Integrating AI-Based Moodboard in Fashion TVET Curriculum: A Pilot Study in Digital Ideation Skills

Azlia Binti Mohd Nazli[1], Mohd Imran Bin Ahmad Kamal[1,*], Mohamad Nizam Bin Saad[1]

[1]Fashion and Clothing Programme, Arau Community College, Perlis, Malaysia
Email: [1]azlia@kkarau.edu.my, [2,*]mohdimran@kkarau.edu.my, [3]nizamsaad@kkarau.edu.my
Corresponding Author Email: mohdimran@kkarau.edu.my

Abstrak-The potential for artificial intelligence (AI) in new learning paradigms has developed exponentially, promising revolutionary opportunities in fashion design education. The paper discusses the application of AI-driven moodboard software in the Malaysian Technical and Vocational Education and Training (TVET) curriculum with special emphasis on the development of fashion design students' digital ideation skills. Based on a comprehensive five-year literature review and framed within an action research paradigm, this research suggests piloting an intervention at Arau Community College, integrating generative AI with semantic image filtering technologies within a fashion ideation module. The article presents a mixed-methods approach involving text-to-image generation, digital curation tools, and semantic labelling systems for enhancing student creativity, enhancing ideation fluency, and fostering digital capabilities. Expected outcomes are increased visual expression, efficiency in design processes, and greater student participation. The research responds to teaching issues like excessive dependence on artificial intelligence, ethical issues, and the requirement for structured incorporation. The results of this initial research are intended to guide large-scale curricula changes that integrate traditional design sensibilities with emerging AI-led solutions, propelling fashion education to meet Industry 4.0 needs.

Keywords: AI-Assisted Design; Moodboard Generation; Digital Ideation Skills; Fashion Education; Technical and Vocational Education (TVET); Generative AI; Curriculum Innovation; Human-AI Co-Creation.

1. INTRODUCTION

The rapid development of artificial intelligence (AI) is revolutionizing creative industries, including fashion, and raising questions about the capacity of educational institutions to keep pace. In fashion design, ideation processes such as the development of mood boards are essential in enabling creativity. A mood board is an assembly of imagery, writings, and materials that is a visualization of a concept's sensory and aesthetic attributes, serving as one of the most vital tools of design communication and inspiration.Typically, the development of a moodboard requires a lot of time, effort, and skill in sourcing and coordinating imagery. Aspiring designers must be adept at collecting visual inspiration and arranging it iteratively to explore themes and concepts. However, newly evolved AI tools including generative models, imagery synthesis methods, and algorithmic filtering now enable novel approaches to the accelerated creation and curation of imagery. This is an opportunity to integrate such innovations in technologies in design education in a bid to strengthen the ideation capabilities of students. Technical and vocational education training (TVET) institutions, in particular, have only just started to embark on researching how AI can be integrated in their curricula. Many schools of fashion still struggle with adopting the latest AI advances in their curricula due to the fact that AI capabilities evolve faster than the curricula development cycles.

In Malaysia, the realignment of TVET programs with digital technologies and AI competencies has been identified as critical to the development of a workforce capable of addressing future challenges. National stakeholders opine that AI-based competencies will upgrade TVET, thus enabling TVET graduates to remain competitive in the context of the Fourth Industrial Revolution. Despite these drivers, a gap exists in practical implementation which is how can fashion design courses effectively embed AI tools in creative workflows without undermining foundational design skills?. Research find that fashion design students in TVET institutions currently have limited exposure to AI-powered tools for creative ideation. Moodboard development, a key skill in fashion concept development, remains rooted in traditional and manual practices. There is a need to explore how AI-based moodboard techniques can be incorporated into the curriculum to improve the efficiency and creativity of students ideation processes. The core problem addressed is determining the educational and technological implications of using AI-generated imagery and intelligent curation within a formal fashion design curriculum, and how this affects students ideation skills. Rationale of integrating an AI-based moodboard approach in a fashion TVET curriculum could enhance students creative ideation competency and better prepare them for an industry increasingly augmented by AI. Recent studies indicate that generative AI can act as a "conceptual mentor," providing rapid visual stimuli and inspiration for artists and designers. By leveraging artificial intelligence tools, students can interact with a broader range of design tools and never-before-seen visuals in a much shorter time, which might trigger the creation of even more innovative ideas. Also, incorporating AI aligns with current industry trends, fashion designers are already using commercially available AI tools such as DALL-E and Midjourney to augment their creative processes.

