



## Translating Kalyan Architectural Ornament into Avant-Garde Fashion through Manipulating Fabric Cording

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ARTICLE INFO	ABSTRACT
<p><b>Article history:</b> Received: 7 May 2026 Received in revised form: 28 May 2026 Accepted: 11 June 2026 Available online: 30 June 2026</p> <hr/> <p><b>Keywords:</b> Avant-garde fashion; Kalyan architecture; Architectural ornament; Fabric cording; Double diamond design method</p>	<p>This study investigates how Kalyan architectural ornament can be translated into avant-garde fashion through a structured design process and expert-based evaluation. Kalyan architecture in Bukhara, Uzbekistan, was selected because its dome form, repetitive geometry, ornamental surface, monumental verticality, and turquoise-silver visual identity provide a rich basis for experimental garment construction. The study used design-based research guided by the Double Diamond model, consisting of Discover, Define, Develop, and Deliver stages. Visual analysis of Kalyan architecture was conducted to identify transferable elements, which were synthesized into the design concept 'Eternal Geometry Kalyan.' The concept was developed through a moodboard, five design alternatives, selected design refinement, technical drawings, material exploration, and garment construction using mikado liquid fabric, organza, circular support, flounces, smock, and fabric-cording manipulation. The final product was assessed by three fashion experts using six criteria: avant-garde silhouette, concept suitability, creativity and innovation, symbolic translation, material and technique, and runway visual appearance. Descriptive analysis produced an overall mean score of 3.42 on a five-point scale, placing the garment in the good category. Material and technique achieved the highest score (4.00), while creativity and innovation and symbolic translation each obtained 2.70. The findings demonstrate that architectural ornament can become a generative fashion system when transformed through visual abstraction, material experimentation, structural construction, and reflective evaluation. The study contributes a practical model for architecture-inspired avant-garde fashion design and identifies areas for stronger symbolic communication in future prototypes.</p>

### 1. Introduction

Fashion increasingly operates as a field in which cultural memory, artistic experimentation, bodily expression, and spatial imagination are negotiated. Contemporary garments are not limited to covering the body or following market-oriented trends; they may also become visual statements, moving structures, cultural artifacts, and conceptual objects. This expanded understanding is especially visible in avant-garde fashion, where garments deliberately exceed conventional standards of beauty, comfort, practicality, and silhouette. Avant-garde fashion therefore provides a

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productive arena for examining how architectural references can be transformed into clothing that functions simultaneously as a design object, performance artifact, and research outcome [4], [5].

The present study focuses on an avant-garde garment inspired by Kalyan architectural ornament in Bukhara, Uzbekistan. Kalyan architecture offers a dense visual vocabulary: a monumental dome, repetitive geometric ornament, rhythmic surface divisions, vertical emphasis, and a luminous color atmosphere that can be interpreted through turquoise and silver. In Islamic and Central Asian architectural traditions, geometry and ornament often organize surface, structure, and symbolic order rather than functioning merely as decoration [7]-[9]. Kalyan's architectural identity is therefore valuable for fashion design because it contains elements that can be scaled, abstracted, and re-materialized on the body.

Architecture and fashion both involve structure, surface, proportion, rhythm, and the relationship between body and space. However, the two fields operate at different scales and under different constraints. A building is relatively fixed and load-bearing, while a garment must negotiate movement, gravity, textile behavior, and bodily fit. Architecture-inspired fashion becomes meaningful when the designer translates spatial and ornamental logic into silhouette, surface, pattern, and construction, rather than simply copying architectural imagery [1]-[3]. This distinction is central to this article: the design problem is not how to decorate clothing with Kalyan motifs, but how Kalyan ornament can become a design system that structures the garment.

The research gap addressed in this article is the limited documentation of a complete translation pathway from a specific architectural source into avant-garde fashion. Many fashion design projects use architecture as a theme, yet the process often stops at the level of inspiration and does not fully explain how a visual source is selected, abstracted, transformed, materialized, and evaluated. For a design-based study to contribute to scholarship, the chain connecting the source, design process, prototype, and evaluation must be explicit. This need is especially important in fashion education, where student design projects often produce visually striking garments but are not always framed as research outcomes.

