

Creativity Teaching Practices in Fashion and Apparel Programmes: An Experience-Based Perspective in Malaysian TVET

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Abstract

This study examines creativity teaching practices in Fashion and Apparel programmes at Malaysian Community Colleges, focuses on instructional approaches to enhance students' creativity. This study highlights the role of lecturers' teaching practices and professional experiences in shaping creative learning environments. A qualitative case study was designed, involved 15 informants, comprises of three subject-matter experts in Fashion Design and 12 lecturers from Community Colleges and Polytechnics under the Ministry of Higher Education. Data were collected through in-depth interviews, classroom observations, and document analysis, and analysed through thematic analysis guided by Sternberg's Theory of Creativity. The findings suggest six key dimensions of creativity: intellectual, knowledge, thinking style, personality, motivational, and environmental creativity. These practices contribute to the development of students' creative skills, particularly in idea generation, problem-solving, and design innovation, through structured guidance, experiential learning, and collaborative engagement. However, several challenges were identified, including limited instructional time, resource constraints, and varying levels of student readiness, which affect the implementation of creativity-based teaching approaches. These findings suggest the need of institutional support to sustain creativity-focused pedagogy. The study provides practical implications for TVET education, particularly in enhancing curriculum design, strengthening lecturer professional development, and informing policy initiatives aimed at integrating creativity-based teaching practices into institutional standards.

1. Introduction

Creativity is strongly linked to innovation, a key driver of success for individuals and society in today's global economy. Fashion education and professional practice have witnessed a rapid evolution recently, which is caused by digital transformation, sustainability requirements and changes in consumer behaviour, which has increased the demand for creativity as an essential skill (OECD, 2023; World Economic Forum, 2023). In this case, lecturers, especially in the field of Technical and Vocational Education and Training (TVET), have a vital role in developing creative talent that suits the needs of the industry.

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The importance of creativity in daily life is evident across various domains, including the arts and sciences, where it is often regarded as a determinant of individual excellence. Creativity is commonly defined as the ability to produce outcomes that are both novel and useful (Sternberg, 2001; Lubart, 2000). More recent studies further emphasise that creativity involves not only idea generation but also problem-solving, adaptability, and the ability to respond to complex real-world challenges (Henriksen et al., 2021; Beghetto, 2022). Sternberg and Lubart's (1993) Theory of Creativity identifies six key dimensions—intelligence, knowledge, thinking styles, personality, motivation, and environment—which collectively shape creative performance. In the context of Fashion and Apparel programmes, these dimensions are essential, as creativity requires both conceptual thinking and practical design execution.

Despite the growing emphasis on creativity globally, existing teaching practices within Malaysian Community Colleges remain largely oriented towards technical skill acquisition, with comparatively less focus on developing creative thinking processes. This misalignment is particularly critical in Fashion and Apparel programmes, where the industry increasingly demands innovative, sustainable, and market-responsive design solutions (McKinsey & Company, 2022). While curricula emphasise technical competence, there is limited integration of pedagogical approaches that systematically foster creativity in teaching and learning practices.

Moreover, although various approaches such as experiential learning, studio-based learning and collaborative learning are well known to be effective in improving creativity (Darling-Hammond et al., 2020; OECD, 2021), there is no empirical evidence as to how these approaches are implemented in TVET Fashion and Apparel programmes in Malaysia. Research has primarily centered on students' achievements, with less regard to the impact of lecturers' pedagogical techniques and professional backgrounds in fostering innovative learning spaces. This reveals a huge research gap about the embedding of creativity into teaching practices in this specific environment.

Therefore, this study examines pedagogical practices in Fashion and Apparel programmes in Malaysian Community Colleges by focusing on how these practices contribute to the development of students' creative thinking. The study explores instructional methodologies and pedagogical strategies, and their success to provide empirical insights into how creativity might be systematically promoted through experience-based teaching practices. The guiding research questions of this study are as follows:

- i. What types of creativity teaching practices are implemented in Fashion and Apparel programmes?
- ii. How are these practices reflected across the dimensions of creativity (intellectual, knowledge, thinking styles, personality, motivation, and environment)?
- iii. To what extent do these practices contribute to the development of creative thinking among students in Fashion and Apparel programmes?

1.1 Creativity Approaches and Fashion Education in TVET

Although the strategic importance of Technical and Vocational Education and Training (TVET) in producing a skilled and competent workforce has been widely acknowledged, recent evidence shows that Malaysian Community College graduates continue to face challenges in creativity, innovation and problem-solving skills especially in creative and technical industries (OECD, 2023; UNESCO, 2022). This scenario highlights an important gap between the current training methods and the changing needs of the global fashion business.

The fashion industry has changed significantly in recent years, with digitization, environmental concerns and changing consumer expectations. Creativity is therefore no longer restricted to aesthetic design and has become an important competence for the creation of adaptive, creative and market-responsive solutions (Niinimäki, 2020; McKinsey & Company, 2023; World Economic Forum, 2023). This situation reflects a critical misalignment between existing teaching practices and the evolving demands of the global fashion industry.

