PATTERN ELEMENTS IN HIGHER VISUAL ART EDUCATION

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ABSTRACT

Art education holds immense value, presenting students with complex problems and diverse solutions. While general art education has received attention from researchers, higher visual art education remains an under-discussed topic. This article aims to address this gap by examining the diversity of pattern elements that art teachers employ during digitally mediated lessons. By analyzing patterns in art teachers' feedback and lesson structures, this study offers insights into effective art teaching practices. Comparing higher visual art education patterns with the patterns revealed in the previous studies we highlight the specifics of tertiary visual arts education. Additionally, the study explores the connection between those patterns and the double diamond design thinking model as the theoretical underpinning of artistic and design processes.

KEYWORDS

Art Education, Pattern Languages, Digital Mediation

1. INTRODUCTION AND RESEARCH BACKGROUND

Art education holds tremendous value, providing learners with unique opportunities for creative expression and personal development. It is a field that encompasses complex problems and diverse solutions, making it intellectually stimulating and thought-provoking. While research has shed some light on general art education, the discussion surrounding higher visual art education, particularly concerning the utilization of digital tools, remains limited. The transition from traditional artistic practices to digitally enhanced forms presents unique challenges, as it involves an inductive design process where teachers grapple with ambiguous problem and solution spaces. Additionally, the digital medium often hinders direct contact with the artwork, such as its physical form and colors. These factors contribute to the complexity of teaching visual art in a digital context.

The exploration of patterns and pattern languages gained momentum with Christopher Alexander's introduction of architectural patterns in the late 1970s (Alexander, 1977). Alexander's influential work, "A Pattern Language," presented diagrams that formed the foundation of a practical language for capturing problem-solving solutions. Beyond architecture, this work found success in computer science, particularly in software and object-oriented design (Van Welie et al., 2001; Nilsson, 2009; Chase, 2012). Patterns offer designers reusable templates to address specific design challenges, leveraging the knowledge and experiences of successful system creators. They facilitate communication among designers working on similar artifacts or at different design levels (Pemberton and Griffiths, 1998). In educational research, patterns are seen as a form of language that generalizes and makes practices reusable in a specific area. Pedagogical patterns, developed by researchers and educators, summarize effective instructional strategies and approaches derived from research and best practices (Fincher and Utting, 2002; Bergin et al., 2012). These patterns serve as a guide for teachers to design and deliver instruction that fosters student engagement, comprehension, and achievement (Fincher and Utting, 2002).

The goal of visual arts and design education is to cultivate independent and original thinking and train qualified designers (Razzouk and Shute, 2012). Design thinking is a skill that needs to be actively practiced and learned through solving real-life problems (Lawson, 2006; Kimbell, 2011). This skill encompasses cognitive activities such as generating ideas, problem-solving, and decision-making (Ghonim, 2016). Adopting a design thinking mindset enables individuals and organizations to approach problem-solving creatively and innovatively (Dorst, 2011). The design process in design thinking is often segmented into stages. Various process models have been introduced, including the 3 I model (Brown and Wyatt, 2010) and the HCD model

developed by the design agency IDEO, the Double Diamond model by the British Design Council (Gustafsson, 2019), the Design Thinking model by the Hasso-Plattner Institute (Plattner, Meinel and Leifer, 2010), and the Service Design model proposed by Stickdorn and Schneider (Stickdorn et al., 2018). The double diamond model was further developed by Robert Curedale (2022), which also features divergent and convergent stages, but extends the design process with more repetitions of this pattern. For this study, the Double Diamond model was chosen as it represents both divergent and convergent stages characteristic of design thinking (Tschimmel, 2012). Overall, the Double Diamond model provides a comprehensive framework for applying design thinking in problem-solving and innovation.

