

DESIGN OF AVANT-GARDE FASHION INSPIRED BY THE KALTA MINOR MINARET USING WEAVING TECHNIQUE

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ABSTRACT

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This study addresses the problem of how cultural architecture can be translated into avant-garde fashion through a textile manipulation method that functions as both structure and ornament. The objectives were to describe the design process of an avant-garde garment inspired by the Kalta Minor Minaret in Khiva, Uzbekistan, and to evaluate the final garment based on expert assessment. The study employed a design-based approach using the Double Diamond model, consisting of Discover, Define, Develop, and Deliver stages. Data were obtained through visual exploration, moodboard development, design alternatives, technical drawings, garment construction, runway presentation, and expert assessment. Three fashion experts were selected purposively based on their competence in fashion design, garment construction, textile manipulation, and runway presentation. The evaluation used an 18-item rubric covering six aspects: avant-garde silhouette, concept suitability, creativity and innovation, weaving technique application, material and technique, and runway visual appearance. Each item was rated on a five-point scale and interpreted using predetermined score intervals. The architectural characteristics of the Kalta Minor Minaret, including its vertical silhouette, geometric ornamentation, turquoise color identity, and monumental rhythm, were translated into woven bodice structures, sleeves constructed with the smocking technique, an asymmetrical skirt, and decorative finishing details. The final garment achieved an overall score of 252 out of 270 and an overall mean of 4.67, categorized as very good. The highest result was obtained for runway visual appearance, while concept suitability and material-technique aspects indicated areas for refinement. The findings show that the weaving technique can function as a structural and conceptual medium for translating cultural architecture into contemporary avant-garde fashion.

Keywords: Avant-garde fashion, weaving technique, Kalta Minor Minaret, textile manipulation, cultural architecture

1. INTRODUCTION

Fashion is not only a clothing need but also a visual communication medium that represents cultural identity, social values, and contemporary aesthetic development. As an evolving cultural

product, fashion communicates personal and collective identity through silhouette, material, surface, and styling decisions. Avant-garde fashion is especially relevant in this context because it challenges conventional clothing forms through experimental silhouette construction, unusual proportions, material exploration, and conceptual visual statements (Adjei-Appoh et al., 2022).

Architectural inspiration has frequently been used in fashion design because architecture offers visible systems of form, rhythm, proportion, ornament, and cultural meaning. The Kalta Minor Minaret, located within the Itchan Kala heritage area in Khiva, Uzbekistan, provides a strong visual source through its monumental cylindrical form, turquoise-glazed surface, geometric ornamentation, and unfinished architectural identity. UNESCO describes Itchan Kala as a coherent and well-preserved example of Muslim architecture in Central Asia, which makes the site relevant as a cultural-architectural reference for design interpretation (UNESCO World Heritage Centre, n.d.). Architectural forms can be translated into fashion through structural aesthetics, motif transformation, and silhouette development (El-Mahdy, 2023; Kumari, 2019).

Previous fashion studies have discussed architectural inspiration, moodboard-based design development, textile manipulation, and weaving or smocking techniques in garment creation (Badriyah & Indarti, 2025; Rahmawati et al., 2025; Wening & Yulistiana, 2025; Zahro et al., 2025). However, the research gap lies in the limited discussion of how a specific Central Asian architectural object, particularly the Kalta Minor Minaret, can be translated into avant-garde fashion by positioning the weaving technique as both a structural and conceptual medium rather than as surface decoration only.

Based on this gap, the research problems are formulated as follows: (1) How can the architectural characteristics of the Kalta Minor Minaret be transformed into an avant-garde fashion design? (2) How can the weaving technique and smocking technique support the translation of architectural rhythm, volume, and ornament into garment structure? (3) How is the quality of the final garment evaluated by fashion experts using explicit assessment criteria?

The objectives of this study are to: (1) describe the design process of avant-garde fashion inspired by the Kalta Minor Minaret using the Double Diamond model; (2) explain the application of the weaving technique and smocking technique in the garment realization process; and (3) analyze the final design outcome based on expert evaluation. The novelty of the study is the integration of Kalta Minor architectural characteristics with weaving-based textile manipulation to produce a contemporary avant-garde garment that carries cultural, structural, and visual meaning.