Although creativity is widely recognised as a core competency, teaching practices in many TVET institutions remain largely focused on technical demonstration, procedural instruction, and product completion, with limited emphasis on the systematic development of creative thinking processes (OECD, 2021). Such approaches may support technical skill acquisition but often restrict opportunities for students to engage in divergent thinking, experimentation, and creative risk-taking (Beghetto, 2022; Henriksen et al., 2021).

Various pedagogical approaches, including experiential learning, studio-based learning, collaborative learning, and project-based learning, have been widely recognised as effective in enhancing creativity and innovation in educational settings (Henriksen et al., 2021; Laurillard, 2022; Wrigley et al., 2020). However, many existing studies focus primarily on student outcomes and often overlook the role of lecturers' teaching practices and professional experience in shaping creative learning environments, particularly within TVET contexts.

Furthermore, while creativity has been increasingly emphasised in higher education policy, including initiatives introduced by the Ministry of Higher Education Malaysia to strengthen graduate attributes for Industry 4.0, creativity-oriented teaching practices are not yet systematically embedded within Fashion and Apparel programmes. In practice, lecturers often rely on step-by-step instructional approaches, which may reduce students' confidence, flexibility, and willingness to experiment creatively (Ryan & Deci, 2020).

Although lecturers in Community Colleges possess relevant industry experience, there remains limited empirical evidence on how this experience contributes to creativity development through specific pedagogical approaches in Fashion and Apparel education. Existing literature also provides limited discussion on contextual challenges such as resource constraints, time limitations, and varying levels of student readiness within Malaysian TVET institutions.

Therefore, this study addresses these gaps by examining creativity teaching practices in Fashion and Apparel programmes, with particular focus on how pedagogical approaches and lecturers' professional experiences contribute to the development of creative thinking.

1.2 Creative Problem Solving

Creativity is increasingly recognised as a dynamic and continuous cognitive process involving the ability to generate ideas that are both novel and useful within specific contexts (Beghetto, 2022; Henriksen et al., 2021). In educational settings, creative thinking extends beyond idea generation to include problem identification, solution development, and the ability to adapt knowledge in response to complex challenges. This perspective aligns with Sternberg's Theory of Creativity, which emphasises the integration of intellectual abilities, knowledge, thinking styles, motivation, personality, and environmental factors in shaping creative performance (Sternberg, 2001; Sternberg & Lubart, 1993).

Within this framework, Creative Problem Solving (CPS) represents a structured approach that integrates divergent and convergent thinking processes to address real-world problems. CPS encourages learners to explore multiple possibilities (divergent thinking) and subsequently evaluate and refine ideas into feasible solutions (convergent thinking). Recent studies suggest that CPS-based approaches can enhance students' cognitive flexibility, creativity, and problem-solving skills when implemented effectively in classroom settings (Henriksen et al., 2021).

However, despite its theoretical strengths, the implementation of CPS in educational contexts remains challenging. Empirical evidence indicates that many educators struggle to translate CPS principles into practical teaching strategies, particularly in technical and vocational settings where instructional practices tend to prioritise procedural knowledge and task completion (OECD, 2021; Sang et al., 2021). This gap highlights the need for pedagogical approaches that go beyond structured processes and allow flexibility, experimentation, and contextual adaptation. In the context of Fashion and Apparel programmes, CPS is particularly relevant due to the nature of design-based learning, which requires students to engage in iterative problem-solving, idea generation, and product development. For example, students may be required to identify design challenges such as material sustainability, generate multiple design alternatives, and develop prototypes that balance creativity with functionality. These processes reflect Sternberg's emphasis on the integration of intellectual and practical abilities in producing creative outcomes.

Nevertheless, several limitations have been identified in the application of CPS. Overly structured CPS models may restrict spontaneous idea generation, while insufficient guidance may lead to superficial or impractical outcomes (Beghetto, 2022). In addition, the effectiveness of CPS is influenced by contextual factors such as time constraints, resource availability, and students' readiness levels, which are particularly evident in TVET environments. The integration of supporting approaches, such as brainstorming and technology-enhanced learning, may further enhance CPS implementation; however, these approaches also present challenges, including limited access to digital tools and varying levels of digital literacy among students.

Furthermore, recent policy directions emphasise the importance of creativity, innovation, and higher-order thinking skills in Malaysian higher education. The Ministry of Higher Education (MOHE) has highlighted the need to strengthen graduate attributes related to creativity and problem-solving to meet the demands of Industry 4.0 and the evolving global economy (Ministry of Higher Education Malaysia, 2021). Despite these policy initiatives, there remains a gap between policy aspirations and classroom practices, particularly in TVET institutions where creativity is not yet systematically embedded within pedagogical approaches.

Therefore, while CPS offers a promising framework for enhancing creativity, its effectiveness depends on how it is adapted and implemented within specific educational contexts. This study builds on this premise by examining how CPS-related teaching practices are applied within Fashion and Apparel programmes, with a focus on lecturers' pedagogical approaches and their role in fostering creative thinking.

