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The Feasibility of Exploring Dimensional Pleated Design in the Design of the "Thiravela" Stage Gown

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Abstract
Stage attire not only functions as body covering, but also as a medium of visual expression that can strengthen the character and narrative of the performance. However, the exploration of pleats in stage attire still tends to be focused on two-dimensional decorative aspects, so that the potential of pleats as elements that form dimension, volume, and visual dynamics has not been optimally utilized. This study aims to design a glamorous stage gown with an ocean wave theme through the exploration of pleated dimensions as a visual representation of the movement and depth of the sea. The research method used is a design research with a descriptive percentage approach. The design process explores the concept, moodboard preparation, design development, pleating technique experiments, and the realization of the dress prototype. The design feasibility assessment was carried out using an assessment instrument compiled based on theoretical studies related to fashion design, clothing construction, aesthetics, and comfort. Data were analyzed using quantitative descriptive techniques by calculating the feasibility percentage based on the scores obtained and the maximum score to determine the level of product feasibility. The results showed that the designed stage gown obtained a feasibility assessment percentage of 95.5% with the category "Very Feasible". This finding indicates that the exploration of dimensional pleats can produce visuals resembling ocean waves, strengthen the impression of glamour, and create a dynamic and comfortable silhouette to wear as stage attire. The conclusion of this study confirms that the dimensional pleating technique contributes significantly to innovation in stage fashion design and can be an alternative for developing fashion designs based on the exploration of natural forms and inspiration. The results of this study indicate that the exploration of the dimensional pleating technique has important implications for the development of contemporary stage fashion design. Theoretically, this study can enrich the study of fashion design by confirming that fabric manipulation techniques not only function as decorative elements, but can also act as an effective visual representation medium in conveying narrative, movement, and the depth of natural inspiration.

Keywords: feasibility, design exploration, pleats, stage dress

INTRODUCTION

Since ancient times, clothing has served not only as a means of body protection but also as a symbol of social identity, aesthetic expression, and cultural communication between individuals in society. Clothing designed specifically for the stage context, including evening gowns and performance wear, has become an important part of artistic and social performances in the modern era, where visual appearance directly influences the audience's perception of the characters and themes of the performance. Research in the study of stage costumes and performance wear shows that costumes not only strengthen the characters in drama or dance but also enhance the audience's understanding of the aesthetic and narrative context of a work of performing art.[1]. Recent studies have shown that the use of well-designed stage costumes can enhance the expressiveness and artistic meaning of a

[1] Patience Millicent Etale, "Communicating Character Through Costumes in the Stage Presentation of Benedict Binebai ' s Legend of Egbesu" 13, no. 4 (2025): 14–25, https://doi.org/https://doi.org/10.37745/gjahss.2013/vol13n41425.

performance and significantly influence the audience's emotional experience.[2].

In line with the evolution of the runway since the early 20th century, fashion shows have evolved from simple presentations into an integral visual phenomenon in the global fashion industry, serving as a complex cultural and marketing communication tool in conveying designer collections to a wide audience. Research from SanMiguel states that fashion shows are now a crucial performance in the fashion industry that combines aesthetics, narrative and branding in a visually intensive manner.[3]This condition reflects the shift in how modern clothing has evolved into a means of social communication that reflects an individual's identity, status, and cultural values, rather than simply a means of bodily protection. Fashion serves as a means of personal expression that carries specific meanings and messages within the context of social interactions within society.[4].

In this context, stage attire plays a crucial role as an aesthetic and communicative element in art and entertainment performances, expressing the character and theme of the performance. The contemporary fashion industry demonstrates an increasing exploration of fabric manipulation techniques to create new aesthetics, one of which is through the application of pleating techniques (*pleats*) on party wear and stage dresses. Pleats are seen as a classic technique that remains relevant because it can provide an elegant, dramatic impression, and enrich the structure and silhouette of the clothing, so it is still in demand in party wear and stage dress designs today.[5].