The integration of such tools in educational programs ensures that graduates are equipped with relevant digital and artificial intelligence skill sets, bridging the gap between traditional curricula and skill sets necessary in today's creative work. Technologically speaking, tools such as Generative Adversarial Networks (GANs) are now capable of producing high-fidelity, design-ready imagery at speeds previously unavailable. AI-powered semantic filtering can potentially aid students in identifying and classifying inspirational images according to content or thematic parameters. The implementation of such competencies in an educational context is capable of not only streamlining the ideation process but also unlocking improved creative thinking in students beyond their current levels.

The objectives of this concept paper are to suggests an initial study in the context of Arau Community College, a Malaysian TVET-oriented institution, with the aim of implementing an artificial intelligence-based moodboard tool into the curriculum in fashion design. In line with this, the proposed goals are: 1) To design and implement a technology based educational strategy of fashion ideation that combines generative artificial intelligence with cutting edge image curation tools in the creation of moodboards. 2) To assess the usability and effectiveness of the AI-augmented moodboard approach in enhancing student's ideation skills. 3) To explore the education consequences of applying artificial intelligence tools in the field of fashion design. 4) To develop insights and recommendations towards further enhancing artificial intelligence infusion in the study of fashion, beyond the limits of this pilot study.

All the objectives hope to contribute to curriculum development at an institutional scale through offering a model that can be adopted and applied in a wider array of fashion courses in TVET colleges. This study seeks to contribute foundational knowledge on merging AI technology with creative pedagogy in fashion design and to foster a future-oriented educational environment through which the students develop improved digital ideation capabilities while retaining the human-centric creativity that is the essence of design education.

The recent five years have seen a rise in academic interest in the role of artificial intelligence in pedagogy in art and design. Generative AI—algorithms that can generate text, images, music, and other types of content independently has emerged as a game-changing tool for enhancing creative education. International educational institutions recognize the potential of artificial intelligence to revolutionize teaching and learning but also highlight the importance of its careful incorporation in a bid to genuinely enhance skill acquisition. Ansone et al. (2025) found that art undergraduate students find generative AI to be a necessary source of ideas and a conceptual exploration tool, even if its outputs are imprecise. Throughout the study, art students using text-to-image generation software, like DALL-E, reported that it improved the creativity of their work through real-time visual feedback and a vast range of ideas to explore. The generative AI worked more as an "inspirational and conceptual mentor" than as a means for flawless execution. It can motivate creative solutions and encourage exploratory practice, but students were dissatisfied with its limitations when dealing with complex and subtle assignments. This discovery highlights a central principle found in the literature: artificial intelligence performs best in educational environments when it is applied to supplement and support instead of substitute human creativity. Interdisciplinary educators stress the need for organized training enabling an integrated development of generative artificial intelligence together with traditional art and design education. Without proper direction, students might use artificial intelligence as a shortcut, yet, with proper scaffolding, AI tools can be used to improve learning outcomes by expanding students' creative exploration and enabling the iterative refinement of their ideas.

The Evolution of Moodboards in Design, moodboards have been a long-standing tool in the world of fashion and in design disciplines in general, aiding the thinking process through visualization. Designers use them to translate abstract ideas into real visuals and to express a "web of seemingly unrelated ideas" that are difficult to put into words. Moodboards are generally brought together in a physical form using magazine cutouts, fabric, and drawings pinned to boards, or through the use of early digital software. It is a methodology distinguished by iterative, sensory-based thinking that allows designers to refine association between visual elements and project future ideas. Current studies focus on the shift from physical to digital moodboards, discussing the resulting consequences for design education. Chipambwa and Chikwanya (2022) explored the attitudes of fashion students toward physical and digital moodboards and found that digital moodboards have some benefits associated with efficiency and ease of sharing. An electronic moodboard allows easy sharing of ideas "in a short time to various designers in different geographies," thus improving the speed of feedback and collaboration compared to a cumbersome, bulky physical board. However, the authors stress that in order to use digital moodboards successfully, students need to have a good command of computer-aided design programs and web-based tools. The creation of an effective digital collage requires expertise in manipulating and rearranging images, a task that some people might find daunting at first. Thus, the development of digital ideation competences here framed as the ability to leverage digital tools for the creation of novel ideas has become an important pedagogical goal in modern fashion programs. Furthermore, the Covid-19 pandemic accelerated the shift towards online teaching modalities, highlighting the need to move different types of activities (example, moodboarding and critical analysis) online. This shift suggests while digital tools might enable improved creativity education in an online environment, educators are still charged with ensuring that students are engaging richly with the creative process, not just the tools themselves, Cassidy (2011).