2. METHOD

This study employed a design-based research approach using the Double Diamond model, which consists of Discover, Define, Develop, and Deliver stages. The model was selected because it allows broad exploration before narrowing the process into a final design solution (Indarti, 2020). In clothing and textile design research, systematic documentation of creative practice is important because it transforms tacit design knowledge into academic

knowledge through artifacts, process records, and reflective evaluation (Bye, 2010). The research object was a single avant-garde garment inspired by the Kalta Minor Minaret and developed through the weaving technique as the main textile manipulation approach, supported by the smocking technique as a complementary volume-forming detail.

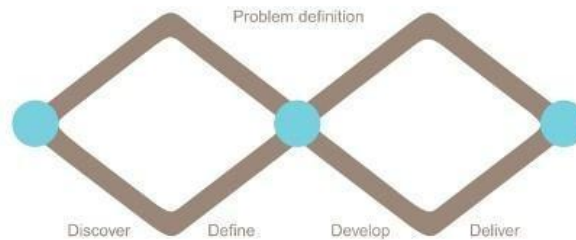


Figure 1. Double Diamond design model

Discover

The Discover stage was conducted by collecting visual references and relevant information related to the Kalta Minor Minaret, avant-garde fashion, weaving technique, smocking technique, and textile manipulation. The visual exploration focused on four main architectural elements: vertical and cylindrical silhouette, turquoise ceramic color, geometric ornamentation, and monumental visual impression. These elements became the conceptual basis for transforming architecture into garment structure.

Define

The Define stage clarified the design focus and formulated the visual concept. The collected references were arranged into a moodboard containing images, colors, textures, silhouettes, and material directions. A moodboard was used as a design-control tool to maintain consistency between inspiration, concept, material exploration, and final visual character (Wening & Yulistiana, 2025).

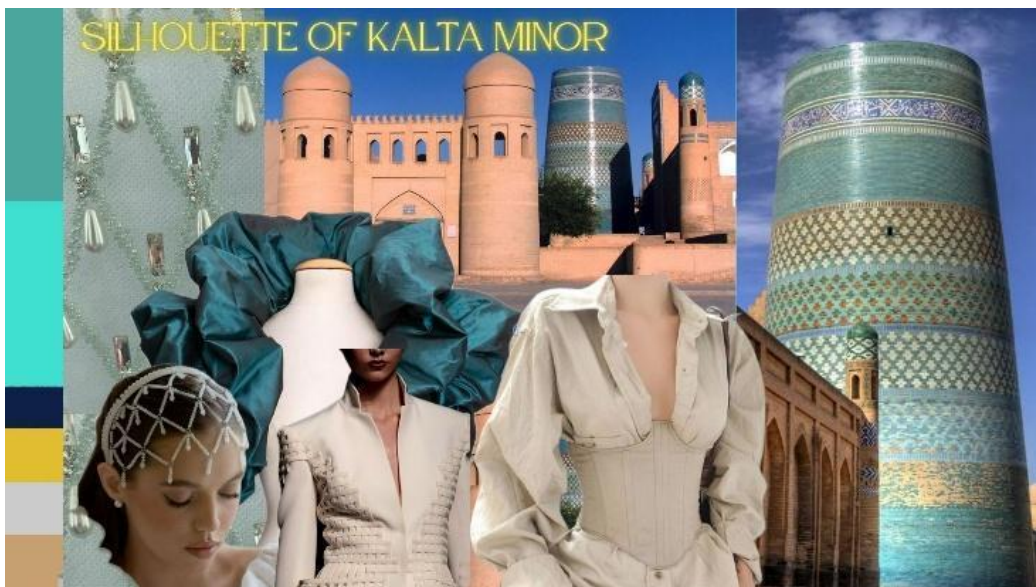


Figure 2. Moodboard inspired by the Kalta Minor Minaret

Develop

The Develop stage included the creation of five design alternatives, silhouette exploration, selected design refinement, technical drawing, and textile manipulation trials. This stage was iterative because fashion design requires repeated movement between visual references, material behavior, technical testing, and design decision making (Jang et al., 2025). The five alternatives interpreted the vertical form, geometric rhythm, and monumental character of the Kalta Minor Minaret through experimental silhouettes, volume, and surface structures.