In the tradition of contemporary fashion design, nature has long been a major source of inspiration for designers because of its strong, rhythmic and meaningful visual character[6]. Especially marine elements such as waves, water rhythms, and nature offer dynamic aesthetic value and rich visual narratives. Research on fashion design that utilizes natural forms as inspiration has previously shown that natural sources not only provide motifs and textures, but also help enrich the visual expression and character of clothing conceptually. Studies related to fabric manipulation by considering natural inspirations, such as the application of digital printing and pleats inspired by coral reefs, have succeeded in producing interesting and inspiring textures in ready *to wear deluxe*, thus demonstrating how natural inspiration can be creatively translated into modern fashion[7].

In the context of Thiravela's stage dress, this inspiration is further developed through an exploration of the movement and depth of ocean waves as a conceptual basis pleats no longer merely functioning as a decorative element but interpreted as a representation of the repetitive rhythm of waves and the dynamic visual movement of the ocean depths. The characteristics of the pleating technique that is able to create volume, lines, and visual direction in the fabric are seen as being able to imitate the phenomenon of constantly changing waves, thus creating a dramatic and lively three-dimensional visual effect when worn on stage. This technique supports a strong visual narrative because it organically combines structural aesthetics and natural movement in fashion design.

Navy blue was chosen as the color palette main design Thiravella because it is able to visualize the depths of the sea and the intense underwater atmosphere, while the combination of contemporary batik fabrics inspired by marine elements provides an additional textural dimension that strengthens the overall theme. This is in line with the findings of other studies that show that pleats are able to present clothing works that are not only aesthetic, but also contextual to the inspired theme raised, such as in the application of pleats to themed party dresses exotic of palm which enriches the visual expression of modern design[8]. With a strong visual structure and clear thematic relationships between

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[2]Spread out.

[3] Ana SanMiguel Patricia, Rus-navas and Teresa Sádaba, "Fashion Shows : The Greatest Show on Earth," 2023, 227–37, https://doi.org/https://doi.org/10.1007/978-3-031-38541-4_21.

[4]Muhammad Hafiz Wiranata and Arwin Ramli, "Literature Study on Visual Branding in Fashion,"*Rupa Mantra Journal* 03, no. 02 (2025): 158–69, https://doi.org/10.62375/jdkv.v3i2.535.

[5]Adella Florencia, "Application of Pleated Techniques in Evening Gowns,"*TEKNOBUGA: Journal of Fashion and Culinary Technology* 9, no. 1 (2021): 33–46, https://doi.org/10.15294/teknobuga.v9i1.24927.

[6]Wardani, W. A. R., & Yulistiana, Y. (2025).Kumala Island as an Inspiration for Applying Manipulating Fabric Box Pleat and Ruffle to Party Dresses. *JPBD (Journal of Fashion and Design Research)*, *5*(1), 59–72. https://doi.org/10.26740/jpbd.v5i1.40500

[7]Rahmawati, S., Handayani, W., & Fitra, A. (2025). PDeluxe Ready To Wear Fashion Design With Digital Printing And Pleats Inspired By Indophyllia Macassarensis Coral Reef. *Ars: Journal of Fine Arts and Design, 28*(2). doi:https://doi.org/10.24821/ars.v28i3.15623

[8]Indarti Devitriana Devutriana, "Journal of Fashion & Textile Design Unesa,"*Fashion* 1 (2024): 128–

form, color, and construction techniques, the stage dress Thiravella designed to bridge innovative aesthetic design and nature-inspired narratives, while opening up new possibilities in the development of fashion design based on the exploration of natural forms and fabric manipulation techniques.

Actual conditions in the field show that fashion design research in Indonesia often addresses pleat manipulation as a decorative technique in party dresses and evening wear, but the focus is still limited to the decorative function alone without a strong exploration of dimensions as a representative element of the theme or visual narrative. For example, Devitriana & Indarti studied the application of pleat manipulation in party dresses with a nature theme but emphasized more on the aesthetic process of form rather than a strong visual interpretation of a particular theme.[9]This condition is also seen in the research of Widyaningrum & Indarti who applied accordion pleats to women's party dresses to add an aesthetic touch but have not yet examined their potential as a thematic visual expression element in stage dress design[10].

Based on this narrative, this research aims to uncover new insights into how fabric manipulation techniques can be interpreted as more than just decoration, but as part of a design narrative that supports the performance theme. This is increasingly relevant in the contemporary era, when stagewear design is required not only to follow aesthetic trends but also to convey a powerful visual narrative to audiences and stage wearers.