2. Methodology

2.1 Research Design

This study adopted a qualitative case study design to explore creativity teaching practices in Fashion and Apparel programmes at Community Colleges. A qualitative approach was selected as the study aims to gain an in-depth understanding of lecturers' experiences, perspectives, and pedagogical practices within authentic teaching and learning contexts. This approach is particularly suitable for examining complex educational phenomena where

contextual interpretation and experiential insights are required rather than generalisation (Creswell, 2014; Yin, 2018).

2.2 Participants and Sampling

A total of 15 informants participated in the study, comprising three subject-matter experts in Fashion Design and 12 lecturers from Community Colleges and Polytechnics. Participants were selected using purposive sampling to ensure that they possessed relevant teaching experience and were actively involved in delivering Fashion and Apparel programmes. Although the sample size is relatively small, it is considered appropriate for qualitative research, where the emphasis is placed on depth rather than breadth. The selected participants provided rich, context-specific insights that enabled a detailed exploration of creativity teaching practices. Future studies may consider expanding the sample to include a wider range of institutions to enhance generalisability.

2.3 Data Collection

Data were collected over a four-week period using multiple qualitative methods, including in-depth interviews, classroom observations, and document analysis. The data collection process was conducted intensively, allowing repeated engagement with participants and triangulation across different data sources. Although the duration of four weeks may appear limited, the focused and structured data collection approach enabled the researcher to capture sufficient depth and variation in responses. Data saturation was achieved when no new themes or significant insights emerged from subsequent data collection.

2.4 Data Analysis

Data were analysed using thematic analysis, following a systematic coding process (Braun & Clarke, 2006).

The analysis involved several stages:

- Transcription of interview data
- Repeated reading of data to identify patterns
- Initial coding of significant statements
- Grouping codes into sub-themes
- Synthesising sub-themes into main themes

The analysis was guided by Sternberg's Theory of Creativity, which served as the analytical framework for categorising the findings into six dimensions: intellectual, knowledge, thinking styles, personality, motivation, and environmental creativity. This theoretical lens enabled a structured interpretation of the data and provided a basis for linking observed teaching practices with established dimensions of creativity.

2.5 Theoretical Rationale

Sternberg's Theory of Creativity was selected as it provides a comprehensive framework that integrates cognitive, affective, and environmental factors influencing creative performance. This theory has been widely applied in educational research to examine creativity development and is particularly relevant in design-based disciplines where both conceptual and practical thinking are required.

2.6 Trustworthiness and Rigor

To ensure the credibility and trustworthiness of the findings, several strategies were employed:

- Triangulation: Multiple data sources (interviews, observations, and documents) were used
- Data saturation: Achieved when no new themes emerged
- Systematic analysis: Clear coding procedures were followed
- Contextual description: Detailed explanation of setting and participants

2.7 Research Framework

A visual research framework is included to illustrate the overall research process, showing the integration of data collection methods and thematic analysis leading to the identification of six creativity dimensions based on Sternberg's model.