Figure 3. Five avant-garde design alternatives

The selected design emphasized a woven body structure at the front and back, a collar inspired by the minaret form, large sleeves constructed with the smocking technique, and an asymmetrical skirt. The turquoise and silver palette was selected to refer to the ceramic character of historical architecture in Khiva while also supporting a futuristic avant-garde impression.



Figure 4. Selected design, front and back views

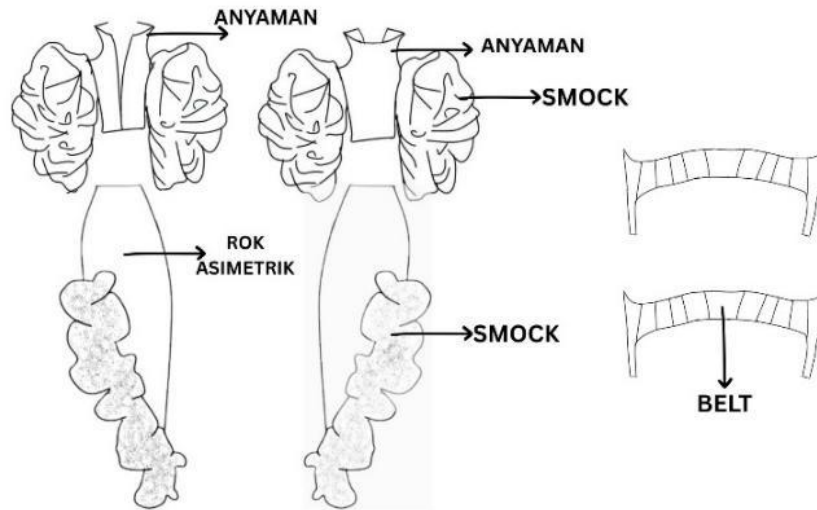


Figure 5. Technical drawing of the final design

Deliver

The Deliver stage was the realization and evaluation of the final design. The process included manual pattern making, cutting, weaving arrangement, sewing, attaching the textile manipulation sections, finishing, and runway presentation. The runway presentation was used to examine how the garment communicated silhouette, proportion, surface rhythm, and movement when worn on the body.

Expert evaluation procedure

Expert evaluation was conducted after the final garment and runway documentation were completed. The evaluators consisted of three fashion experts selected purposively using the following criteria: having an educational or professional background in fashion design, having at least five years of experience in fashion design, garment construction, textile manipulation, fashion education, or runway presentation, and not being directly involved in the production of the garment. Expert 1 was a fashion design lecturer with competence in textile manipulation; Expert 2 was a professional fashion designer with experience in conceptual and presentation garments; and Expert 3 was a fashion educator-practitioner with competence in pattern making, garment construction, and visual presentation.

The assessment instrument was an observation sheet consisting of 18 items distributed across six aspects, with three items for each aspect: (1) avant-garde silhouette, (2) concept suitability, (3) creativity and innovation, (4) weaving technique application, (5) material and technique, and (6) runway visual appearance. Each item was assessed using a five-point Likert-type scale: 1 = very poor, 2 = poor, 3 = fair, 4 = good, and 5 = very good. The category intervals were determined using the formula $(\text{highest score} - \text{lowest score}) / \text{number of categories}$, resulting in an interval width of 0.80. Therefore, the interpretation categories were: 1.00-1.80 = very poor, 1.81-2.60 = poor, 2.61-3.40 = fair, 3.41-4.20 = good, and 4.21-5.00 = very good.