This research paper aims to delve into the identification of the patterns in art teachers' feedback and lesson structures. By doing so, we seek to provide valuable insights into the teaching practices of art educators, because the presented patterns will be specific to visual arts education. Educational patterns research is blooming; with most studies relevant to ICT (Bergin et al., 2012), and math (Inventado et al., 2017), it is crucial for patterns to be extracted from the relevant field (Fincher and Utting, 2002). This study aims to bridge the gap in art education research by providing a list of distinct patterns specific only to visual arts education. The findings of this study hold significance for art educators who plan lessons and courses. By comparing their practices with those of other professionals, educators can learn from different approaches and enrich their teaching methods. To address the gap, we formulate the following research question: What are the pattern elements that higher art educators use as building blocks in their lessons and what is the place of those patterns in the design thinking model?

2. METHODOLOGY

We used purposive sampling to select participants based on specific criteria, such as higher education, an active artistic career, and prior teaching experience at the university level before and during the pandemic. We recruited participants through university websites, personal emails, and social networking sites. We also utilized snowball sampling to identify additional suitable teachers. In total, we interviewed 12 participants, including traditional artists (painters, drawers, costume designers) and media artists (creative coders, interactive installation creators, and video artists) from different countries (China, Russia, Estonia, USA, and Austria). In the later stages of recruitment, snowball sampling was employed when interviewees suggested new participants from their contacts who were interested in sharing their experiences.

To gather data on the experiences and perspectives of art educators, we conducted open-ended interviews. Each interview consisted of 10 questions grouped into several categories: a description of teaching practices before and after shifting to online teaching, interaction with students and epistemological conceptualization, feedback patterns, technology usage, and the influence of technology on the lessons. The interviews took place either online or face-to-face, depending on the participants' locations. Online interviews were recorded using Zoom, while face-to-face interviews were audio recorded using the Voice Memos app. The interviews lasted approximately 45 minutes each and were conducted in English and Russian. English interviews were transcribed using Otter.ai, an online AI-driven service, with identifying details removed for anonymity. Russian interviews were translated and manually transcribed. After transcription, the interviews were uploaded into the qualitative coding software Atlas.ti. We employed an inductive analysis method, developing a priori codes in vivo. The coding process involved several stages, including familiarization with the data, in vivo coding, categorizing, and grouping codes, creating a codebook, and reviewing and refining the codes. The coding process underwent multiple iterations, with the first round focusing on categorical coding to identify discussed topics and the second round involving identifying pattern elements, naming them, and describing them. Later, we compared the pattern elements identified in the data with those found in the literature, highlighting patterns unique to both art education and digital mediation. Initially, we used an inductive approach to identify diverse patterns, and later stages involved a deductive approach, eliminating previously described patterns and focusing on new ones.

3. RESULTS

Table 1. Pattern elements discovered in the lessons

Pattern elements	Description	Source
1. Idea-oriented pattern elements		
Interdisciplinary Integration	The teacher introduces the idea of interdisciplinarity when students are getting inspired by other sciences or art branches. Students are encouraged to combine knowledge from different fields	I02, I03, I04, I07, I11
Initiate discussions	The teacher engages a student in a dialogue where a student verbalizes their idea and the teacher helps to separate and articulate those ideas. By discussing and explaining their projects, students deepen their understanding of their own creative process and engage in critical thinking	I01, I03, I05, I07, I11
Guiding idea generation*	In studio classes, the teacher focuses on guiding students in generating good ideas for art projects. The teacher assists in polishing the concepts and helping students transform raw ideas into well-formed projects	I02, I03, I11
Narrative creation	Students have to create a story that will become a base for the artwork	I05, I07
Personal conversation*	The teacher arranges personal feedback sessions with some students, to discuss personal struggles without group pressure	I07, I08, I09
Find an interesting topic	The teacher prepares a specific topic for a project-based course, so all student work on the same topic	I03
Generating ideas 1	Students present 3 ideas for the art projects they would like to create	I03
Generating ideas 2	Students generate the most unexpected and unusual combination of concepts, ideas, stories. Students swap the ideas afterward	I05
Merging ideas*	Students combine several ideas they have into one project	I03, I11
Analyse other images	The teacher encourages students to get inspired by other artists whose visual style is similar to students'. The students create an artwork using features of other artists' artworks	I01
Asking questions	The teacher asks students questions to monitor their understanding of a topic	I04
2. Object-oriented pattern elements		
Guiding idea execution*	They provide advice on materials, and technologies, and help students understand the feasibility of their ideas. The teacher's role is to steer students in the right direction while allowing them the freedom to explore their creativity	I01, I02, I03, I04, I07
Task-based learning	The teacher assigns practical tasks to the students, asking them to create artwork similar to what the teacher has demonstrated.	I01, I04, I06, I08
Visualise ideas*	Students create drawings to present their ideas. The teacher asks students to visualize what they want to achieve with coding by creating drawings with pencil and paper	I05, I06, I07, I11
Include individual work*	Allow students to work individually on a task they choose	I01, I04, I10
Prerecording educational videos*	Prerecording solutions to tasks and sharing videos with the students via LMS	I01, I06
Creating content for LMS*	The teacher creates structured educational content and posts it on LMS	I02, I04, I09
Practical demonstration	The teacher explains painting concepts and techniques by giving practical demonstrations. They show their own artwork and share their experiences, allowing students to observe and learn through visual examples. They demonstrate techniques and processes by painting and making changes in real-time, allowing the students to observe and learn	I01, I08, I09
Hands-on approach	The teacher prefers a practical approach to teaching, focusing on making students actively engage in projects and creative work. They emphasize doing rather than relying solely on theory classes. The teacher prefers a practical approach to teaching, focusing on making students actively engage in projects and creative work. They emphasize doing rather than relying solely on theory classes	I03