Kalyan architectural ornament is particularly appropriate for this inquiry because it contains strong formal and cultural qualities. The dome suggests volume, protection, and monumentality; geometric ornament suggests rhythm, continuity, and disciplined visual order; vertical structures suggest architectural authority; and the turquoise-silver palette suggests calmness, luminosity, and historical atmosphere. These qualities align with avant-garde fashion, which frequently relies on exaggerated proportion, structural construction, symbolic presence, and spatial expansion around the body [6].

The technical strategy of the project centers on fabric-cording manipulation. Cording converts line into a raised textile surface, allowing architectural ornament to be translated from a two-dimensional reference into tactile relief. Previous studies on cording and fabric manipulation show that surface techniques can generate texture, rhythm, and dimensionality while preserving the conceptual link between the source of inspiration and the garment surface [12]-[14]. In this project, silver cording is not treated as a minor embellishment but as the main technique through which Kalyan's ornamental rhythm is reinterpreted as a three-dimensional textile language.

The study is guided by three research questions. First, how can Kalyan architectural ornament be translated into the concept, silhouette, surface, and structure of avant-garde fashion? Second, how does the Double Diamond method support the transformation of architectural inspiration into a wearable yet experimental garment? Third, how do fashion experts evaluate the final product in terms of silhouette, concept suitability, creativity and innovation, symbolic translation, material and technique, and runway visual appearance? These questions frame the article as design-based research rather than a simple production report.

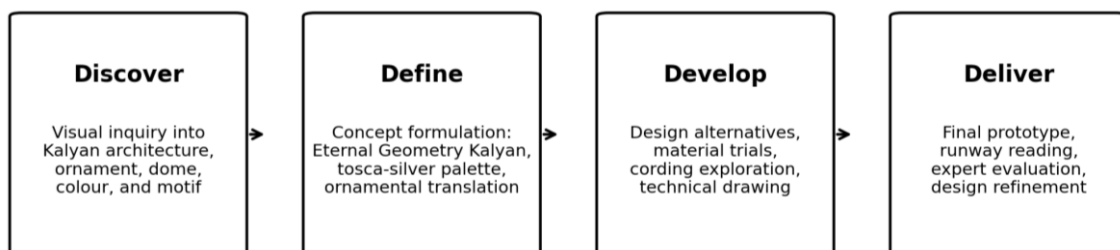
The contribution of this article is threefold. Conceptually, it argues that architectural ornament can operate as a generative framework for avant-garde fashion, not merely as a visual reference. Methodologically, it demonstrates how the Double Diamond model structures the design process from exploration to evaluation [15]. Practically, it shows how fabric-cording manipulation can mediate between architectural ornament and textile surface. Together, these contributions support a more rigorous model for fashion design research, where creative practice is documented, evaluated, and interpreted as scholarly knowledge.

## 2. Method

This study employed design-based research using the Double Diamond model as the main framework for design development. Design-based research was appropriate because the study aimed to produce, document, and evaluate a creative artifact: an avant-garde garment inspired by Kalyan architectural ornament. The study combined qualitative design documentation with descriptive quantitative evaluation. The qualitative component addressed the transformation of visual inspiration into design decisions, while the quantitative component evaluated the final garment through expert judgment.