The score for each aspect was calculated by dividing the total score by the number of experts and the number of items in that aspect. Because each aspect consisted of three items assessed by three experts, the maximum score for each aspect was 45. The overall mean was calculated by dividing the total obtained score by the total number of expert-item responses. Content validity was addressed through review of the rubric indicators by fashion design lecturers before the instrument was used. The wording of the indicators was revised to ensure that each item reflected the intended construct. Reliability was controlled procedurally through the use of identical scoring descriptors, independent scoring, and score tabulation checking. Because the study involved only three experts and one prototype, large-scale psychometric reliability testing was not conducted and is acknowledged as a limitation.

3. RESULTS AND DISCUSSION

Design process and garment realization

The design process began with the transformation of the Kalta Minor Minaret into a fashion concept. The minaret was interpreted through four design translation points: vertical structure, geometric repetition, turquoise color identity, and monumental volume. The weaving technique was selected because it could create a structured textile surface that visually resembled repeated architectural rhythm. In this study, weaving functioned not only as decoration but also as a conceptual and structural medium for translating architectural values into garment form.

The weaving process started by preparing 100 fabric strips with a length of 50 cm and a width of 1 cm. The strips consisted of 50 light-green and 50 dark-green pieces. They were arranged using a plain weaving system with consistent intersections of 3 cm. After the weaving panel was completed, it was placed on the bodice pattern and cut according to the designed shape. The garment pattern consisted of front and back bodice parts, balloon sleeves, a belt, and an asymmetrical skirt. The construction process continued with cutting, sewing, attaching the woven sections, adding the smocking technique to build sleeve and skirt volume, and completing the finishing stage.

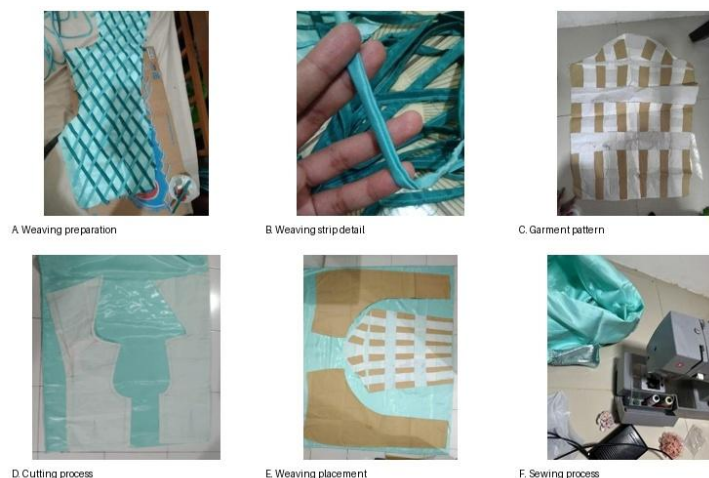


Figure 6. Weaving and garment construction process

The final garment was presented on the runway as the last stage of design communication. The presentation displayed the garment silhouette, woven bodice, smocking technique details, asymmetrical skirt, and turquoise-silver visual identity as a complete avant-garde design outcome.



Figure 7. Runway presentation of the final garment

Expert assessment of the final design

The final garment was assessed by three fashion experts using the 18-item rubric. Table 1 shows that the garment obtained a total score of 252 out of 270 and an overall mean score of 4.67, which falls within the very good category. The highest mean score was obtained for runway visual appearance (5.00), followed by weaving technique application (4.78). Concept suitability and material-technique aspects obtained lower but still very good scores (4.44), indicating that the design concept was successfully communicated while still offering room for refinement in the relationship between inspiration, material choice, and construction stability.