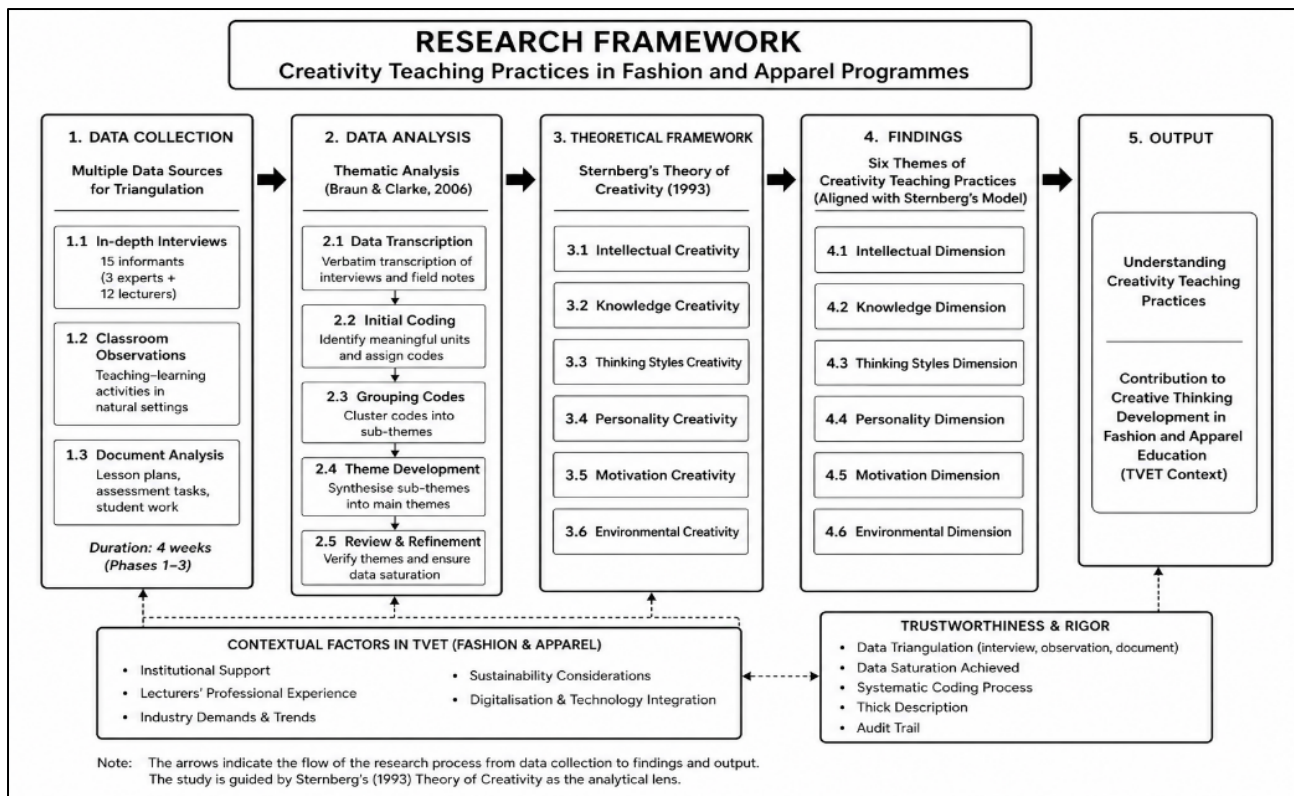


Fig. 1 Research framework of creativity teaching practices in fashion and apparel programmes

The research framework illustrates the overall process of the study, integrating data collection methods, thematic analysis, and Sternberg's Theory of Creativity as the analytical lens. The framework demonstrates how qualitative data were synthesised into six dimensions of creativity teaching practices, which contribute to the development of creative thinking in Fashion and Apparel education within the TVET context.

3. Result

The findings of this study were interpreted using Sternberg's Theory of Creativity as the analytical framework. This theory provides a comprehensive understanding of creativity by integrating cognitive, personal, and environmental factors that influence creative performance. In this study, the six identified themes of creativity teaching practices were systematically aligned with the corresponding dimensions of Sternberg's model. This alignment enables a structured interpretation of how lecturers' teaching practices contribute to the development of creativity within Fashion and Apparel programmes.

Table 1 Mapping of creativity teaching practices with Sternberg's Theory of Creativity

Sternberg's Creativity Dimension	Observed Teaching Practices	Verbatim Evidence	Interpretation
Intellectual Creativity	Guiding students to generate ideas and solve design problems	"Saya suruh pelajar fikir idea sendiri dulu sebelum saya bagi contoh... biar dia explore dulu." (I encourage students to generate their own ideas first before I provide examples, allowing them to explore independently.) (P3)	Students are guided to explore ideas and produce creative yet practical outcomes
Knowledge Creativity	Use of references, examples, and prior works	"Saya tunjuk hasil kerja pelajar lepas dan contoh design supaya mereka boleh faham dan develop idea." (P7)	Domain knowledge and references are used to support idea development and

Sternberg's Creativity Dimension	Observed Teaching Practices	Verbatim Evidence	Interpretation
		<i>(I show previous students' work and design examples so that they can better understand and develop their ideas.)</i> (P7)	enhance understanding
Thinking Styles Creativity	Adapting teaching methods and task structure	<i>"Kadang saya ubah requirement supaya sesuai dengan tahap pelajar, tapi masih ada elemen kreatif."</i> (P5) <i>(Sometimes I adjust the requirements according to students' abilities while still maintaining elements of creativity.)</i> (P5)	Flexible teaching approaches allow students to think creatively within practical constraints
Personality Creativity	Encouragement and emotional support	<i>"Saya selalu bagi semangat, kalau idea tak jadi saya suruh cuba lagi... jangan takut salah."</i> (P2) <i>(I always encourage them; if their ideas do not work out, I ask them to try again and not be afraid of making mistakes.)</i> (P2)	Lecturers foster resilience, confidence, and openness to risk-taking
Motivation Creativity	Collaboration and idea sharing among lecturers	<i>"Kami selalu bincang sesama pensyarah untuk improve cara ajar dan idea projek."</i> (P8) <i>(We often discuss among lecturers to improve our teaching approaches and project ideas.)</i> (P8)	Collaborative practices enhance motivation and idea generation among lecturers
Environmental Creativity	Creating supportive learning environments	<i>"Saya bagi ruang pelajar try sendiri, explore bahan... kelas memang kena fleksibel."</i> (P4) <i>(I give students the space to try on their own and explore materials; the class needs to be flexible.)</i> (P4)	Learning environment supports experimentation and creative engagement

The mapping presented in Table 1 demonstrates that creativity teaching practices in Fashion and Apparel programmes are inherently multidimensional and interconnected. The findings indicate that lecturers do not rely solely on cognitive strategies to foster creativity, but rather integrate knowledge, teaching approaches, personal engagement, and environmental support in their pedagogical practices. From a cognitive perspective, intellectual and thinking styles creativity highlight the role of lecturers in guiding students to generate ideas and adapt problem-solving strategies. However, these cognitive dimensions alone are insufficient without the support of knowledge creativity, where domain expertise and relevant references play a crucial role in shaping meaningful and contextually appropriate design outcomes.