In essence, current literature suggests that digital moodboards can expand the sphere of inspiration and extend the effectiveness of ideation, but successful implementation relies on a modernized skillset and pedagogical guidance for the student. With AI becoming a part of creative activities, researchers have begun to investigate its particular uses during the ideation phase of the design process. A particular development is the use of generative AI for creating moodboard images. Mikkonen (2023) investigated the potential of a GAN-based tool (Midjourney) to create moodboard images by using text prompts. The study illustrated that machine-created images had superior quality and often were appropriate for use in design applications, providing imagery that designers "would be unable to produce themselves in a reasonable time period". This highlights the ability of artificial intelligence to drastically reduce the barrier of time and skill when creating concept art and reference imagery. A fashion student can in a matter of minutes produce a variety of variant imagery (style, colour schemes, motifs, etc.) using a well-formulated textual prompt a task that would typically require skilled sketch or photo-montage skills. Mikkonen's study also highlights significant ethical concerns, however, most notably surrounding the source of AI training data and the intellectual property consequences of AI-generated imagery. Designers are concerned that AI-created moodboards may use portions of artwork without properly giving credit to their original sources, thereby raising issues regarding the originality and intellectual property of artwork. It is imperative to address

such challenges in applying artificial intelligence in educational environments, specifically by instilling in the learner an understanding of ethical usage. This includes an awareness that AI outputs are based on the works of others and an understanding of why one should avoid using such outputs in final work without necessary modifications or permission.

Another relevant area of inquiry is using AI in semantic categorization and ordering of moodboarding components. Koch et al. (2020) offered Semantic Collage, a novel digital moodboarding tool that automatically identifies semantic tags, or descriptive terms, applied to images through advanced vision recognition software. This tool aims to help designers translate abstract ideas into tangible search terms and to decode their visual stimuli into an understandable format without disrupting the continuity of the creative process. In an experimental study with professional designers, we found that the use of semantics greatly facilitated the process of moodboarding, professional designers could be more effective in searching for images and in expressing abstract ideas with the help of AI-generated keywords. For example, a fashion researcher working on a theme of "futuristic eco-style" might be presented with such descriptors as "biomorphic shapes," "iridescent," and "sustainable materials" linked to AI-curated images, thus evoking new associations and ideas. Importantly, Semantic Collage achieved these benefits while maintaining continuity of creative expression. This means that artificial intelligence served not as a diversion but rather an auxiliary element. This is in keeping with a broader design principle seen in tools intended to encourage creativity, technology should complement the designer's intrinsic ideation process without inhibiting it. The findings of this study confirm that artificial intelligence can greatly facilitate the sensemaking process of ideation, helping the students both in collection of imagery resources and in analysis and articulation of the design story emerging in their moodboards. In the context of fashion design, the use of AI in the industry began with commercial analysis. Nowadays, it is a part of creative studios.

Today, generative AI is applied in various ways, from suggesting new clothing ideas to creating virtual wardrobes. The concept of an 'AI fashion designer' has been empirically tested, as seen in the event called AI Fashion Week, where collections designed by artificial intelligence are showcased. Jin et al. (2024) provides empirical evidence of the impact of artificial intelligence in the early phases of the fashion design process. Their mixed-methods study engaged 19 participants, both professional and student designers, who used Midjourney and DALL-E in the concept ideation and revision phases. The results were astounding, generative AI tools greatly enhanced the first phase of design by providing a varied range of quick visual suggestions, thus encouraging creativity and enabling well-informed decisions. During the investigation, designers reported that artificial intelligence-created imagery allowed a wider range of design options and permitted a swift evolution of their ideas beyond conventional limits. As an example, a participant could generate ten different prints or silhouettes from a single idea, allowing creative avenues that would otherwise go unexplored through constraints in terms of time or talent. Lastly, Jin et al. observed a shift in the collaborative nature of creativity involving AI and designers: users modified AI-created results through manipulating text input, composed AI-produced imagery on top of hand sketches, and had an ongoing conversation with the AI in order to achieve their desired design goals. This means that when proactively deployed, AI can be a cooperative contributor in the ideation process where designers are actively curating and building upon AI contributions rather than simply capitulating to them. Nevertheless, the study also found several challenges that are echoed in current literature. Some of those challenges and concerns are ubiquitous issues of biases in AI output, concerns about intellectual property and uniqueness, and usability frustrations. These AI models can unwittingly reproduce stereotypes or produce results that are too heavily based on the training data. Designers noted a "mismatch between the designers' intentions and the results generated by AI." Artificial intelligence often does not understand the complex aesthetic or functional goals of designers and therefore requires careful screening of its outputs. Jin et al. (2024) and Mikkonen (2023) also point to ethics and legal issues, in particular the need to teach learners how to determine the AI origin of an image and respect the rights of creators. In an educational context, this translates to clear guidelines on using AI content, example like treating AI imagery as inspirational material rather than final design solutions, and discussing plagiarism and copyright in the age of generative content.

The integration of AI into fashion education is still nascent, but there are notable early efforts. In 2020, London College of Fashion launched an experimental 8-week course where fashion students learned to code and use AI for creative design solutions. The syllabus covered programming fundamentals, data gathering, training simple models (including a GAN to generate fashion designs), indicating a forward-looking approach to blending fashion with data science. The computer science educator stressed that skills like programming and artificial intelligence are becoming ever more necessary in enabling designers to drive innovation and facilitate greater efficiency in the entire design-to-retail continuum. This is a reflection of the potential of curricular development to move beyond traditional disciplinary boundaries, preparing graduates to face a technology-driven workforce. Significantly, the advent of progressively available generative AI tools, especially in 2022–2023, has changed the focus of future LCF and other institutions' courses from coding to novel uses of established AI technologies. This marks a shift where tool literacy, such as expert usage of AI tools like Midjourney and Adobe Firefly, and AI results interpretation and ethics-based usage consideration is prioritized in modern curriculum development at the expense of mastering simple algorithms. Yet, according to Feldner-Busztin (2024), most leading fashion schools are hesitant or unclear regarding the incorporation of AI in design curricula, stating that administrators express a degree of uncertainty in the rapidly evolving AI environment. This warning highlights the need for initial investigations and knowledge exchange an aim of this concept paper in an effort to demonstrate effective models of the implementation of artificial intelligence. As part of the Malaysian framework, TVET conversion to include artificial intelligence competencies is seen as an essential priority. Stakeholder representatives in governmental and academic bodies argue that exposure to emerging technologies like artificial intelligence will increase the employability and resilience of TVET students. Prof. Razali Hassan, for example, has advocated for substantial

investments to integrate AI-related skills into TVET programs, emphasizing that this will align graduates' capabilities with future industry demands. The assistance offered by the policy creates a supportive environment in which institutional initiatives can be conducted, best exemplified through the proposed pilot project at Arau Community College.

As a result, this research into AI-created moodboards is placed in the context of a broader effort to advance curricula and ensure that technical vocational education remains relevant in an economy rapidly in the process of digital transformation. In conclusion, recent scholarly literature identifies 4 major themes. There are AI holds the prospect of being a facilitator in design education, thus opening channels of ideation and avenues of learning, moodboard creation, an essential ideation practice in fashion, is evolving through digital and AI enhancements that can enrich the creative process, the implementing AI in the curriculum requires careful design including training students in the tools, addressing ethical issues, and maintaining a balance so that AI augments rather than diminishes human creativity and early experiments and policies indicate readiness to embrace AI in fashion education, but practical models and empirical evidence are needed to guide wider adoption. This concept paper builds on these results by suggesting a particular pilot study regarding the implementation of an AI-based moodboard tool in a TVET module in fashion, for systematically and reflectively investigating its effects.