Combining technical tasks with creative examples*	The teacher begins the class with a creative activity or discussion related to the topic at hand. For example, when teaching for loops, they start by discussing repetition in art, textiles, optical art, and music, creating an artistic impulse to engage the students' interest.	I06
Step-by-step instructions	By breaking down the problem and providing step-by-step instructions, they aim to help students develop algorithmic thinking skills and problem-solving abilities	I06, I09
Pair programming	The teacher encourages pair programming, where students work in pairs with one person typing and the other providing instructions and support. This collaborative approach allows students to learn from each other, solve problems together, and stay engaged with the material	I06
Progressive difficulty	The teacher provides lab assignments with varying levels of difficulty, catering to students with different coding backgrounds. They offer both basic and advanced challenges, allowing students to choose tasks based on their skill level and fostering continuous learning and growth	I06
Copying artworks*	The teacher helps a student choose an artwork created by another artist. The student creates a copy of this artwork to learn the technical nuances of working with a specific analog media	I01
Monitoring students' activity on the LMS	The teacher regularly checks out how students interact with the educational content on the LMS and reminds them if they missed something out	I06, I09
Create a library of exercises*	The teacher saves the material, exercises, and solutions for students. They use this library for creating new courses	I06
Warm-up exercises*	The teacher gives students a task that is not graded and that is not directly connected to the topic. Example: to sketch another student not looking at the paper and not taking a pen from the paper. Students embrace imperfections, relax, and tune in for the creative process	I07
Changing a digital copy of students' artwork*	The teacher improves students' artworks using a graphical editor, this way they point out mistakes and imperfections, show how to improve an artwork, and how to continue working on an artwork	I08, I09
Time management*	The teacher emphasizes the importance of time management and keeping students on track. They understand the constraints of time in project-based courses and help students prioritize and focus their efforts to avoid unnecessary changes that might waste time	I03
3. Object-oriented and Idea-oriented pattern elements		
Feedback and Correction	The teacher provides feedback and corrections to the students' artwork. They guide the students on how to improve their work, by suggesting adjustments or providing references to professional artists with similar styles	I01, I02, I03, I04, I06, I07, I08, I09, I11, I12
Individualized Instruction	The teacher adopts a personalized approach to teaching by providing individual assistance to students. The teacher engages with each student separately, helping them understand concepts and solve problems	I01, I02, I03, I04, I05, I07, I08, I10, I12
Showing other artworks	The teacher shows students to previous works created to avoid repeating ideas that have already been done. The teacher also invites students to learn from their own work and openly shares their own artistic process	I02, I03, I04, I07, I08
Transmedial translation*	Students find an equivalent of an idea in music, video, image, sculpture, et cetera. Sometimes students have to create a story that will become a base for the artwork, Sometimes a piece of a text would serve as a base for a visual artwork	I05, I06, I07
Use of slides presentations	The teacher consistently uses PowerPoint presentations for their lectures, complemented by videos. PowerPoint serves as a visual aid in delivering content to the students	I05, I06
Give a lecture on a topic	The teacher explains theoretical material with examples, slides, and descriptions	I04
Demonstrating videos	The teacher relies on videos as a teaching resource. Videos are used as a tool for instruction, particularly in the design courses	I05
Holistic approach*	The teacher incorporates various aspects, such as aesthetics, psychology, and technology, into their teaching approach. They encourage students to consider	I05