In addition, the findings reveal that personality and motivation creativity are equally important in sustaining students' engagement and willingness to explore creative ideas. Lecturers' encouragement, feedback, and collaborative practices contribute significantly to building students' confidence and persistence in the creative process. This aligns with Sternberg's view that creativity is influenced not only by intellectual ability but also by personal and motivational factors.

Furthermore, environmental creativity underscores the importance of creating a supportive learning context that encourages experimentation and risk-taking. In the context of TVET and Fashion and Apparel education, where learning is practice-based, the availability of resources, flexibility in teaching approaches, and openness to exploration are critical in facilitating creativity. Overall, the integration of these six dimensions demonstrates that creativity development is not a singular process but a holistic interaction of multiple factors. This finding reinforces the applicability of Sternberg's Theory of Creativity in explaining how teaching practices can systematically support the development of creative thinking within Fashion and Apparel programmes.

3.1 Intellectual Creativity

The findings indicate that creativity related to intellectual capacity, knowledge, and thinking styles is closely interconnected, as these elements represent individuals' cognitive intelligence, which contributes to higher levels of intellectual functioning. Lecturers with higher intellectual capabilities are able to think more effectively and demonstrate originality, fluency, flexibility, and elaboration in their teaching practices.

Intellectually competent lecturers tend to exhibit higher levels of creativity and motivation in implementing teaching and learning activities by engaging in careful planning to deliver effective instruction. The findings further suggest that intellectually capable female lecturers demonstrated greater fluency, flexibility, originality, resilience, and attentiveness in their teaching practices, whereas intellectually capable male lecturers demonstrated fluency, flexibility, and originality particularly in presenting cause-and-effect reasoning within instructional contexts.

In addition, the relationship between intellectual ability and emotional intelligence through creativity was found to influence lecturers' academic performance, particularly in their ability to deliver effective teaching and learning experiences in the classroom. These findings highlight the importance of intellectual creativity as a foundational component in supporting effective creativity teaching practices.

The following excerpts illustrate participants' views regarding intellectual creativity:

"...I show the best examples or references from previous students' work..." (P1)

"...students need the freedom to think, as long as they do not deviate from the defined concept..." (P3)

"...lecturers need to first set a creative mindset within themselves..." (P5)

"...I need to be more advanced than students in terms of fashion trends, fabrics or materials, and colour focus in the latest designs, then think of outcomes that are both effective and easy to implement, yet attractive..." (P7)

"...I apply different perspectives in teaching approaches, enhance them with creativity theories and models, and put them into practice..." (P12)

"...I need to first understand a concept thoroughly and be competent in producing it..." (P10)

"...I plan and structure the lesson carefully so that teaching and learning become engaging, students understand, and they are able to apply what they learn..." (P2)

3.2 Knowledge Creativity

The findings indicate that high-quality design outcomes can be produced through a strong foundation of knowledge, which enables the generation of innovation. Innovation in fashion design often evolves from the reinterpretation and refinement of ideas derived from previous designers. However, effective innovative design requires new creative touches, originality, and novelty. Rather than merely replicating ideas from earlier designers, lecturers play a crucial role in guiding students to avoid imitation and to leverage acquired knowledge in producing design outcomes that surpass existing innovations.

Well-planned learning processes supported by structured planning, comprehensive information, and advanced skills contribute to effective learning experiences. These elements serve as exemplars and guidance for students, encouraging them to become more focused and disciplined in their creative work. Knowledge creativity was found to generate three core elements, namely originality, effectiveness, and ethical consideration. Lecturers with a high level of knowledge tend to demonstrate greater productivity and achieve more positive outcomes from multiple perspectives through creative teaching practices.

The following excerpts illustrate participants' views regarding knowledge creativity:

"...I will think about how to approach it. The planning needs to be more specific, and the idea must be fresh..." (P1)

"...we start by capturing students' attention, anticipate what they might do, then create a sense of curiosity about the topic before continuing the process..." (P2)

"...there are three elements of creativity: originality, impact, and ethics. Lecturers need to be productive to generate outcomes from different perspectives..." (P3)

"...specific planning is important, information must be complete, and high-level skills are needed to build confidence..." (P5)

"...the design idea process must be clear so that students can understand and refer to it, allowing them to be more focused and disciplined..." (P10)

"...design problems occur when the outcome is not functional; the fabric or material must align with the selected theme, subject matter, or inspiration..." (P12)

3.3 Thinking Style Creativity

The findings indicate that thinking style refers to lecturers' ability to utilise their individual strengths in teaching practice. A clear relationship was identified between thinking style and individual creativity factors. Most participants highlighted that lecturers' thinking styles are closely associated with intellectual ability and

knowledge in enhancing creativity, particularly in delivering creativity teaching practices in Fashion and Apparel design that students can subsequently apply in their learning.

Lecturers who demonstrate creative thinking styles are able to address various challenges, regardless of whether the problems are complex, moderate, or simple. In addition, adequate knowledge of resources, tools, and teaching materials contributes to more conducive and engaging teaching and learning sessions. This preparedness supports the effective implementation of creative teaching practices and enhances students' learning experiences.