The advent of artificial intelligence (AI) as a collaborative entity in design disciplines has triggered a profound shift in key processes, such as ideation, concept development, and visual storytelling. More specifically, the generation of moodboards, a central pedagogical practice in instruction in fashion designers is still vastly under-explored when it comes to adopting AI in formalized educational curricula. While remarkable capabilities in producing varied, thematic, and rich imagery reference material with relatively small time and effort investments, Mikkonen, (2023); Jin et al. (2024) are purported by generative AI tools like DALL·E, Midjourney, and Stable Diffusion, their adoption in Technical and Vocational Education and Training (TVET) environments is sparing and typically in an adhoc form, Feldner-Busztin (2024). Fashion education in Malaysian community colleges is based almost exclusively on conventional or semi-digital methods of creating moodboards, thus limiting the development of crucial digital ideation competencies required under the auspices of Industry 4.0, Hassan; Lee (2024). The imbalance in technological advancements and educational pedagogical approaches is a serious concern. Those in the area of the fashion industry are expected to apply AI-augmented processes in their work; however, they are deprived of systematic platforms to explore such technologies in their learning process, Ansone et al. (2025).

Moreover, in the absence of a mapped framework, the incorporation of AI tools in creative educational environments poses some pedagogical concerns, such as the emergence of ethical concerns, issues regarding the validity of the results, and an overreliance on algorithmically arrived results, Rizzi & Bertola (2025); Koch et al. (2020). To date, few empirical investigations of AI-facilitated moodboarding in design education, with a focus on under-resourced Technical and Vocational Education and Training (TVET) environments exist, Chipambwa & Chikwanya (2022). In order to fill this gap, a pilot-based and curricula-integrated approach is necessary that not only integrates AI tools in the ideation phase of design education but also analyzes their impact on student creativity, motivation, and digital literacy. Based on this, this study investigates the feasibility and pedagogical significance of implementing AI-based moodboard technologies in the context of Malaysian TVET in the field of fashion, with a goal towards informing scalable and ethics-aware curricula innovation.

2. METHODOLOGY

2.1 Research Design

Supported by a mixed-methods data collecting approach, this study uses an action research design. Because of its cyclical planning, implementation, observation, and reflection characterizing action research, it is quite suited for educational interventions. This enables constant improvement of pedagogical innovations grounded on actual classroom experience. Targeting a project component whereby students usually create moodboards as part of their concept development process, the pilot study will be housed in a fashion design module at Arau Community College.

2.2 Participants

Fifteen (15) to twenty (20) second year students of the Certificate in Fashion and Clothing Program will participate in the study. These 18 to 19 year old have past experience with fundamental design concepts and have finished moodboard projects using either manual or simple digital tools. Their degrees of familiarity with sophisticated programs like Pinterest or Adobe Photoshop are expected to differ. Apart from that, the course instructor will be a co-researcher under technical assistant support to enable the use of artificial intelligence tools. Every participant will complete informed permission forms. One ethical consideration is providing a substitute traditional moodboard project for those who choose not to participate.

2.3 AI Instruments and Resources

2.3.1 Synthetic Generation Image

Inspired by descriptive cues (example "vintage botanical clothing mood, sepia tone, elaborate lace details"), themed visual content will be created using tools including DALL·E and Stable Diffusion. These systems let students iteratively improve outputs by means of prompt engineering, which will be taught in a guided workshop.

2.3.2 Image Manipuation Driven by Artificial Intelligence

AI-driven tools including Adobe Firefly for style transfer, texture harmony, and visual blending will be available to students. By combining AI-generated visuals with sketches or sourced images, this allows sophisticated digital collage techniques.

2.3.3 Semantic Image Structuring

Semantic labels example "floral," "metallic sheen", will come from AI-based tools including, if available, image-tagging APIs (Microsoft Azure Cognitive Services) or Semantic Collage. These labels will enable students more quickly arrange, filter, and curate their visual libraries.

2.3.4 Platform for Digital Canvas

Students will finalize moodboard composition using Milanote, Canva, or Miro. Milanote is chosen because of its flexible integration of AI-generated visuals, easy drag-and-drop interface, and support of high-resolution imagery.