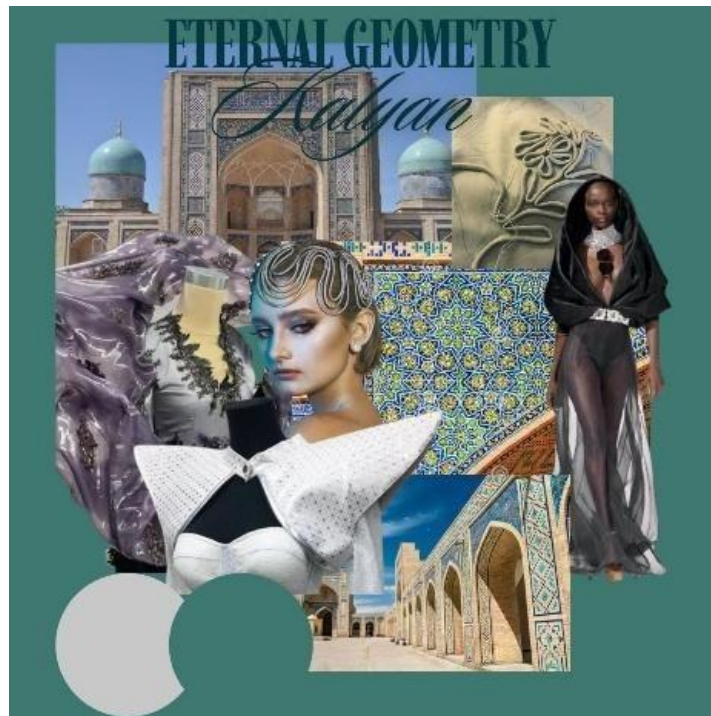
The research object was a single avant-garde garment developed under the concept 'Eternal Geometry Kalyan.' The concept was formulated to capture the relationship between architectural permanence and experimental fashion expression. 'Eternal' refers to the enduring impression of historical architecture, while 'Geometry' refers to the repeated ornamental logic of Kalyan's visual source. The garment used a turquoise-silver color palette, a dome-inspired lower structure, upright upper-body elements, and fabric-cording manipulation as the main surface technique.

The first stage, Discover, involved visual inquiry into Kalyan architecture as the source of inspiration. The main elements identified were dome geometry, repetitive geometric ornament, monumental verticality, surface rhythm, and turquoise-silver chromatic associations. These elements were selected because they offered strong potential for translation into avant-garde fashion. The dome could inform volume, the geometric ornament could inform surface pattern, color could organize identity, and monumental verticality could generate a structured silhouette.



**Fig. 1.** Double Diamond workflow used to translate Kalyan ornament into avant-garde fashion

The second stage, Define, transformed the findings into a focused design concept. A moodboard was created to organize architectural references, color direction, surface texture, material impression, and silhouette intention. The moodboard functioned as the visual anchor of the design process. It clarified the hierarchy of elements: the dome was positioned as the major structural inspiration; geometric ornament became the surface inspiration; turquoise became the dominant color identity; and silver cording became the key ornamental accent.



**Fig. 2.** Moodboard "Eternal Geometry Kalyan" extracted from the source design project

The third stage, Develop, involved the production of five illustrated design alternatives. Each alternative explored different possibilities of silhouette, volume, and ornament placement. The alternatives were compared based on conceptual clarity, avant-garde character, visual strength, construction feasibility, and capacity to display the Kalyan source. One design was selected because it most clearly integrated the dome-inspired form, upright structural details, turquoise-silver palette, and cording ornament.



**Fig. 3.** Five avant-garde design alternatives developed from Kalyan architectural ornament



**Fig. 4.** Selected design showing the dome-inspired lower structure and ornamental surface focus

After the design was selected, technical drawings were prepared to define the front and back views, structural details, pattern components, and construction logic. The technical drawing included a standing neckline, structured sleeves, a body section with cording ornament, a skirt inspired by dome volume, flounces for movement, and a circular support element. This step was essential because it converted abstract visual inspiration into pattern, seam, support, and finishing decisions.

Material selection was a critical methodological decision. Mikado liquid fabric was selected as the main material because it can support structure while providing a refined surface. Organza was used to create lightness and translucency in selected components. Silver cord or diamond-like cording was used to produce raised ornamental lines. Circular support was used to construct the dome-like volume. Flounces added movement, while smock contributed surface manipulation.

The garment construction process included body measurement, digital pattern preparation, fabric cutting, garment assembly, lining application, sleeve construction, neckline construction, cording application, skirt construction, flounce attachment, circular support covering, and final finishing. Fabric cording was applied carefully on planned areas of the garment surface. Its placement was intended to make the ornament visible from a distance and to create a strong focal point on the body section. The technique required control of line direction, stitch stability, material tension, and visual rhythm.