METHOD

This study uses a descriptive quantitative approach with percentage statistical analysis techniques to assess the feasibility of exploring dimensional pleats in stage gown design. This approach was chosen because it is able to objectively describe the level of product feasibility based on expert assessments of predetermined aspects, without testing the relationship between variables[11].

Data collection was conducted using a feasibility assessment instrument developed based on theoretical studies as the primary foundation. Relevant theories in fashion design, clothing construction techniques, aesthetics, function, and comfort were used as references in formulating indicators and assessment statements. Each statement was tailored to the characteristics of stage fashion assessment to comprehensively represent design quality.

The expert assessors in this study consisted of three fashion experts: Miss Devie Apriyana, Miss Eva Indria, and Miss Ayu Meirayati, who acted as curators. The selection of these experts was based on their competence and experience in fashion design, fashion construction techniques, and fashion product development. The experts were asked to comprehensively assess the realized stage gown prototype, both visually and technically.

This research was conducted in an academic environment and a fashion design studio where prototypes were created and refined. The products were evaluated directly, allowing experts to observe design details, construction structure, and potential comfort when worn as stage wear.

The research process began with conceptual design and the creation of a stage gown prototype through the exploration of dimensional pleating. After the product was realized, the instrument validation sheet the five assessment aspects, namely design, size, aesthetics, sewing techniques, clothing performance, and product uniqueness, were prepared as validation benchmarks. Data collection was carried out by distributing instruments.to the experts to fill in according to the indicators that have been set. The data collected is then recapitulated and processed to obtain a score on each aspect of the assessment.

Data analysis was carried out using descriptive percentage analysis techniques to determine the level of feasibility of the product[12]. This approach is used to calculate the percentage of the validation score obtained by the validator or respondent so that it can be categorized into certain criteria (e.g.,

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[9]Devitriana Devutriana.

[10]Indarti Widyaningrum Intan, “Applying Accordion Pleats to Evening Party Wear with Fungi Fairy Bonnets as an Idea” 03, no. September (2023): 11–18.

[11]Dayu Amandito Prabowo, Salsa Solli Nafsika, and Hery Supiarza, "Designing Creative Processes in Costume Design and Styling"*Make Up*On the Cowboy-Alita Character,”*DIVAGATRA - Journal of Design Student Research* 5, no. 1 (2025): 37–48, https://doi.org/10.34010/divagatra.v5i1.13207.

[12]Riyanto.,*Educational Statistics. Teaching Materials for Undergraduate Students of PGPAUD FKIP Unib*, 2020.

feasible, very feasible). This method is explained in a number of descriptive quantitative studies which state that the percentage of product feasibility is calculated by comparing the score obtained with the maximum score, then multiplying it by 100% to get the percentage value, technically the data is calculated with the following formula:

$$P \quad \frac{Score\ Obtained}{= Maximum\ Score} \ x \ 100\%$$

The scores obtained were processed using the Guttman scale as a measurement instrument with a dichotomous response of "yes" (score 1) and "no" (score 0) to assess respondents' attitudes cumulatively and unidimensionally, where statements were compiled to be validated based on the suitability of the instrument so that agreement on the item theoretically implies agreement.

The processing of the analysis results is based on the formula from Sugiyono which is then interpreted based on the eligibility criteria that have been determined by the researcher[13]. The results of this percentage are then used as a basis for assessing whether a product design is suitable for use or needs further revision before being used as a sea-inspired stage dress through the exploration of pleated dimensions as a visual representation of the movement and depth of the sea.

The assessment scores from each expert were summed and converted into a percentage to determine the product's suitability. The results of this analysis were then interpreted based on a Likert scale, so it can be concluded that the level of feasibility of exploring dimensional pleats in stage gown design is feasible[14]. The feasibility categories are presented in the following table:

Table 1. Product Eligibility Classification[15]

No	Percentage	Category
1	81%-100%	Very Worthy
2	61%-80%	Maybe
3	41%-60%	Pretty good
4	41%-60%	Not Good
5	21%-40%	Less Qualified
6	0%-20%	Quite Decent

