uniqueness of any idea or product
Function vs expression	Trickle down from academia to industry	Creativity is another term for expression	Critical thinking of a fine artist with the logistics of a scientist	Domain-related knowledge leading to more creative solutions
Design development	-	Metamorphosis, holistic design of the design process	Report-respond-reason-relate/reconnect	Develop through deliberation vs spontaneous
Fusion	Ordinary stories in unique ways	Aesthetics with product execution	Ideas and materialisation	Ordinary and unconventional

Creativity in textile design is related to industrial design. Participants of all four case studies mentioned industrial requirements and boundaries for effective design. Participants in case

studies 2, 3 and 4 considered that a good designer should understand industrial and production parameters. By contrast, CS1H presented the view that the parameters of creativity should trickle down from academia to industry, and not vice versa. Originality, uniqueness, novelty, fusion, reasoning, relation, reconnection, problem-solving and an understanding of industrial and production perameters (for textiles) were persistent themes with regard to creativity in our four case studies. The effect of DRP on students' creativity was mainly discussed in relation to these ideas.

Effect of DRP on creativity

The instructors generally agreed that DRP affected students' creativity. Teachers took the view that DRP enhanced students' awareness of the design process. The back-and-forth process of reflection helped students to analyse and reanalyse their own progression. Teachers also discussed DRP in terms of reinforcement through repetition, confidence, and presentation skills. In the first case study, CS1T2 argued that 'students were more aware of what they are doing in the work, the entire process through Digital Reflective Practice because the entire reflection is audible enough', and also that 'as they were saying it loud, it was very much helping them in the form of critical thinking, and it was penetrating their creative process.' According to CS2T1, '[digital] reflection enhanced organising the information between the conscious and subconscious mind and sequenced them to understand the pattern one wants to make.' CS3T2 described DRP as 'a loop, and apparently it influences creativity' while he highlighted that the recap of the video reflection helped the students to understand more advanced concepts. In teachers' interviews of the fourth case study, CS4T2 noted that 'video recordings allow them to

revisit their work and ideas [Interview 1] I think it is helping students get more creative because it is easy to access everything worldwide from digital media.'

CS2H and CS3H felt there was a positive relationship between DRP and creativity, as DRP enhanced expression, awareness, and the transfer of knowledge between teachers and students. Although CS4H was not strongly in favour of the DRP, she mentioned that the verbal repetition of an idea might increase one's probability of generating new ideas. CS2H presented the concept of the soliloquy, suggesting that ideas are generated when one talks to oneself verbally. This is the essential practice of digital reflection. CS2H also pondered whether the back-and-forth thought process enhanced the generation of innovative ideas. With regard to the effect of DRP on students' creativity, CS1H and CS4H speculated that the current method of digital reflection might be a burden on students and slow down the process of design development. CS4H argued that creativity was nurtured in a relaxed and hassle-free environment; if students were asked to record their thoughts in the middle of their design development, this might become a burden rather than an asset. There were a few themes that were not directly related to creativity but concerned DRP's potential benefits for the management of learning. CS2H backed the idea expressed by one of her teachers (CS2T1) that DRP might enable a system of checks for the university administration and teachers: the sharing of digital reflections would promote an open-door management style in education, and transparency would minimise conflicts between administration and teaching staff.

Students agreed that DRP affected their creativity and learning. CS1S1 took a psychological perspective on the relationship between the two: she considered that learning took place in the subconscious, and that one becomes aware of things when one repeats them in a medium of

expression, adding that '[making videos] enhanced our observation as we know that we are learning things and thinking about them.' CS1S1 said: 'When I was making a video and talking about my work, I had to understand better what I had learned from the assignment'. CS1S1 said: 'It enhances our observation as we know that we are learning things and thinking about them'. In the second case study, CS2S2 discussed how students identified 'holes' in their work through the back-and-forth reflection process. CS2S2 shared her experience that 'when I make video, I have to go through the whole process before speaking because it is a practice in which you have to be prepared for what you will actually speak and for your main work project.' Students in case studies 2 and 3 supported the claim that repetition of ideas led to memorisation, reinforcement and awareness. CS3S3 focused on the documentation of the design process through digital media tools: 'I can recall the ideas by looking at the video'. It would help in memorising the design process. Remembering the design process helped refresh the visual vocabulary that might lead to innovative designs. Continuous comparison of our design with the existing styles makes us aware of market trends.' Comparisons with traditional reflective practice in the studio also emerged: 'When I did not use video recording for reflection, there were many points that I skipped or missed from the assignment. I had to ask the teachers about the deficiencies of my assignment. But when I used video reflection, I learned many points by myself then I can improve my work' (CS4S2). A summary of the emerging categories of the perceived effect of DRP on creativity is presented in Table 2.

Table 2. Summary of cross-case analysis: Effect of DRP on Creativity

Categories	**Case Study 1**	**Case Study 2**	**Case Study 3**	**Case Study 4**
Consciousness and awareness	Awareness about process	Conscious about their work	Conscious and actively aware	Continuously aware of

	Learning exists in our unconsciousness Understanding the task			market trends and styles Confidence and awareness
Enhanced expression and presentation	Enhance observation	Self-expression	-	Develop confidence in presentation of the work
Reinforcement through repetition	Notice through repetition	Verbal communication enhances thought process	Revisiting actions lead to different perspectives	Verbal communication enhances thought process
Understanding the tasks and concept development	Visual and verbal analysis	Identifying the loophole of the work	Memorisation of the design process	Memorisation of the design process

Participants in all four case studies believed that DRP enhanced students' creativity through their awareness and understanding of the task. Repetition and reinforcement of the design process enabled students to generate original and novel ideas. Their awareness of textile production and the market also increased through digital reflection.