The final stage, Deliver, produced the finished garment and subjected it to expert evaluation. Three fashion experts evaluated the product using an expert judgment instrument. The evaluation measured six dimensions: avant-garde silhouette, concept suitability, creativity and innovation, symbolic translation, material and technique, and runway visual appearance. Each dimension was scored using a five-point Likert scale, where higher values indicated stronger design quality.

The data were analyzed using descriptive statistics. Mean scores were calculated for each assessment dimension and for the overall garment. The performance index was calculated by dividing each mean score by the maximum possible score of five and multiplying it by 100. The gap to the maximum score was calculated to identify the distance between achieved and ideal performance. Because the study involved one prototype and a small expert panel, inferential statistical testing was not appropriate; the quantitative analysis was used as design feedback rather than as population-level generalization.

### 3. Results and Discussion

#### 3.1. Results

The design process produced a coherent transformation from architectural reference to fashion object. The most important result of the Discover and Define stages was the formulation of 'Eternal Geometry Kalyan.' This concept connected the historical monumentality of Kalyan architecture with the experimental language of avant-garde fashion. It also prevented the design from becoming a random collection of decorative motifs by establishing a clear translation path from architecture to garment structure.

The translation operated at three interconnected levels. At the structural level, the dome was translated into volume. Rather than being printed as an image, the dome informed the garment's circular and expanded skirt structure. At the surface level, the geometric ornament was translated into raised relief through fabric-cording manipulation. At the chromatic level, turquoise and silver were translated into the garment's identity. Turquoise established calm architectural depth, while silver created luminous emphasis and modern contrast.

**Table 1.** Translation matrix of Kalyan architectural elements into avant-garde fashion design

Kalyan element	Visual character	Fashion translation	Design output
Dome structure	Circular, protective, monumental, and spatially dominant	Abstraction into rounded volume and expanded lower silhouette	Dome-inspired skirt supported by circular construction
Geometric ornament	Repetitive, symmetrical, rhythmic, and visually layered	Conversion into raised surface line and relief	Fabric cording on garment surface
Turquoise architectural color	Cool, calm, spiritual, and tile-like	Dominant chromatic identity	Turquoise main garment surface
Silver ornamental accent	Reflective, luminous, and visually prominent	Material contrast and highlight	Silver cording and ornamental emphasis
Monumental verticality	Upright, stable, and authoritative	Structured body extension	Standing collar, structured sleeve, and vertical orientation

The selected design unified the architectural source with the avant-garde objective. A standing neckline and structured sleeve suggested verticality and monumentality. The body section became the primary location for silver cording, allowing the ornamental reference to become a visual focus. The lower section adopted a dome-like circular structure, supported by a frame and softened through fabric treatment. The final silhouette did not imitate Kalyan literally; instead, it abstracted key spatial and ornamental features into a garment form.

Material and construction results indicated that the design required a balance between stability and visual refinement. Mikado liquid fabric supported the structured quality of the garment, while organza contributed visual lightness. The circular support element created the physical basis for the dome-inspired form. Flounces introduced movement at the lower part of the garment and prevented the structure from appearing static. Fabric cording added a raised ornamental surface that strengthened the relationship between garment and architectural inspiration.

The final garment embodied Kalyan inspiration through multiple decisions rather than through one isolated decorative element. Its turquoise base, silver cording, dome-derived structure, and standing details produced a visual identity that could be read from both close and distant viewpoints. From a runway perspective, the silhouette offered a strong outline, while the reflective cording provided surface interest. This supports the argument that architectural ornament can

function simultaneously as visual motif, structural reference, and symbolic carrier in avant-garde fashion.