	multiple dimensions and aspects related to character design and video game development	
Incorporating artistic examples	The teacher connects coding concepts to artistic examples, such as using examples from visual art, movies, or pop culture. This helps students relate coding to their artistic interests and encourages creativity in coding projects	I06
Diversified digital components	With the shift to online teaching, the teacher recognizes the need for a diversified approach and a mix of digital components. This includes prerecorded videos, online assignments, and the use of e-learning platforms like Moodle to distribute resources and facilitate communication between teachers and students	I04
4. Personal development pattern elements		
Online searches of supplementary materials	Encouraging students to explore online resources, both images shared by non-artists and professionals. Amateur photos can provide a broader perspective, inspiration, and understanding of a current time. Photos of professional artworks are used as reference pictures of what was created before. Students create a collection of images, a mood board that would help to explain the ideas and emotions they want to convey	I01, I02, I05, I06, I07, I09
Self-directed learning	The teacher explains the principles of self-directed learning and emphasizes that the course covers only foundations and they could learn more things on their own. The teacher believes in promoting active learning, where students take responsibility for their own learning process	I02, I03, I04
Sharing personal experience	The teacher describes issues connected to the personal creative process, highlighting the problems and how they overcome them	I03, I07, I10
Reflection for motivation*	The teacher raises critical questions about the purpose of art education, urging students to reflect on their motivations and goals for pursuing art. They highlight the need for students to understand why they want to learn and draw, beyond technical skills	I08, I12
Fostering curiosity*	The teacher aims to raise curiosity among the students by emphasizing the importance and relevance of the topics they are learning. They motivate students by highlighting the potential career opportunities and growth in the field of graphic design and technology	I02
5. Professional development pattern elements		
Arrange collaborative projects	The teacher expects students to create group projects. The teacher explains to students the benefits of working together and shares examples of collaboration in contemporary art	I02, I03, I05
Incorporating research*	The teacher explains the basics of research work, how to look for sources in scientific publications, cite them, and apply the knowledge in artwork	I03, I04, I05, I11
Presenting an artwork	Students present their artworks, talk about concepts and ideas	I05, I01, I03, I11
Embracing mistakes and iteration	The teacher creates a safe environment for students to make mistakes and iterate on their projects. Students are encouraged to learn from their mistakes and make changes if they feel their work is not meeting their expectations	I07
Portfolio building	The teacher recognizes the significance of portfolio creation for art students. They emphasize the importance of project-based courses, as portfolios play a crucial role in the students' post-university life	I03, I12
Creating a real-life output	The teacher emphasizes the importance of providing students with real-life outputs for their work, such as public showings or events. This pattern ensures that students can see the practical application and impact of their work beyond the classroom	I07, I11
Creating a library ideas*	Students create a diary where they write down all creative ideas they have and they use those ideas at the relevant moments	I02

Table 1 presents the identified pattern elements in the descriptions of digitally mediated lessons. The table consists of three columns. The first column displays the names of the patterns, the second column provides a description of each pattern, and the third column indicates the frequency of each pattern's mention across various interviews (using anonymized interviewee codes). The most frequently mentioned patterns are listed at the top of the table, while the least frequently mentioned patterns are placed at the bottom.