Discussion

In all cases, participants discussed various perspectives of creativity in the textile design studio environment. Some of their conceptions intersected with one another. They agreed that creativity was a subjective phenomenon that was difficult to define. In case studies 3 and 4, there was a debate as to whether creativity was self-taught or could be learned. Overall, most participants were inclined to believe that creativity was an inborn talent nurtured by mentorship and the environment.

The concrete definition of creativity remains a point of contention among researchers. Creativity is challenging to encapsulate because it is vast. Nonetheless, many researchers have successfully defined some subcategories of creativity, including trait, cognition and process (Radwa et al., 2019). All of our participants discussed the themes of originality, novelty and problem-solving. Creative thinking is traditionally measured on the basis of the outcome of the process, i.e., the product. Creative thinking is also a specialised way of thinking or an essential cognitive activity (Han et al., 2019). All the participants in our case studies agreed that the outcome of creativity should be original and novel. They also said the process should be based on problem-solving skills related to cognitive and critical thinking, an aspect also discussed by Han et al. (2019).
It was evident from all the case studies that DRP had an effect on students' creativity, which continuous use of DRP could further enhance. We extracted four major themes from our results, which we will now interrelate and discuss in light of the existing literature.

Consciousness and awareness

Most relevant authors explain the process of reflection in terms of stages or levels (Atkins & Murphy, 1993; Boyd & Fales, 1983; Mezirow, 1981; Schon, 1991; Van Manen, 1977). Brownhill (2021) argues that the capacity to reflect critically is associated with the higher-order cognitive processes of self-regulation, consciousness and awareness, indicating the highest level of abstract learning. The concepts of consciousness and awareness enable us to better understand the cognitive thinking involved when students engage in DRP. Reflective processes also give rise to student accountability and self-awareness, making it important to revisit the components of reflective thinking.

According to our participants, DRP aided self-appraisal and gave students a greater sense of ownership of their own learning. There was evidence of the desire both to improve and to find ways to do so, and individuals seemed to evaluate their own experiences because their conception of their own capability ultimately affected their behaviour – a phenomenon discussed by Fergusson et al. (2019). Because they took the reflective video processes seriously, students experienced enhanced consciousness and awareness of their own work and process, which in turn enhanced their creativity and performance.

Expression and presentation

Art and design research discourse considers the expression of emotions to be necessary for growth, insight and integration (Glăveanu, 2018). In research on self-reflection and growth in art and design practice, emotional expression is often described as a positive outcome of the creative process (Yokochi & Okada, 2020). Previous research on self-reflection has identified feelings of being trapped, uncertain and uncomfortable as significant themes for people exploring complicated feelings during studio design practice (Van Lith & Spooner, 2018). These emotions emerge when individuals struggle to understand and progress in the creative process.

In our case studies, such expression occurred during the studio process itself, and also when participants viewed their work and shared it with their teacher. In case study 4, it initially seemed difficult for students to talk about their work. However, they gradually developed a level of comfort in presenting their work.

Meaning-making by revisiting thoughts and work

Our results reinforce previous research findings about meaning-making in the design process and reflective experience. Xu et al. (2018) describe how the creation in the external world of something that was first created in one's inner world can be concretising for the individual and their creative process. The coherence of an individual's life story is central to theories and debates about meaning-making (Dimitra & Palmyre, 2019). In our study, reflecting individuals shared specific ways to develop their work. Designing was a meaningful process that allowed students to rework past feelings, thoughts and events. Overall, digital reflections enabled students to see more clearly, and understand more deeply and experience a higher functioning. Value was placed on 'making connections' through self-reflection and grasping whatever had not previously been understood. These moments of epiphany occurred because the design process encouraged self-reflection, thereby enabling perspective and insight to arise.

Understanding the task and concept development

Understanding the task and concept development were the areas where students found DRP particularly meaningful in relation to creativity. Our results fall under the broad heading of discourse on the practice of sense-making (Yates et al. 2001). The design process provides another avenue for narratives to be explored and understood. An image effectively 'holds multiple meanings and ambivalences' (Huckvale, 2011, p. 34). Our participants' meaning-making from their digital reflections involved achieving a better understanding of the task and further developing their concepts for the assignment. The design process encourages introspection and reflection and embraces the pivotal value of process. The videos captured and represented the students' inner worlds and encouraged the process of understanding and growth.

Understanding the task has been identified as core to the development of concepts in the design process (Wang, 2021). In our textile design case studies, the teachers shared stories about students developing concepts through their understanding of the task. Woven through the students' narratives were moments of self-affirmation when individuals positioned themselves as growing both personally and conceptually. These stories were about realising specific tasks, finding new ways of integrating parts of the self, activating readiness, validating visual and verbal analysis, and identifying the significance of memorising the design process.

Conclusion

When the design students who participated in our studies were provided with sources of inspiration, this began both the creative process of perception and the storage of new visual information in their working memories. The process of encoding this information into their long-term memories also began. Furthermore, new ideas were formed, and the creative process of designing motivated students to make sketches, share ideas and revisit the source of their inspiration for more detail for as long as they needed, in order to come up with a satisfactory solution. In addition, while they were using this new information, they were also reflecting on their creative process.

We concluded that textile design studio practice provides a conducive environment for reflection in action, reflection on action, and DRP. Our participants also suggested that reflective learning in design leads to creative solutions to problems. They related creativity to innovation and problem-solving. We therefore conclude that DRP can affect the creativity of undergraduate textile design students in a positive way. Creativity and reflection are essential concepts in textile

studio design education. Reflective practice has been a topic of previous research, but we narrowed down our study from reflective practice to DRP. We also discussed new media for reflection, emphasising the use of digital video technology for reflective practices in textile design education.

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