The following excerpts illustrate participants' perspectives on thinking style creativity:

"...whether students' acceptance is difficult, moderate, or easy, we think about outcomes that are easy to implement, practical, functional, and attractive..." (P1)

"...first, we need to create an interesting element in the design to excite students; then they become motivated to think and solve the problem..." (P2)

"...students' outputs differ, with new ideas and different solution approaches; sometimes the ideas are still vague, so the teaching and learning creativity process must remain engaging..." (P13)

"...lecturers can assess students based on fresh and original ideas..." (P5)

"...I prepare complete tools and materials according to the topic in class..." (P2)

"...for me, having complete materials, tools, and resources is essential..." (P10)

"...sometimes I discuss with colleagues teaching the same subject to explore how we can refine ideas so that the outcomes become more interesting..." (P4)

3.4 Personality Creativity

Personality creativity reflects lecturers' openness to criticism, awareness of risks, and willingness to respond to challenges encountered in creative teaching practices. The findings indicate that lecturers in creative fields often face various challenges and risks in their efforts to achieve successful creative outcomes. In the process of producing creative designs, lecturers are required to demonstrate perseverance, even when the creative process is complex and time-consuming.

A positive attitude enables lecturers to become more resilient and competitive in managing creative challenges. Through accumulated experience and creative practice, lecturers are also able to gain a sense of self-achievement from successful design outcomes. The findings further suggest that lecturers actively seek examples, references, and professional opinions from subject-matter experts to address challenges and risks associated with creativity teaching practices in Fashion and Apparel programmes at Community Colleges.

The following excerpts illustrate participants' perspectives on personality creativity:

"...there are moments when I struggle, especially when the students' final output does not function properly, so we need to redo the fitting and solve the problem..." (P1)

"...our work is often commented on by other lecturers; we take it positively, improve our skills, seek more references, and ask for their opinions..." (P2)

"...there are definitely challenges and risks in producing creativity, especially when the ideas we guide students with need further refinement..." (P4)

"...when our designs succeed, they can become the best examples for students..." (P5)

"...we need examples, references, and expert opinions to face creative challenges and risks in design..." (P10)

"...lecturers must not give up even though the creative process is difficult and lengthy..." (P12)

"...a positive attitude makes us stronger and more competitive in producing creative designs..." (P15)

3.5 Motivational Creativity

Motivational creativity refers to both internal and external drivers that encourage individuals to exert greater effort when facing difficulties or changes in creative practices. The findings suggest that both intrinsic and extrinsic motivation are closely associated with creative success. Achievements attained through creative outcomes serve as extrinsic motivators that positively influence individuals' creative engagement.

The results indicate that the positive relationship between experience and creativity becomes stronger when individuals possess higher levels of extrinsic motivation. Conversely, attributes such as openness and humility were found to influence lecturers' creativity when extrinsic motivation levels were relatively lower, suggesting that personal attitudes play a compensatory role in sustaining creative engagement.

The following excerpts illustrate participants' perspectives on motivational creativity:

"...I usually discuss with colleagues teaching the same subject to explore how we can refine ideas so that the outcomes become more interesting..." (P3)

"...we apply approaches that provide purpose and motivation, helping students to produce quality creative work..." (P4)

"...the use of creativity theories and models can enhance teaching experience..." (P5)

"...when a design is successfully produced, it creates new experiences; creativity becomes stronger and extrinsic motivation increases..." (P6)

“...accepting criticism from others helps to improve our creative design...” (P7)

3.6 Environmental Creativity

The findings indicate that a well-designed and stimulating classroom environment can effectively influence creativity teaching practices in Fashion and Apparel education. A structured, conducive, and engaging classroom setting was found to enhance lecturers' creativity by encouraging the generation of design ideas. Such environments support active engagement and facilitate the effective implementation of creativity-oriented teaching practices.

In addition to the classroom context, lecturers highlighted that creative environmental influences also stem from family, peers, parents, and living environments. A culture that encourages creative thinking within one's environment, self, and family was found to contribute positively to lecturers' creativity teaching performance. Lecturers with positive personal backgrounds and supportive, creativity-oriented family environments were more likely to demonstrate enhanced creative thinking in their teaching practices.

Furthermore, many lecturers attributed their professional achievements to guidance and support received from family members, workplace environments, peers, and the surrounding community. These environmental influences collectively shaped lecturers' creative perspectives and strengthened their ability to implement effective creativity teaching practices in Fashion and Apparel programmes.

The following excerpts illustrate participants' perspectives on environmental creativity:

“...a well-planned, conducive, and attractive classroom environment makes us more creative and allows many ideas to be generated...” (P1)

“...creative environmental effects exist through influences from family, peers, parents, and living environments...” (P2)

“...many of the latest design trends are related to sustainability; I try to link teaching and learning with environmental influences...” (P6)

“...creativity can emerge through repetition of familiar elements that draw from various surrounding sources, but applied using different methods and techniques...” (P8)

“...I often relate teaching and learning activities to what happens around us to enhance creativity in producing designs...” (P10)

“...a positive background and a creatively supportive family environment help shape creative thinking...” (P11)

“...good design ideas can also be influenced by family, workplace, peers, and the surrounding community...” (P12)

3.7 Creativity Instruments and Criteria

A detailed analysis was conducted on three different instruments used to evaluate creativity approaches in this study. As presented in Table 2, positive changes were observed in lecturers' teaching practices based on the reflection summaries for each phase of the study. These reflections indicate progressive improvements in teaching implementation across the series of instructional activities.