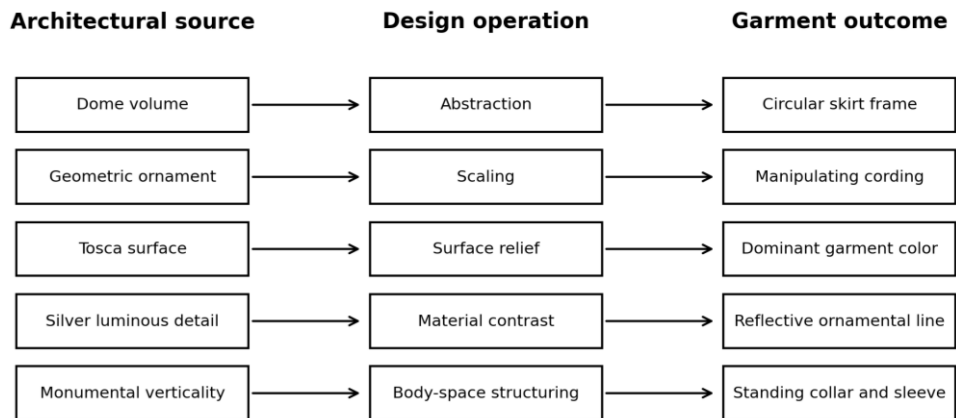


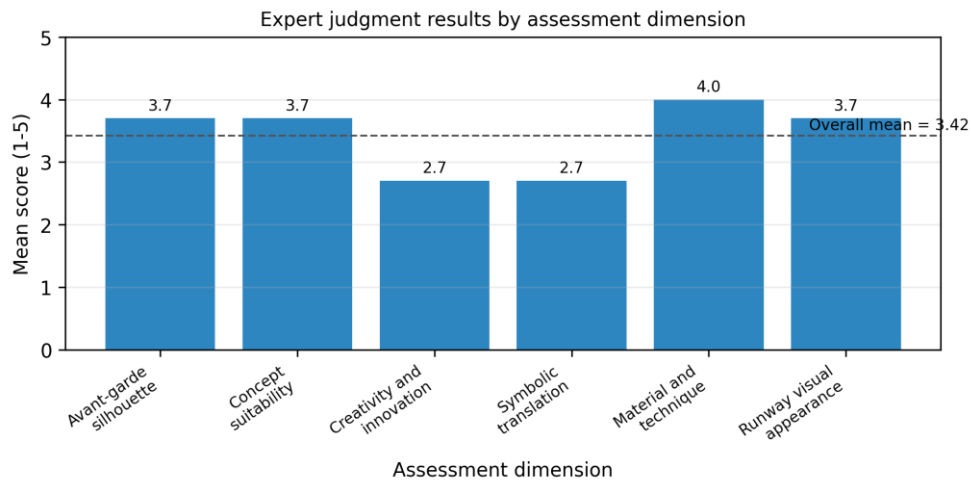
Fig. 5. Visual translation model connecting Kalyan architectural features, design operations, and garment outcomes



Fig. 6. Final avant-garde garment outcome shown on the runway from multiple viewpoints

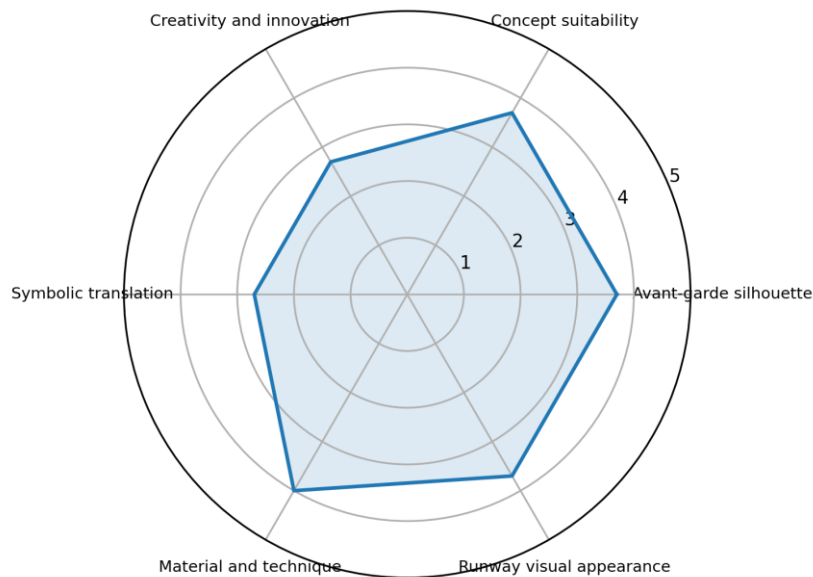
Table 2. Descriptive statistical analysis of expert judgment results

