

Results of Origami a Pleated Pentagon Dress Utilizing Shantung and Duchesse Fabrics

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ABSTRACT

Origami is a traditional Japanese paper craft technique that employs transformational reconstruction, a creative pattern-making method that creates a three-dimensional effect on fashion pieces. One notable design utilizing the origami technique is the origami a pleated pentagon dress. The construction of this dress is influenced by the type of material used. The primary objective of this research is to describe the outcomes of the origami a pleated pentagon dress using shantung and duchesse materials in terms of the stability of the origami shape, origami folds, and size accuracy. Additionally, it aims to identify the differences in the results obtained using these materials. This research falls under the category of applied research. The data collection method employed a questionnaire administered through a research instrument utilizing a Likert scale assessment conducted by 15 panelists. Data analysis techniques utilized quantitative descriptive and inferential analysis. The results obtained for the origami a pleated pentagon dress constructed using shantung material yielded an overall percentage value of 64.39%, categorized as quite suitable. Conversely, the results obtained for the origami a pleated pentagon dress constructed using duchesse material yielded an overall percentage value of 78.60%, categorized as suitable. Based on the independent sample t-test, the significance value obtained was $0.001 < 0.05$, indicating a difference in the results obtained using shantung and duchesse fabrics.

KEYWORDS

Dress
Origami
A Pleated Pentagon
Shantung
Duchesse

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INTRODUCTION

The type of material affects the finished result of fashion. Good fashion is not only influenced by the manufacturing technique but also influenced by the selection of the right material. (Miftahurrahmi, 2015). The use of textile materials must be adapted to their properties and uses (Sulityowati et al., 2015). The factor that makes clothes beautiful and appropriate when used is the selection of textile materials that are in accordance with the predetermined fashion model. (Ernawati & Nelmira, 2008). One of them is a fashion model in the form of origami a pleated pentagon dress with transformational reconstruction technique. For fashion models that are designed not to have a volume effect, you can use materials that have non-rigid and falling or slimming characteristics. Meanwhile, clothes that are designed to have a volume effect can use materials that have stiff and loose characteristics (Sari, 2019). The origami a pleated pentagon dress with transformational reconstruction technique has a three-dimensional volume effect on the origami folds, so the selection of materials used should have rigid and non-flexing characteristics. This will affect the stability of the origami shape, origami folds, and the accuracy of the size (Aliem & Nahari, 2015).

Apart from food and shelter, clothing is a primary need (Elliza & Nelmira, 2023). Clothing is a piece of clothing that is attached to the human body and is used to protect oneself from the climate, weather and a tool to beautify oneself, which is certainly comfortable to wear when doing activities (Marwiyah, 2009). With the development of technology in this modern era, fashion continues to experience rapid development and innovation every year (Diva & Novrita, 2023). This is due to the increasing public interest and awareness in fashion (Sanad & Cassidy, 2015). Various and varied fashion models with complicated and unique manufacturing techniques are the choice of fashion designers to show their ability to design fashion. One of the fashion models that is often used to experiment by fashion designers is dresses (Fernandi & Ruhidawati, 2021).

One of the techniques for making women's clothing is using the transformational reconstruction technique, which is a creative pattern-making method by developing draping technique patterns by using the effect of three-dimensional shapes into fashion pieces (Sato, 2011). The transformational reconstruction technique allows fashion designers to create three-dimensional clothing instead of two-dimensional (El-Dosuky, 2023). It also allows the designer to experiment with angles, folds, and cuts that transform a two-dimensional pattern into a three-dimensional structured garment. This technique creates creative silhouettes by adding new dimensions to the design so that the garment comes alive with volume and texture (Deshmukh & Rane, 2024).

The transformational reconstruction technique can be applied to various fashion designs, one of which is a dress. In this study, researchers used the origami concept technique. Origami is a traditional Japanese paper craft technique used in transformational reconstruction technique. Along with the times, origami is not only applied using paper media but can also be applied to textile media used as decoration on clothing (Melati, 2017). Origami concept has several techniques, namely a pleated pentagon, four-sided asymmetrical variation, pleated pentagon sleeve and high collar of stacked pleats. The technique that researchers use is the pleated pentagon technique which is applied to the overall dress model. A pleated pentagon is an origami pattern-making technique in the form of hexagon pleated folds with regular fold spacing located on the front and back, both on the chest, waist and back (Sato, 2011).

Researchers conducted pre-experimental trials on origami a pleated pentagon dress using materials with rigid characteristics with different thicknesses (thin, medium, thick) and materials with slimming characteristics with medium thickness. The materials used were taffeta, shantung, duchesse, and satin. Shantung and duchesse materials got better results because they have stiff characteristics with medium and thick thickness. Shantung material is a type of material made from silk fibers that has high absorption, high strength, soft grip, wrinkle resistance, and luster, so it looks luxurious (Rika et al., 2016). Duchesse material, or better known as bridal satin, is a type of material that is included in the satin fabric group and is characterized by its smooth, shiny, relatively thick, and stiff surface (Achmad, 2010). The objectives of this research are: 1) Describe the results of origami a pleated pentagon dress with shantung and duchesse materials in terms of the stability of the origami shape, origami folds, and size accuracy, 2) Describe the differences in the results of origami a pleated pentagon dress with shantung and duchesse materials.

METHOD

This research is applied research. Applied research is conducted to apply the capabilities of a theory and can be applied (Sugiyono, 2020). In this study there are three variables, namely: 1) The independent variable in this study is the type of material used to make origami a pleated pentagon dress, namely shantung and duchesse materials, 2) The dependent variable in this study is the finished result of the origami a pleated pentagon dress using different materials, 3) The control variables in this study are the same pattern, the same size, sewing tools, and props. The object in this study is the result of origami a pleated pentagon dress using shantung and duchesse materials. The research location was conducted at the workshop of the Department of Family Welfare Science, Faculty of Tourism and Hospitality, Padang State University. In this study, the authors used the same pattern. The difference lies in the use of materials, which in this study used shantung and duchesse materials.

The type of data used is primary data. The data collection instrument used in this research is a questionnaire. The scale used is a likerts scale that contains 5 answer choices, namely: Very Suitable with a score of 5, Suitable with a score of 4, Quite Suitable with a score of 3, Less Suitable with a score of 2, