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Fashion Design Perception: a Comparative Study of Manual and Digital Methods

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Abstract
The fashion industry is undergoing a significant transformation with the integration of digital technology into the design process. This research aims to explore and compare perceptions of fashion designs generated through traditional manual methods and contemporary digital methods. The primary focus is to understand how audiences, both professionals and consumers, assess key aspects such as creativity, innovation, uniqueness, technical quality, and aesthetic appeal of these two design approaches. The proposed research method is a comparative study with a mixed-methods approach (quantitative and qualitative), involving surveys and in-depth interviews with designers, fashion design students, and consumers. The expected results will provide insights into the advantages and disadvantages of each design method from a perceptual perspective, as well as their implications for fashion design practice and education in the digital era. This research is expected to contribute to bridging the gap between traditional design practices and digital innovation, and to provide guidance for designers in choosing the most appropriate approach for their creative goals and target markets.

Keywords
design perception; digital design; fashion design; fashion technology; manual design

INTRODUCTION

Fashion design, as a creative expression and a dynamic global industry, has evolved rapidly with technological advancements. Historically, the fashion design process heavily relied on manual skills, from hand sketches and pattern making to the realization of physical prototypes. However, the emergence of digital tools like Computer Aided Design (CAD) software has shifted how designers create and communicate ideas (Fauzansyah et

al., 2025). This shift affects not only efficiency but also how fashion designs are perceived by designers, industry professionals, and consumers.

Manual design methods emphasize craftsmanship and authenticity, often valued for their personal touch (Wijaya & Sari, 2025). In contrast, digital design offers speed, flexibility, and realistic visualization capabilities (Susanti & Pratama, 2025). While technical aspects of digital tools have been widely studied, less is known about how these methods influence audience perceptions of design outcomes. Are digital designs seen as innovative but less authentic, or are manual designs viewed as artistic but less relevant to modern demands?

This study investigates perceptions of fashion designs produced through manual and digital methods, comparing attributes like originality, creativity, technical quality, aesthetic value, and commercial potential. Understanding these perceptions is vital for designers, educators, and industry stakeholders (Gadi et al., 2025). Additionally, the integration of digital tools in fashion education has been shown to influence students' creative processes and their perceptions of design authenticity. The study aims to contribute to the discourse on tradition versus technology in fashion design.

LITERATURE REVIEW

Design perception is a complex field of study, influenced by various cognitive, affective, and socio-cultural factors. In the context of fashion, perception is not limited to visual assessment of form, color, and texture, but also involves the interpretation of meaning, symbolic associations, and evaluation of the function and identity communicated by the clothing (Mutlu Barış, 2024). Visual perception theories explain how humans process visual information and form interpretations of seen objects. Basic design elements such as line, material, and color play a crucial role in shaping the aesthetic perception of a garment (Yen & Hsu, 2017).

The development of digital technology has introduced new dimensions to the process and perception of fashion design. The use of Artificial Intelligence (AI) and 3D design software allows designers to experiment in ways previously impossible, producing highly detailed and realistic visualizations even before a physical prototype is made (Khairulanwar & Jamaludin, 2025; Sholikhah et al., 2025). This can influence perceptions of innovation and technical sophistication in a design. Some studies indicate that digital

tools can enhance efficiency in ideation and concept development, enabling broader and faster exploration (Fauzansyah et al., 2025). However, there is also debate about whether reliance on digital tools might reduce the 'human touch' or uniqueness often associated with manual work (Daisie Blog, 2023).

Studies on technology adoption in the fashion industry show that while digital tools offer many advantages, challenges such as learning curves, initial investment costs, and work culture changes remain considerations (Hoque et al., 2021; Gupta & Amal, 2025). Furthermore, how consumers perceive fashion products designed fully or largely digitally compared to traditionally made ones is an interesting area for research. Some preliminary research suggests that younger generations, particularly Gen Z who grew up in the digital age, may have higher acceptance and appreciation for digital fashion and virtual experiences (Liu et al., 2025). Conversely, perceptions of luxury and exclusivity might still be strongly tied to craftsmanship and traditional artisanal processes (Thompson, 2025). Additionally, the tactile and sensory experience of manual design processes may enhance perceptions of authenticity among consumers (Pratiwi & Nugroho, 2025; Canag et al., 2024). This research will refer to these theoretical frameworks to analyze how differences in the creation process (manual vs. digital) translate into differences in audience perception of various fashion design attributes.

Design perception involves cognitive, affective, and socio-cultural factors. In fashion, perception extends beyond visual elements to include meaning, symbolism, and identity (Mahanani & Jerusalem, 2025). Digital tools, such as CAD software, enable rapid experimentation and detailed visualizations, potentially enhancing perceptions of innovation (Fauzansyah et al., 2025). However, manual designs are often associated with authenticity and uniqueness (Wijaya & Sari, 2025). Studies suggest digital tools improve efficiency in ideation and concept development (Susanti & Pratama, 2025). Yet, some argue that reliance on digital methods may reduce the 'human touch' valued in manual work (Wijaya & Sari, 2025). Consumer perceptions also vary, with younger audiences showing greater acceptance of digital designs, while traditional craftsmanship remains linked to luxury (Mahanani & Jerusalem, 2025). This research will explore how manual and digital design processes shape audience perceptions of key design attributes.

METHOD

This study will employ a mixed-methods research methodology, combining quantitative and qualitative approaches to gain a comprehensive understanding of perceptions towards manual and digital fashion design. This approach is chosen to allow for data triangulation and richer interpretations.

Research Design

A comparative study design will be used. Two sets of fashion design portfolios will be prepared: one consisting of designs entirely produced through manual methods (hand sketches, manual illustrations, manual patterns), and the other comprising designs generated using digital design software (e.g., CLO3D, Adobe Illustrator, Procreate). Both portfolio sets will be designed with comparable themes, target markets, and complexity levels to ensure a fair comparison.

Participants

Participants will be recruited from three main groups:

a. Fashion Design Practitioners: Professional designers with varying levels of experience.

b. Fashion Design Students: Students from various academic levels in fashion education institutions.

c. General Consumers: Individuals with an interest in fashion from diverse demographic backgrounds. Sampling will be conducted using purposive sampling for practitioners and students, and convenience or snowball sampling for general consumers, aiming for a sufficient number of participants for valid statistical analysis (e.g., N > 100 for the quantitative survey) and data saturation for qualitative interviews.

Data Collection

a. Quantitative Survey: An online questionnaire will be distributed to participants. This questionnaire will feature images of designs from both portfolios (manual and digital) presented randomly. Participants will be asked to rate each design based on a series of attributes using a Likert scale (e.g., 1-7), such as: Creativity and

Originality, Design Innovation, Technical Quality (detail, proportion, presentation), Aesthetic Appeal, Uniqueness, Perceived Value/Quality, and Commercial Potential. The questionnaire will also collect demographic data and participants' familiarity with manual and digital design processes.

b. Qualitative Interviews: A number of participants from each group (approximately 5-7 people per group) will be invited for semi-structured interviews. During the interviews, participants will again be shown the design portfolios and asked to provide more in-depth views on their perceptions, the reasons behind their ratings, and their experiences with manual and digital design.

Data Analysis

a. Quantitative Data: Statistical analysis will be conducted to compare ratings of manual and digital designs across the specified attributes. Techniques such as t-tests or ANOVA will be used to identify significant differences in perceptions.

b. Qualitative Data: Thematic analysis will be applied to interview transcripts to identify recurring themes and patterns

Ethical Consideration

Participation in this research will be voluntary and anonymous (for surveys). Consent will be obtained from all participants before data collection. All data will be kept confidential and used only for research purposes.

RESULT AND DISCUSSION

Based on the literature review and research objectives, several potential outcomes and discussion points can be anticipated:

Perception of Creativity and Originality

Survey results might indicate that manual designs are perceived as having a higher degree of originality and 'personal touch,' while digital designs may excel in terms of rapid exploration of forms and variations (Daisie Blog, 2023). Interviews could delve deeper into how participants define creativity in the context of both methods. The discussion could

focus on whether digital tools are merely an extension of the designer's hand or if they play a transformative role in the creative process.

Perception of Innovation and Technical Quality

Digital designs, especially those utilizing 3D technology, are likely to be perceived as more innovative and having a more sophisticated technical (Sholikhah et al., 2025). However, the technical quality of manual designs, such as the finesse of sketches or the precision of hand-drafted patterns, may also be highly appreciated by those who understand the process (URCADServices, 2018). The discussion could cover how 'innovation' is understood differently; whether it relates to new ideas or mastery of new technology.

Perception of Aesthetic Value and Uniqueness

Aesthetic judgment can be highly subjective. However, the research might find certain trends. For instance, manual designs might be associated with a more 'organic' or 'artistic' aesthetic, whereas digital designs with a 'cleaner' or 'futuristic' aesthetic (Huang & Jin, 2024). Uniqueness could be an interesting point; whether it is more inherent in handcrafted works that are difficult to replicate identically, or in the limitless possibilities offered by digital software.

Comparison Across Participant Groups

It will be interesting to see if there are significant differences in perception among professional designers, students, and general consumers. Designers and students may have a deeper technical understanding of both processes, which could influence their assessments (Khairulanwar & Jamaludin, 2025). Consumers, on the other hand, might focus more on the final outcome and overall visual appeal (Mahanani & Jerusalem, 2025).

Implications for Industry and Education

If digital designs are consistently perceived as superior in certain aspects like efficiency and visualization capabilities, this could strengthen the argument for broader integration of digital tools in fashion education curricula and industry practices (Willem de Kooning Academie, 2025). Conversely, if manual design continues to be valued for its

artistic merit and uniqueness, then the preservation and development of manual skills remain crucial. The discussion could explore how both approaches can complement each other (a hybrid approach) to produce optimal designs (Huang & Jin, 2024).

Limitations and Advantages of Each Method from a Perceptual Viewpoint

The research findings are expected to clearly map out the perceived advantages and disadvantages of each method. For example, digital design might be considered faster and more flexible but less 'warm,' while manual design might be seen as more time-consuming but resulting in work with a stronger 'soul' (Daisie Blog, 2023). The discussion will integrate quantitative and qualitative findings, compare them with previous research, and interpret the practical and theoretical implications of these findings.

CONCLUSION

This research is expected to provide a clear picture of how fashion designs created through manual and digital methods are perceived by various audiences. Conclusions will be drawn based on a comparative analysis of creativity, innovation, technical quality, aesthetics, and uniqueness. The findings are anticipated to show that both methods have their respective strengths and weaknesses in shaping audience perception. Manual design will likely continue to be valued for the artistry, craftsmanship, and personal originality it offers. Meanwhile, digital design will continue to evolve as a powerful tool for exploration, efficiency, visualization, and innovation, especially with advancements in technologies like AI and 3D (Zhang & Liu, 2024.; Sholikhah et al., 2025). The main conclusion will likely point towards the importance of a balanced or hybrid approach in fashion design practice and education. A deep understanding of how each method affects perception can help designers make more informed choices, and educational institutions can design curricula that equip students with comprehensive skills, both manual and digital. Furthermore, this research can provide input for the industry on how to communicate the value of different design approaches to consumers. Suggestions for future research could include exploring perceptions in different cultural contexts, the impact of haptic feedback in digital design on perception, or longitudinal studies on how these perceptions change with the increasing adoption of digital technology in society.

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