In addition, six creativity themes were employed as evaluation criteria to assess creativity, as shown in Table 2. The table illustrates the mapping of changes in instructional content and teaching techniques for each phase of the study. Based on classroom observations conducted throughout the teaching process, several modifications and enhancements were identified in the module content, teaching techniques, and planned instructional outcomes implemented by the lecturers.

Furthermore, Figure 2 presents the findings from document analysis of students' learning artefacts for the Fashion Design subject (FFA 4123). The results demonstrate improvements in lecturers' teaching practices after adapting the six creativity themes derived from Sternberg's Theory of Creativity through the implementation of creativity teaching practices in Fashion and Apparel programmes.

Table 2 Summary of reflection across each study phase

No.	Aspect	Phase 1	Phase 2	Phase 3
1	Content	Psychomotor-based introductory learning with general content exposure	Enhanced skill development through problem-solving approaches and more structured content	Advanced creativity-oriented learning with deeper content exploration and greater learning impact
2	Teaching Introduction	Introduction to fundamental Fashion Design knowledge	More precise and structured instructional delivery	Extended learning through deeper idea exploration and creative application

No.	Aspect	Phase 1	Phase 2	Phase 3
3	Improvement of Teaching Practices	Collaborative learning between lecturers and students	Creativity-based, problem-based, and active learning approaches	Creativity-based, problem-based, and self-directed learning approaches
4	Intellectual & Knowledge Creativity	Introduction to selected themes and subject matter with guided examples	Demonstration of references and idea arrangement through mood boards	Advanced idea development and refined interpretation of themes and subject matter
5	Thinking Style Creativity	Group-based idea generation and translation into mood boards	Structured explanation and detailed development of design ideas	Integration of inspiration, colour schemes, fashion styles, accessories, and fabrics into design development
6	Motivation, Personality & Environmental Creativity	Sketching guidance, problem-solving support, and creative task execution	Idea refinement through collaboration, perseverance, and continuous improvement	Final design enhancement through professional discipline, teamwork, and creative independence
7	Mood Board Presentation	Completion of initial design sketches	Evaluation through oral and visual presentation	Refinement and enhancement of final design outcomes based on feedback

Figure 2 presents students' design artefacts produced across the three study phases. Overall, the lecturers successfully integrated the six creativity themes into the detailed design process by aligning themes, subject matter, inspiration, and colour schemes in the mood boards developed by students.

In Phase 1, creativity teaching practices in Fashion and Apparel design involved dividing students into several groups. Lecturers guided students to generate ideas, examples, and categories related to the selected themes and subject matter, which were then translated into mood boards.

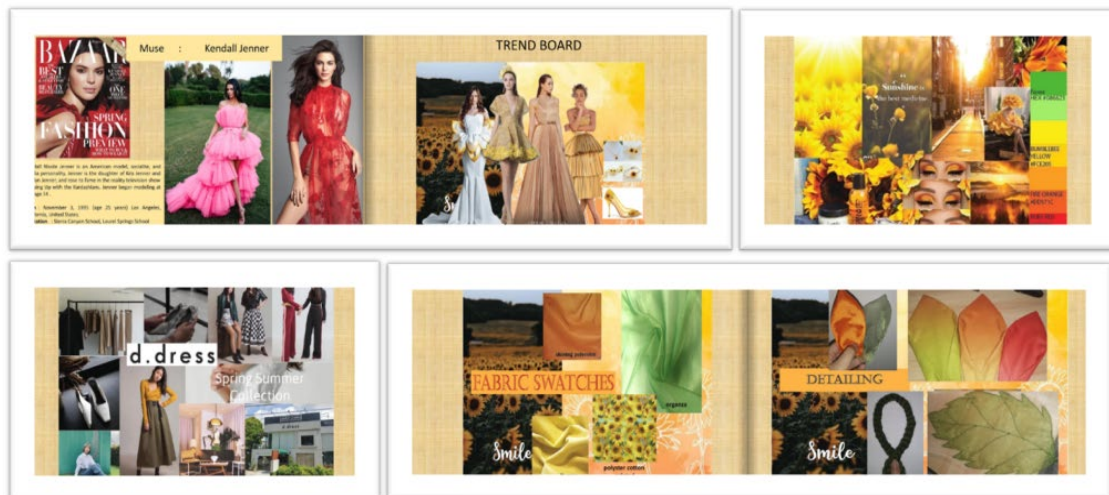
In Phase 2, lecturers provided further explanations and clarified the techniques and methods applied, followed by more detailed idea development. In Phase 3, lecturers introduced additional ideas by integrating inspiration and colour schemes adapted from the selected themes and subject matter. Furthermore, detailed idea development was enhanced by incorporating current fashion styles, accessories, and selected fabrics into the design process.