Table 1. Expert assessment scores of the final avant-garde garment

Assessment aspect	No. of items	Obtained score	Maximum score	Mean score	Category
Avant-garde silhouette	3	42	45	4.67	Very good
Concept suitability	3	40	45	4.44	Very good
Creativity and innovation	3	42	45	4.67	Very good
Weaving technique application	3	43	45	4.78	Very good
Material and technique	3	40	45	4.44	Very good
Runway visual appearance	3	45	45	5.00	Very good
Overall	18	252	270	4.67	Very good



Figure 8. Final garment result

Discussion

The findings demonstrate that the Kalta Minor Minaret can be interpreted into avant-garde fashion when architectural elements are not copied literally but translated into garment logic. The vertical and monumental character of the minaret was transformed into proportion and silhouette, while geometric ornamentation was translated through the repeated intersections of the weaving technique. This analytical transformation supports previous studies showing that architectural sources can inform fashion design through silhouette, motif, structure, and spatial rhythm rather than through visual imitation alone (El-Mahdy, 2023; Kumari, 2019).

The high score for weaving technique application indicates that weaving was perceived by the experts as the strongest connection between the architectural inspiration and the garment outcome. This result is significant because it positions the weaving technique as a design strategy with structural, aesthetic, and conceptual functions. The repeated crossing of fabric strips produced a visual rhythm comparable to the tiled geometric rhythm of the Kalta Minor Minaret. This finding extends previous work on manipulating weaving in fashion by showing that woven textile manipulation can be used not only to enrich surface texture but also to construct cultural meaning and architectural references in avant-garde garments (Badriyah & Indarti, 2025; Zahro et al., 2025).

Although concept suitability remained in the very good category, it received a lower score than weaving technique application and runway visual appearance. This difference suggests that the visual strength of the garment was clear, but the conceptual link among the minaret, weaving structure, smocking technique, and material choice could still be strengthened. The score implies that future design development should make the symbolic

relationship between architectural inspiration and each garment component more explicit, for example through more systematic motif mapping, clearer ornament translation, or comparison between several textile manipulation alternatives.

The material and technique aspect also received a lower but still very good score. This result shows that the selected materials supported the desired visual impact, but avant-garde fashion requires a careful balance between dramatic structure, material stability, body movement, and finishing quality. The use of glossy fabrics, woven panels, smocking technique details, and decorative beads created a strong runway effect, yet material stiffness, weight, seam control, and comfort remain important considerations. This interpretation is consistent with design research that emphasizes the need to evaluate fashion artifacts through both creative intention and material-performance considerations (Bye, 2010; Jang et al., 2025).

The highest score for runway visual appearance confirms that the final garment communicated effectively when presented on the body. The runway context allowed the silhouette, surface rhythm, color identity, and garment movement to be perceived as one integrated visual statement. In avant-garde fashion, performative presentation is important because the garment is evaluated not only as a wearable object but also as a visual narrative and artistic statement. This supports the idea that avant-garde fashion encourages radical creativity, experimental materials, and progressive silhouette exploration (Adjei-Appoh et al., 2022).

Overall, the study contributes to fashion design practice by demonstrating a structured pathway for transforming cultural architecture into contemporary fashion through textile manipulation. For creative industries and vocational fashion education, the design process shows how visual research, moodboard development, technical drawings, material trials, garment construction, runway presentation, and expert evaluation can be integrated into one research flow. The strengthened evaluation rubric also provides a clearer academic basis for claiming that the final design is in the very good category, although the interpretation should remain limited to the scope of expert-based prototype assessment.

Limitations

This study has several limitations. First, the research produced and evaluated only one final garment, so the findings cannot be generalized to all avant-garde fashion designs inspired by architecture. Second, the evaluation involved three fashion experts; therefore, the result represents expert judgment rather than broader audience, consumer, or wearer perception. Third, the reliability of the instrument was controlled procedurally, but statistical reliability testing with a larger sample was not conducted. Fourth, the study focused on visual, structural, and presentation quality, while wearer comfort, durability of the woven panel, long-term material behavior, and production efficiency were not tested empirically.

Future studies may expand the design into a full collection, compare different weaving structures, test alternative materials, involve more experts and audience respondents, and conduct wearability or durability tests. Further research may also develop a more

comprehensive rubric with psychometric validation to strengthen the assessment of cultural architecture-inspired fashion products.