The pattern elements discovered in the interviews might be grouped into several categories. The idea-oriented group (11 elements) focuses on activities aimed at fostering idea generation, concept development, and logical connection between artistic form and artistic thought. The object-oriented group (18 elements) encompasses activities that emphasize the creation and manipulation of art objects: sketches, prototypes, drawings, and paintings. Idea and Object-oriented group consists of activities that do not separate

the conceptual and practical parts of artistic work (10 elements). Notable, that some teachers desired to support student development beyond the educational topics, they wanted to support the development of personal qualities, like motivation, curiosity, and ability to learn independently (5 elements). And the last group was also reaching beyond the classroom, becoming a connection from education to professional life; we named this group “Professional development-oriented” (7 elements). Activities in this group were meant to involve students in the professional artistic community and make their interaction with art institutions sustainable. The asterisk (*) marks patterns unique to art education; other patterns were described in the previous studies.

4. DISCUSSION AND CONCLUSION

The presented study identified five groups of patterns that are used by art educators, all in some way related to professional artistic activity (Idea-oriented, Idea and Object-oriented, Object-oriented, Personal, and Professional development). Some of the patterns are similar to those used in educational areas not connected to visual arts, while others are unique to visual arts. The rest are specific to digitally mediated environments and online education.

To compare our results with previous studies, we selected the five most cited articles that described the largest number of patterns: Eckstein et al. (2002), Muhonen et al. (2017), Eckstein (2001), Goodyear (2009), and Bergin (2012). Out of the 51 pattern elements, 21 were unique and did not have similar patterns documented in the published literature. It is worth noting that some of the patterns identified in our interviews align with patterns already published, even though the previous research did not focus on visual art education pedagogy. This indicates the universal applicability of educational patterns and the potential to adapt them across different fields. However, several patterns identified in our study were not previously described, warranting special attention.Pattern elements related to intellectual development and plasticity (merging ideas and guiding idea generation) might embody the conceptualist influence on visual arts curricula, particularly in the debate surrounding cerebral/retinal art (Honold, 2016). Including personal conversations in the educational process may trace back to the traditional master-apprentice relationship in art studios, which is the earliest model of visual arts education. A personal connection between a mentor and mentee is central to visual arts education due to the inherently intimate nature of creative work (Kantawala et al., 2009). A significant number of novel patterns are related to Object-oriented artistic activity, which involves the creation of art objects. These patterns include visualizing ideas, guiding idea execution, combining technical and creative tasks, and copying artworks. These patterns serve specific objectives unique to visual arts and are not relevant to other subjects. One unique pattern from the Personal development group, fostering curiosity, is also described as a necessary quality in design thinking (Curedale, 2022).

Furthermore, it is important to acknowledge that among these new patterns, some can be grouped separately as they all relate in some way to digitally mediated teaching. The emergence of these patterns is not surprising since the five sources used for analysis were published before 2017, prior to the pandemic, and primarily explored patterns in traditional face-to-face teaching. To obtain a broader understanding, it is necessary to include other studies dedicated to hybrid or online learning and teaching. The specific patterns related to digitally mediated teaching include: "Creating content for LMS," "Prerecording educational videos," and "Creating a library of exercises." This study fills a gap in understanding online teaching practices and proposes advice which patterns are viable for online education in higher visual arts.

Overall, all pattern elements related to artistry have a place within the design thinking schema. However, since the other patterns are not explicitly connected to the design process, it is more challenging to incorporate all pattern elements into it (and not necessarily required). By segregating the artistic patterns from the general patterns, we can focus on the unique aspects of art education and its relationship with design thinking. By incorporating teaching patterns into the design thinking model, we can establish a suggested sequence for their application throughout a course. The double diamond model has a particular shape due to a pattern that first follows divergent thinking, then develops in convergent thinking, and then the process iterates until an optimal solution is found. Divergent thinking creates choices that might branch out as possible solutions (ideation); convergent thinking makes those choices, leading to prioritizing some solutions over others and developing them (judgment) (Brophy, 2001; Curedale, 2022). Following this definition, the revealed patterns might be placed inside of the model, lining up with divergent or convergent thinking patterns, as illustrated in Figure 1.