2.4 Periods of Implementation

2.4.1 Phase 1: Week 1–2 planning and preparation

First selection and integration of suitable AI tools into the course structure in line with learning objectives will help to guarantee efficient implementation. After that, teachers have to be equipped in using these instruments to enable confident and informed instruction. Pre-study questionnaires should be sent to students to evaluate their baseline digital competencies and impressions of artificial intelligence in creative activities before they start. Furthermore, well defined ethical rules have to be developed to encourage responsible and open application of artificial intelligence all through the educational process.

2.4.2 Phase 2: Week 3 Introduction of AI Moodboards

To help students to grasp efficient visual storytelling and concept development, a focused workshop on moodboard ideas should be planned. Live demonstrations of AI-powered image creation and semantic tagging should be part of this session to show how well prompts might be refined for best outcomes. A Q&A section at the workshop should help to answer questions, clear expectations, and allay any worries about using artificial intelligence tools in the creative process.

2.4.3 Phase 3: Create a moodboard (weeks 3–5)

Based on their suggested design themes, students will create 20–30 artificial intelligence-generated images by experimenting with prompt variations to investigate several visual directions. They will evaluate the collection for gaps such as missing color schemes or motifs using semantic tagging tools, then hone their images. Digital moodboards, augmented with color swatches and textual annotations, will then compile the carefully chosen images into coherent visual narratives. The teacher will watch and record how students use the AI tools over the course, noting behaviors, difficulties, and degrees of creative involvement.

2.4.4 Phase 4: Examining and Reflecting (weeks five and six)

Students will show their finished moodboards to the class, outlining their creative process and the part artificial intelligence tools have in forming their visual ideas. Peer and instructor comments throughout these presentations will center on the originality of the design direction and the clarity of the intended mood. Post-activity surveys will be given to assess students' ethical awareness, tool usability, and confidence in their ideation skills following interactions with AI-assisted design.

2.4.5 Phase 5: Focus Groups and Interviews

Six to eight students' individual interviews or focus group sessions will be scheduled to provide more in-depth understanding of their experiences with AI-integrated moodboard building. Key themes including ethical issues in using AI-generated content, usability problems faced during the process, and the degree to which AI tools improved creative innovation will be discussed.

2.4.6 Phase 6: Reflection on Instructors

Reviewing field notes and assessing whether the planned learning objectives were reached will help the instructor consider the general success of the application. Examining student involvement, innovative results, and project difficulties will be part of this reflecting process. Knowledge acquired will be recorded to guide possible changes to the curriculum for next cycles of the AI-integrated moodboard module.

2.5 Data Gathering and Examination

2.5.1 Quantitative Information

Descriptive statistics and paired t-tests will be used to examine pre- and post-survey data in order to find any notable changes in students' digital ideation skills and opinions of artificial intelligence integration. Furthermore, the final moodboards will be evaluated against historical moodboards produced without AI help using a consistent criteria to assess variations in creativity, coherence, and thematic depth.

2.5.2 Qualitative Research Data

Data from interviews, focus groups, open-ended surveys, and observational notes will be subjected to a thematic analysis to spot trends and insights. Key themes expected to surface are "creative confidence," reflecting students' perceived development in idea development; "AI tool usability," stressing ease or difficulty in interacting with the technology; "ethical quandaries," exploring concerns around authorship and originality; and "visual diversity," evaluating the range and uniqueness of imagery created with AI help.

2.6 Ethics and Validity Considerations

Triangulation analysis of several data sources including surveys, interviews, and student-generated work will help to guarantee research validity. Participants will be member checked to verify the validity of qualitative themes; peer debriefing with non-participating teachers will assist to guarantee objective interpretation of results. Before the study, ethical clearance will be obtained; all participants will need informed consent. Students with less digital literacy will get extra help to guarantee fair involvement. Academic integrity will also be stressed, which means students will have to specifically reveal how they used AI tools all through the creative process.

This approach guarantees methodical application and assessment of a moodboard module based on artificial intelligence in fashion education. It offers not only a structure for evaluating how generative artificial intelligence might be used in creative projects but also practical advice for improving curriculum. Reflective teaching approaches are reinforced by the action research model, which also supports scalable adoption in TVET settings.

3. RESULT AND DISCUSSION

In line with the goals of the objective stated in 1.1, the inclusion of AI-powered moodboards into the fashion education is expected to generate a range of pedagogical, cognitive, and practical advantages directly addressing each research goal.