4. CONCLUSION

This study concludes that the architecture of the Kalta Minor Minaret can be translated into avant-garde fashion through the weaving technique when architectural characteristics are transformed into garment structure, surface rhythm, color identity, and silhouette. The Double Diamond model supported the design process through visual exploration, concept formulation, design alternatives, technical drawing, textile manipulation trials, garment construction, runway presentation, and expert evaluation. The weaving technique successfully represented geometric rhythm and monumental architectural character, while the smocking technique and decorative details strengthened the garment volume and futuristic visual dimension.

The expert evaluation showed that the final garment achieved a total score of 252 out of 270 and an overall mean score of 4.67, which is categorized as very good. The highest result was obtained for runway visual appearance, followed by weaving technique application, indicating that the garment was visually strong and that the weaving technique effectively supported the architectural concept. Concept suitability and material-technique aspects also reached the very good category but showed areas for refinement. These findings indicate that weaving can function not only as decoration but also as a structural and conceptual medium for transforming cultural architecture into contemporary avant-garde fashion design.

REFERENCES

- Adjei-Appoh, G., Darko-Adjei, N., & Fianu, D. A. G. (2022). The concept of avant-garde as a creative fashion design trajectory in Sekondi-Takoradi, Ghana. *Textile & Leather Review*, 5, 120–131. <https://doi.org/10.31881/TLR.2021.35>
- Badriyah, S., & Indarti, I. (2025). Penerapan manipulating anyaman pada kain Jacquard untuk busana pesta bertema Masquerade. *BAJU: Journal of Fashion and Textile Design Unesa*, 6(1), 63–73. <https://doi.org/10.26740/baju.v6n1.p63-73>
- Bye, E. (2010). A direction for clothing and textile design research. *Clothing and Textiles Research Journal*, 28(3), 205–217. <https://doi.org/10.1177/0887302X10371505>
- Choi, K. H. (2022). 3D dynamic fashion design development using digital technology and its potential in online platforms. *Fashion and Textiles*, 9, Article 9. <https://doi.org/10.1186/s40691-021-00286-1>
- El-Mahdy, D. (2023). Experimental structural model: From manual paper garment to fabrication as an architectural practice-based approach for fashion design education. *Nexus Network Journal*, 25, 1015–1032. <https://doi.org/10.1007/s00004-023-00732-1>
- Indarti, I. (2020). Metode proses desain dalam penciptaan produk fashion dan tekstil. *BAJU: Journal of Fashion and Textile Design Unesa*, 1(2), 128–137. <https://doi.org/10.26740/baju.v1n2.p128-137>

- Jang, S. Y., Chung, C., & Ha, J. (2025). A comparative study on the fashion design process utilizing shape memory textiles and conventional textiles: Implications for the industry and education. *Fashion and Textiles*, 12, Article 12. <https://doi.org/10.1186/s40691-025-00421-2>
- Kumari, A. (2019). Elucidation of relationship between clothing silhouette and motifs with Indian Mughal architecture. *Fashion and Textiles*, 6, Article 17. <https://doi.org/10.1186/s40691-019-0174-4>
- Rahmawati, D. A., Suryawati, S., & Sesnawati, Y. (2025). Penilaian jaket anak dengan hiasan teknik smock menggunakan batik. *BAJU: Journal of Fashion and Textile Design Unesa*, 6(1), 129–135. <https://doi.org/10.26740/baju.v6n1.p129-135>
- UNESCO World Heritage Centre. (n.d.). Itchan Kala. Retrieved June 21, 2026, from <https://whc.unesco.org/en/list/543/>
- Wening, P. S. K., & Yulistiana, Y. (2025). Galerie des Glaces sebagai sumber ide penciptaan busana pesta. *BAJU: Journal of Fashion and Textile Design Unesa*, 6(1), 48–61. <https://doi.org/10.26740/baju.v6n1.p48-61>
- Zahro, S., Towoliu, S. N. F., & Mustikasari, H. (2025). Fabric manipulation terinspirasi film 'Dream' sebagai konsep desain fashion. *BAJU: Journal of Fashion and Textile Design Unesa*, 6(1), 136–147. <https://doi.org/10.26740/baju.v6n1.p136-147>