RESULTS AND DISCUSSION

This section presents the results of the validation of the suitability of the stage gown."Thiravela" was designed through the exploration of dimensional pleating as the main visual and structural element. The suitability assessment focused on design, aesthetics, proportion, construction, stage performance, and the artistic uniqueness of the garment. Validation was conducted by three fashion and stage design experts to assess the extent to which the gown met the artistic, functional, and conceptual quality standards for performance attire. The following is a summary of the expert assessment results, presented in the table below:

Table 2. Summary of "Thiravela" Feasibility

Member	Maximum Score	Score Obtained	Presentation
Member 1	39	39	100%
Member 2	39	36	92%
Member 3	39	37	94%
Total	**117**	**112**	**95,73%**

Based on the assessment results from the validator, the “Thiravela” stage dress obtained a total

[13]Prof. Dr. Sugiyono,*Quantitative, Qualitative, and Research Methods R&D*(alphabet, 2013).
[14]Bilson Simamora, “Likert Scale, Usage Bias, and Pathways” 12, no. 1 (2022): 84–93, https://doi.org/https://doi.org/10.46806/jman.v12i1.978.
[15]Arini Agustin Dinny and Susanti, "Development of a Scientific Approach-Based Module as Teaching Material for Bank Reconciliation Material,"*Journal of Accounting Education (JPAK)* 3, no. 2 (2015): 1–6.

score of 112 out of 117 or equivalent to 95.73%, which is classified in the “Very Eligible” category. The 3 validators gave varying scores. The first validator gave a score of 39 points, while the 2nd validator gave a score of 36, and the 3rd validator gave a score of 37. This achievement shows that the exploration of dimensional pleats on the “Thiravela” dress as a whole has met the eligibility criteria set out in the research instrument and is worthy of further development as a sea-inspired stage fashion work through the exploration of pleated dimensions as a visual representation of the movement and depth of the sea.

Image 1. "Thiravela" Mode Design

The high percentage of feasibility indicates that the application of dimensional pleats not only functions as a decorative element, but also successfully becomes a medium of visual expression that strengthens the artistic narrative of the performance. Conceptually, the dimensional pleats in "Thiravela" are designed to represent the dynamics of movement and the visual rhythm of ocean waves that appear when the model moves on stage. This finding is in line with Timmerman's view that stage costumes have an active role as a kinetic-visual strategy of stage costumes that convey narrative and semiotics through poses, structures, and visual elements to strengthen the expression of the performance supporting the idea of strengthening the message of movement and emotion.[16].

Figure 2. "Thiravela" Stage Costume

[16] Benny Yohanes Timmerman, “"Pose Theatre, Adapting Editorial Theatre Acting for Narrative Fashion Performance Applications,"*Journal of Art Studies* 07, no. 02 (2021): 142–67, https://doi.org/https://doi.org/10.22146/jksks.64445.

The success of the design and aesthetic aspects is evident in the composition of the pleats, which are arranged in layers and tiers, creating a dynamic three-dimensional effect. The pleats not only form a silhouette but also produce shadows and visual rhythms that change according to the body's movements. This supports Huang, T's finding that pleats not just decoration but has aesthetic and structural value that is recognized in fashion design studies and continues to be researched[17]

The findings of this study support the results of Tsani's study in *Corak Journal* which states that the exploration of three-dimensional textures on textile surfaces can increase the visual power of artistic clothing and enrich the audience's visual experience[18]. In addition, Wu's research in Arts Studies and Criticism emphasizes that structural elements in clothing, when designed conceptually, can be an effective visual narrative medium in thematic design, especially in artistic and performance clothing.[19].

However, unlike some previous studies that used pleats as static aesthetic elements, the exploration of pleats in "Thiravela" is designed to adapt to body movement. This distinction demonstrates a developmental design approach, where pleats function as dynamic structures that interact directly with the stage performance.

In terms of performance, the "Thiravela" dress demonstrated good shape stability during wear. The pleats did not experience excessive distortion when the model moved, and the garment's construction maintained proportions and visual balance. This is crucial considering that stagewear must maintain its artistic form under the pressure of intense movement. These findings support Ardiani's argument that the balance between aesthetics and technical construction is key to a successful garment.[20].