3.1 Improving Ideation Fluency and Creativity

By producing a greater spectrum of unique, original ideas using generative artificial intelligence tools, students are expected to show improved ideation fluency and creativity. The ability of the artificial intelligence to offer varied visual stimuli encourages more general conceptual inquiry and challenges students outside conventional limits. Designers working with artificial intelligence generated more diverse starting ideas, according to Jin et al. (2024), a trend this study also anticipates to be reflected in As students are urged to include non-traditional visual references inspired by artificial intelligence, moodboards created in this pilot are expected to feature richer themes, creative diversity, and stylistic variation. Measuring the volume and variety of ideas will involve qualitative assessments of creative originality and counting of different themes investigated.

3.2 Increasing Workflow Effectiveness

Generative artificial intelligence greatly simplifies tasks typically seen as time-consuming, including sourcing images and sketching references. Prompt-based image generation lets students create custom visuals in minutes instead of painstaking searches or hand editing, Mikkonen (2023). This effectiveness helps students to concentrate on higher-order activities including image curating, narrative reflection, and multiple mood board iterations. As such, we anticipate a clear decrease in task completion time and more chances for iteratively improving designs. These time savings might also inspire students to participate more deeply in the creative process and surpass minimum criteria.

3.3 Engagement and Motivation

Including artificial intelligence tools into architectural projects is probably going to increase student involvement. Greater excitement when technology from popular media and industry is included into academic projects usually comes from familiarity with it. Using AI tools like DALL-E brings novelty and interactivity that can turn homework into exploratory learning opportunities. Generative artificial intelligence found by Ansone et al. (2025) to be both a confidence booster and creative inspiration for students. Likewise, we anticipate higher motivation, which shows up in students' readiness to experiment, iterate, and self-direct their learning. Interviews and post-activity questionnaires will track variations in creative self-efficacy, involvement, and task ownership.

3.4 Creating Digital Competencies

Particularly in prompt engineering, visual judgment, and semantic labeling, students will acquire important digital design skills over the project. These skills help students be long-term employable and are more and more important in job roles

in businesses. Using AI tools hands-on will help students be more ready for creative jobs including newly developed technologies. Their ability to explain their design process using words like "prompt optimization" and "semantic visual narrative" prepares them with both hard and soft skills useful in job interviews and portfolio development.

3.5 Encouragement of Deliberate Concept Development

AI tools will force students to choose deliberately what images to feature on their final moodboards. This active decision-making process promotes critical thinking and introspection on the goal, cohesiveness, and message of the moodboard. Curating from a large spectrum of AI-generated outputs forces students to clarify their design goals, so strengthening, more coherent narratives. Students will be expected to clearly and precisely express their design decisions during presentations, so proving a greater awareness of their thematic orientation.

3.6 Anticipated Challenges and Mitigating Strategies

Though the study notes possible difficulties even with the expected advantages. Students who start depending too much on AI outputs could find their designs homogeneous or their personal input reduced. Peer reviews and guided reflection sessions will thus stress human originality and creativity in order to counteract this. Furthermore, some students could find AI tools challenging technically or conceptually. These will be covered using scaffolding, quick templates, and optional one-on-one assistance. Instructional materials will be changed in next versions where tools like semantic labeling prove perplexing.

3.7 More General Impact and Scalability

Beyond personal learning opportunities, this pilot project affects curriculum design all around the university. Effective application could inspire the integration of artificial intelligence into other departments including fashion marketing or textile design. Moodboard samples, lesson plans, and feedback documentation among other outcomes of this pilot will help to support more general adoption and might guide national TVET modernization policies. Arau Community College's leadership in this area could be a model as Malaysia works to match its TVET industry with digital innovation. By stressing both advantages and drawbacks of artificial intelligence in creative education and providing a basis for building scalable, ethical frameworks for human-AI co-creation in the design classroom, the study also adds to academic debate.

Combining AI-powered moodboard tools into the TVET style of instruction is expected to improve students' ideation capacity, speed their creative processes, develop future-ready digital skills, and encourage reflective design thinking overall. Should it prove successful, the method has the power to transform fashion education by arming students to become confident, flexible, creative designers ready for the changing needs of the fashion business.