Assessment dimension	Mean	Category	Performance index	Gap to maximum	Design interpretation
Avant-garde silhouette	3.70	Good	74.00%	1.30	Strong non-conventional silhouette with architectural volume
Concept suitability	3.70	Good	74.00%	1.30	Concept is visible and coherent with the Kalyan source
Creativity and innovation	2.70	Fair	54.00%	2.30	Further radicalization of form and technique is required
Symbolic translation	2.70	Fair	54.00%	2.30	Cultural and symbolic meaning needs clearer articulation
Material and technique	4.00	Good	80.00%	1.00	Strongest dimension; material and cording support the concept
Runway visual appearance	3.70	Good	74.00%	1.30	Effective visual impact for runway presentation
Overall	3.42	Good	68.33%	1.58	SD across dimensions = 0.57; CV = 16.60%



**Fig. 7.** Expert judgment results by assessment dimension

Expert judgment profile of the final avant-garde garment



**Fig. 8.** Radar profile of the final avant-garde garment based on expert judgment

### 3.2. Discussion

The expert judgment results provided quantitative feedback on the design quality of the final garment. The overall mean score was 3.42, which falls within the good category. This indicates that the final garment was considered successful as an avant-garde design outcome based on the expert evaluation framework. However, the scores reveal a differentiated profile across dimensions. Material and technique achieved the highest mean score of 4.00, while creativity and innovation and symbolic translation received the lowest scores of 2.70 each. This pattern suggests that technical realization was stronger than symbolic articulation and innovation.

The first evaluated dimension was avant-garde silhouette. The mean score of 3.70 indicates that the garment was perceived as good in terms of non-conventional form, dramatic structure, and experimental bodily outline. This result is important because silhouette is one of the most immediate indicators of avant-garde fashion. The dome-derived lower volume, structured neckline, and upright sleeve contributed to a visual profile that moved beyond ordinary garment proportions. Future iterations could push the form toward greater asymmetry or modular complexity.

Concept suitability also received a mean score of 3.70. This score shows that the experts generally recognized the relationship between the final garment and the Eternal Geometry Kalyan concept. The use of turquoise as the dominant color, silver cording as ornamental relief, and a dome-inspired structure helped maintain coherence between the source and the outcome. Concept suitability is especially important in design research because it confirms that the final product did not drift away from the initial research problem.

Creativity and innovation obtained a mean score of 2.70. This score indicates that the design was adequate but not yet highly innovative. The result suggests that the garment successfully transformed the source but may not have pushed the avant-garde principle far enough. The form, material, and surface technique were conceptually relevant, but the experts may have expected more unexpected construction, more complex material manipulation, or a stronger departure from familiar garment logic.

Symbolic translation also received a mean score of 2.70. This result shows that the visual source was present, but the deeper cultural or symbolic meaning of Kalyan architecture was not yet communicated with maximum clarity. The design conveyed dome, geometry, and ornament, but the garment may not have fully explained what these elements signify in relation to spirituality, history, permanence, or architectural memory. This indicates a distinction between visual translation and symbolic translation.

Material and technique received the highest mean score of 4.00. This indicates that the experts considered the material selection and technical realization strong. The structured fabric supported the avant-garde form, while silver cording created a visible ornamental surface. This technical success is important because avant-garde design depends heavily on the designer's ability to control unusual forms and material behavior. In this project, material and technique became the most persuasive evidence of design feasibility.

Runway visual appearance received a mean score of 3.70. This result indicates that the final garment was visually effective as a presentation object. Runway appearance depends on more than static form; it involves how the silhouette reads from a distance, how the surface catches light, how volume interacts with movement, and how the garment projects character in a performance space. The score suggests that the garment had a strong visual presence, particularly through its turquoise-silver contrast and dome-based silhouette.