Phase 1: Ideas derived from theme and subject matter



Phase 2: *Explanation and idea development based on theme and subject matter*



Phase 3: *Diversity of ideas from inspiration and colour schemes based on theme and subject matter*

Fig. 2 Document analysis of students' learning artefacts

3.8 Effects of Creativity Approaches Across Educational Levels

In this context, creativity teaching practices in Fashion and Apparel programmes at Community Colleges can be understood as being influenced by individuals' cognitive processes and creative capabilities in producing design outcomes. Therefore, in evaluating the effects of creativity teaching approaches, the six creativity domains and related cognitive processes were applied to support the production of Fashion and Apparel designs.

The findings suggest that creativity teaching practices in Fashion and Apparel programmes support the development of students' creative thinking through cognitive, motivational, and environmental dimensions. In addition to the six creativity domains identified in Sternberg's Theory of Creativity, elements of innovation and entrepreneurial creativity were also found to influence the diversity and effectiveness of creative learning outcomes across educational contexts.

4. Discussion and Conclusion

Overall, the findings of this study indicate a positive improvement in creativity teaching practices within Fashion and Apparel programmes at Community Colleges. The findings were categorized into six themes based on Sternberg's Theory of Creativity, which were actively practiced by the study participants.

The first theme, intellectual creativity, reflects cognitive capacity that supports higher levels of intellectual functioning. Lecturers with strong intellectual capabilities were able to generate design innovations and

implement effective approaches to enhance creativity in teaching and learning. These lecturers demonstrated structured and systematic lesson planning, guiding the creative process towards the production of new design outcomes through original idea generation and proactive instructional strategies. Lecturers who consistently practiced creativity teaching strategies themselves were more likely to internalize and normalize creativity as part of their pedagogical culture. This cultivation of creativity teaching practices encouraged students to become more focused and to think more creatively and critically. At this level, lecturers played an important role in contributing ideas and perspectives that foster uniqueness, originality, and competitiveness in producing high-quality designs. Adequate access to resources, tools, and materials further supported lecturers in delivering creativity teaching practices in Fashion and Apparel education effectively.

Knowledge creativity enabled lecturers to implement well-structured teaching and learning strategies. Lecturers with extensive knowledge served as role models and references for students in developing and refining creative design ideas. As a result, improvements in students' design outputs could be addressed more efficiently and effectively. Knowledgeable lecturers were also more productive, as they were able to anticipate students' learning needs and stimulate curiosity towards deeper exploration of subject content. The outcomes produced reflected three core elements: originality, effectiveness, and ethics. Original design outcomes enhanced the quality and value of creative work, ensured functional effectiveness, and preserved intellectual property while minimizing issues related to plagiarism.

Thinking style creativity refers to lecturers' ability to utilize their individual strengths in creative problem-solving. A clear relationship was identified between thinking styles and individual creativity factors. Effective thinking style creativity supported practical and flexible problem-solving approaches. Through the exchange of ideas and perspectives among lecturers and colleagues, design outcomes became more innovative and varied. However, newly generated ideas that remained unclear or underdeveloped required continuous evaluation and refinement to ensure effective implementation in teaching and learning practices.

Personality creativity influenced lecturers' attitudes in implementing creativity teaching practices in Fashion and Apparel education. This theme reflected openness to criticism, awareness of risks, and willingness to respond to creative challenges. Lecturers with positive attitudes and adaptability were more receptive to constructive feedback, which enhanced their confidence and competitiveness. They demonstrated persistence, continuously seeking improvement, professional references, and expert opinions to strengthen creativity teaching practices. Such attributes contributed to lecturers' resilience in addressing creative challenges and risks throughout the design process.

Motivational creativity involved both intrinsic and extrinsic drivers that encouraged lecturers to exert greater effort, embrace challenges, and pursue improvement. Motivation enabled lecturers to reduce stress and workload pressures through collaboration with colleagues. The integration of creativity teaching approaches, theories, and models served as valuable references and normalized creativity practices among lecturers at Community Colleges. Enhanced teaching effectiveness positively influenced lecturers' expertise, creative thinking skills, and motivational levels, highlighting individual differences in creative capability and professional growth.

Environmental creativity contributed to the creation of positive internal and external conditions that supported lecturers in performing their roles effectively. Various environmental factors, including classroom settings, institutional support, family background, peer influence, and community context, were found to shape lecturers' creative thinking and teaching practices. A well-supported and conducive environment enabled lecturers to carry out teaching and learning activities willingly, without reliance solely on external rewards. Such voluntary engagement removed limitations in producing high-quality and impactful design outcomes.

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Conflict of Interest

The Authors declare that there is no conflict of interests regarding the publication of this paper.

Author Contribution

*The authors confirm contribution to the paper as follows: **study conception and design:** Noorhana Mohammad, Zanariah Ahmad; **data collection:** Noorhana Mohammad; **analysis and interpretation of results:** Noorhana Mohammad, Zanariah Ahmad; **draft manuscript preparation:** Noorhana Mohammad. All authors reviewed the results and approved the final version of the manuscript.*

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