Practically, the results of this study indicate that the exploration of dimensional pleating yields a "Very Feasible" feasibility rating based on expert validation, thus it can be applied as an innovative design approach for professional stagewear. This approach is proven effective in maintaining artistic form and structural stability under intensive motion stress, making it an ideal solution for stage performances that demand high dynamics. In the context of stagewear, dimensional pleating is able to strengthen the visual narrative of the character while supporting the emotional expression of the model through dramatic spatial dimensions. Furthermore, its application in performance fashion allows the integration of avant-garde aesthetics with functional construction, opening up commercialization opportunities for the professional stage fashion industry.

The uniqueness of the "Thiravela" dress lies in its use of dimensional pleats as the main structural element, rather than mere ornamentation. This approach distinguishes "Thiravela" from conventional stage gowns, which typically rely on surface applications such as sequins or embroidery. By making pleats the dominant visual structure, this dress conveys a strong and contemporary design identity.

This approach is in line with Rissanen & McQuillan's research which emphasizes the importance of structural innovation in fashion design as a contribution to the development of the discipline of fashion design.[21]. This innovation enriches design methodology by integrating the principle of structural sustainability, enabling the creation of elements such as pleats and dimensional contours that serve a dual function as visual narrative supports and functional elements that are stable against the dynamics of movement. In the context of stage fashion, this approach facilitates a balance between

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[17]Huang, T. (2021). Ideas Exchange in the pleats: Pleating workshop as a research method. *Journal of Textile Science & Fashion Technology*, *7*(4). https://doi.org/10.33552/JTSFT.2021.07.000667

[18]Romadhona Chusna Tsani, "Textile Surface Design On Lace Using 3-Dimensional Embroidery Technique," *Corak* 12, no. 1 (2023): 85–92, https://doi.org/10.24821/corak.v12i1.7790.

[19] Yuran Wu and Chengrui Wu, "Drama Costumes and Character Shaping: Visual Narrative from Desk Design to Stage Costume," *Arts Studies and Criticism* 5, no. 3 (2024): 112–17, https://doi.org/10.32629/asc.v5i3.2434.

[20] Yanita Mila Ardiani, "Fashion and Architecture in the Art of Making Aesthetic Artworks," *Journal of Aesthetics, Creativity and Art Management* 4, no. 1 (2025): 62–74, https://doi.org/10.59997/jacam.v4i1.5413.

[21]Rissanen, T., & McQuillan, H. (2023).*Zero waste fashion design*. Bloomsbury Publishing.

artistic performativity and technical robustness, thus expanding the academic discourse of fashion design from mere visual exploration to sustainable and innovative applied research. Thus, this research on the exploration of dimensional pleats aligns with these contributions, enriching the discipline of fashion design through the development of contextual structural techniques for professional performance.

CONCLUSION

Based on the results of the research and discussion, it can be concluded that the product "Thiravela", which was inspired by ocean waves through the exploration of pleated dimensions as a visual representation of the movement and depth of the sea, is considered very suitable for use as a stage dress, with a feasibility presentation of 95.73% so that it is included in the category "Very Suitable". This product has been declared to meet very good quality standards reviewed from all aspects of the 3 curators including design exploring concepts, compiling mood boards, developing designs, experimenting with pleating techniques, to the realization of dress prototypes.

Theoretically, this research contributes significantly to the development of fashion design studies by expanding the understanding of pleats as a medium for visual narrative and dynamic structure in stage fashion, where pleats are no longer seen as merely decorative elements but as structural systems capable of conveying character stories, historical contexts, and emotions nonverbally to the audience. These findings offer a new conceptual framework that integrates the principles of visual semiotics with textile engineering, demonstrating how manipulation of pleat dimensions can create a spatial narrative hierarchy that supports the dramatization of performances without sacrificing movement functionality.

Furthermore, this research enriches the academic discourse on the symbiotic relationship between texture, dimension, and movement in artistic fashion design, by proving that dimensional pleats are able to maintain aesthetic integrity under intensive physical pressure in a stage performance which has been a crucial issue that has been challenging stage designers. This theoretical contribution opens up opportunities for further research on the application of structural pleats in different performance genres (contemporary dance, physical theater, fashion performance), while strengthening the position of fashion design as an interdisciplinary discipline that combines art, textile technology, and performance science.

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