The findings demonstrate that Kalyan architectural ornament can be productively translated into avant-garde fashion when the design process treats architecture as a system rather than as a flat visual reference. The garment did not simply reproduce a motif on fabric; it reorganized architectural qualities into fashion operations. Dome became volume, ornament became cording relief, color became identity, and monumentality became silhouette. This process confirms that architectural inspiration becomes more meaningful in fashion when the designer identifies the operative logic behind the architecture and adapts it to the scale and movement of the body [1]-[3].

The strongest empirical result was material and technique. Fabric-cording manipulation was particularly important because it translated the ornamental quality of Kalyan architecture into visible and tactile surface. The technique generated relief, rhythm, and visual hierarchy. It also created a focal point that could be recognized in relation to the architectural source. This finding aligns with studies showing that cording and other fabric manipulation methods can support conceptual translation when they are connected to source imagery and material behavior [12]-[14].

The lower score for creativity and innovation reveals an important limitation. Although the garment translated architectural inspiration effectively, the experts perceived that its innovation could be developed further. For stronger avant-garde innovation, future development could push the abstraction further. The dome could be fragmented, rotated, expanded asymmetrically, or

transformed into modular structures. The cording could be used not only as surface relief but also as a constructive element that shapes volume or tension across the body.

The lower score for symbolic translation is equally significant. Kalyan architecture contains historical, spiritual, and cultural meanings, but the final garment appears to have communicated the visual qualities more strongly than the symbolic meanings. This does not mean the design failed; rather, it shows that symbolic communication requires intentional articulation. Geometry could be connected to continuity, the dome to transcendence, silver to sacred illumination, and turquoise to architectural serenity [7]-[11].

The study contributes to fashion education by demonstrating how a student design project can be reframed as an original research article. Process documentation, moodboard, design alternatives, technical drawing, material exploration, prototype construction, and expert evaluation all function as research data. This challenges the assumption that fashion design research is merely subjective or aesthetic. When documented systematically, the creative process becomes evidence that can be analyzed, interpreted, and communicated in scholarly form [15].

The limitations of the study should be acknowledged. The evaluation involved three experts, which is appropriate for design judgment but still limited in scope. The study evaluated one final garment, meaning that the findings cannot be generalized to all forms of Kalyan-inspired fashion. The statistical analysis was descriptive and intended to support design interpretation rather than infer population-level conclusions. Further research could involve a larger expert panel, audience perception analysis, comparative prototypes, or experimental variations of the cording technique.

#### **4. Conclusions**

This study developed an avant-garde garment inspired by Kalyan architectural ornament using the Double Diamond design method and fabric-cording manipulation. The design process successfully translated key architectural features into fashion elements: the dome became a volumetric skirt structure, geometric ornament became raised cording relief, the turquoise-silver palette became the chromatic identity, and monumental architectural presence became a structured avant-garde silhouette. The process confirms that architectural ornament can become a generative framework for fashion design when it is transformed through systematic abstraction, material experimentation, and prototype evaluation.

The expert judgment results indicate that the final garment achieved an overall mean score of 3.42, placing it in the good category. The strongest dimension was material and technique, showing that the chosen fabric, construction strategy, and fabric-cording manipulation were effective in realizing the design concept. Avant-garde silhouette, concept suitability, and runway visual appearance also reached the good category. However, creativity and innovation and symbolic translation were evaluated only as fair, indicating that further development is needed to intensify conceptual originality and communicate the cultural meaning of Kalyan ornament more clearly.

The article contributes a design translation model for converting architectural ornament into avant-garde fashion. It demonstrates that design research can produce scholarly knowledge through the integration of visual analysis, design method, material technique, prototype construction, and expert evaluation. Future research should strengthen the symbolic narrative of Kalyan architecture, expand technical experimentation with cording, compare alternative prototypes, and evaluate audience perception. With these refinements, Kalyan-inspired avant-garde fashion can move beyond visual borrowing toward a more rigorous practice of cultural, material, and spatial translation.

## Conflict of interest

The authors declare no conflict of interest.

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