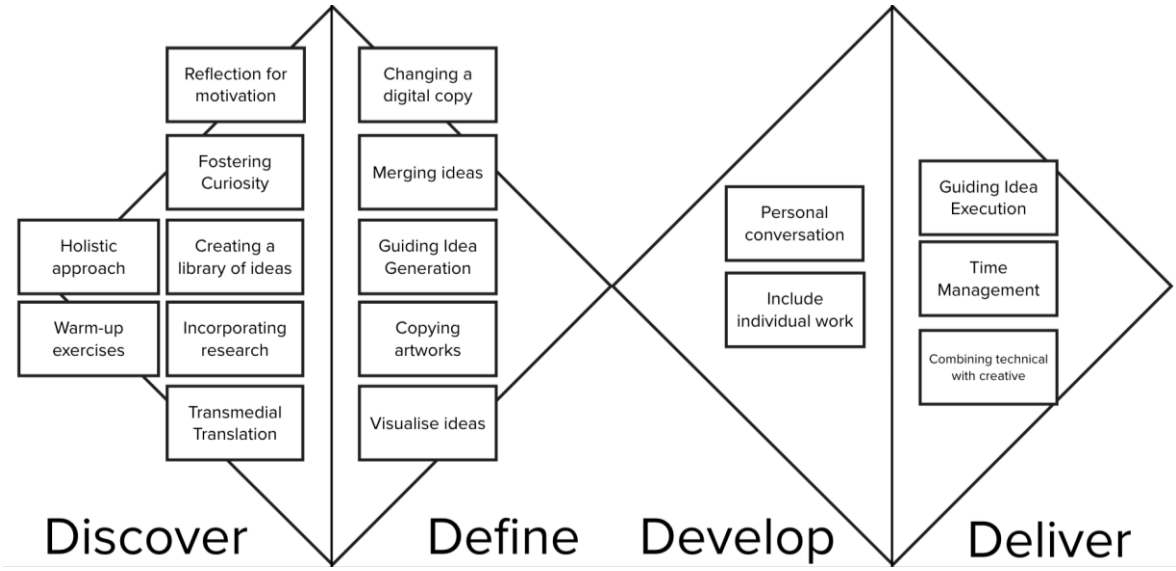

Figure 1. The placement of pattern elements within the 4D design thinking model

These results indicate the potential applicability of the pattern approach across diverse educational domains and levels, for instance, 30 out of 51 patterns identified in ICT education research were applicable to higher visual arts education. This suggests that the concept of patterns transcends disciplinary boundaries and holds promise for enhancing teaching methodologies in various areas. Furthermore, these findings underscore the distinct nature of digital mediation within the realm of art education. They emphasize the imperative for art educators to reassess and innovate their pedagogical practices with new tools, exploring new patterns to support the digitally mediated learning process. The dynamic landscape of digital mediation calls for adaptive strategies, enabling art teachers to navigate its unique challenges and opportunities, ultimately enriching the educational experience for their students. In future development and research, it is recommended to analyze additional interviews to identify more pattern elements. By doing so, we can further investigate how these pattern elements can be combined effectively to address various problems. There are several potential approaches for combining educational patterns: creating a pattern catalog, constructing a system of patterns, or establishing connections between multiple patterns within a shared problem space. This integration of patterns forms a language of patterns, which serves as a valuable resource for solving complex problems in education. Furthermore, the study's alignment of some patterns with established pedagogical concepts, such as design thinking, sheds light on the interconnectedness of various educational paradigms. This suggests the possibility of integrating these patterns into a cohesive framework, enhancing the effectiveness of art education.

This study unveiled novel educational patterns and highlighted the distinctive aspects of higher visual arts education while also reaffirming the universal applicability of previously identified educational patterns. Art teachers can utilize the findings of this study as a valuable repository of insights, offering guidance on how to enhance, elevate, and refine their lessons. However, it is important to acknowledge certain limitations of the study. The participant pool was relatively small, and to broaden the scope of analysis, additional patterns, particularly those pertaining to digitally mediated teaching, could be included for further examination.

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