4. CONCLUSION

This concept paper has been used to investigate the design, purpose, and anticipated results of integrating AI-powered moodboard tools into the fashion TVET curriculum at Arau Community College. This study aims to address current deficiencies in pedagogical innovation, creativity, and digital competency. Semantic technologies and generative artificial intelligence will be integrated into the ideation process to achieve this. It is expected that the results will lead to improvements in students' creative fluency, efficiency, and engagement as well as the development of critical digital and ethical literacy. The study's findings suggest that rather than taking the place of human creativity, artificial intelligence should be applied in a way that fosters it. In order to guide the future integration of artificial intelligence into fashion education and to further the conversation on human-AI co-creation in design learning environments, the results of this pilot will be utilized to inform concepts for scalable curricula. The future integration of architecture and design will be guided by these ideas.

REFERENCES

Ansone, A., Zālīte-Supe, Z., & Daniela, L. (2025). Generative artificial intelligence as a catalyst for change in higher education art study programs. Computers, 14(4), 154.

Bonnardel, N., & Zenasni, F. (2010). The impact of technology on creativity in design. Creativity and Innovation Management, 19(2), 180–191.

Cassidy, T. (2011). Mood boards as a design tool: The influence of source imagery on new design. Journal of Fashion Marketing and Management, 15(3), 308–325.

Chipambwa, W., & Chikwanya, E. V. (2022). Design communication: Fashion design students' perspectives on digital vs physical mood boards. GRID International Conference Proceedings.

Cross, N. (2006). Designerly ways of knowing. Springer.

Davis, M. (2021). Teaching digital visual literacy through AI tools. Design Education Review, 14(1), 56–72.

Feldner-Busztin, E. (2024). Is fashion education ready for AI? The Interline.

Hassan, R. (2024, October 13). Align TVET with AI. The Star (Education).

Hodgson, A., & Spours, K. (2018). Vocational education and training for future-ready skills. TVET Journal, 6(1), 10–29.

Jin, Y., Yoon, J., Self, J., & Lee, K. (2024). Understanding fashion designers' behavior using generative AI for early-stage concept ideation and revision. Archives of Design Research, 37(3), 25–45.

Jouffroy, J. (2021). Fashion design in the age of AI. Journal of Creative Technologies, 9(2), 45–61.

Kimbell, L. (2011). Rethinking design thinking: Part I. Design and Culture, 3(3), 285–306.

Koch, J., Taffin, N., Lucero, A., & Mackay, W. E. (2020). SemanticCollage: Enriching digital mood board design with semantic labels. In Proceedings of DIS '20 (pp. 815–828). ACM.

Lee, J. (2024). AI technology integrated education model for empowering fashion design ideation. Sustainability, 16(17), 7262. (Time Mikkonen, J. (2023). Advent of GAN — How does a generative AI create a moodboard? Nordes 2023: Nordic Design Research Conference.

Loveless, A. (2007). Creativity, technology and learning–a review of recent literature. Futurelab Series Report.

McCormack, J., Gifford, T., & Hutchings, P. (2019). Autonomy, Authenticity, Authorship and Intention in Computer Generated Art. In ICCC (pp. 144-151).

Nguyen, T., & Vo, D. (2023). Blended learning and AI for design education. Asian Education Studies, 5(1), 21–34.

Oxman, N. (2016). Age of Entanglement. Journal of Design and Science, 1(1).

Resnick, M., & Rosenbaum, E. (2013). Designing for tinkerability. In Design, make, play (pp. 163-181). Routledge.

Rizzi, G., & Bertola, P. (2025). Exploring the generative AI potential in the fashion design process. European Journal of Cultural Management and Policy, 15, 13875.

Sawhney, N., Balcom, D., & Smith, R. (2009). Authoring personal histories: Exploring the timeline as a framework for meaning making. In CHI (pp. 1–10).

Shneiderman, B. (2020). Human-centered artificial intelligence: Reliable, safe & trustworthy. International Journal of Human–Computer Interaction, 36(6), 495-504.

Trinidad, J. E. (2020). Ethical use of AI in design education. Educational Philosophy and Theory, 52(10), 987–999.

Zhou, J., & Chen, Y. (2022). Prompt engineering for generative AI. AI Education Journal, 3(4), 50–67.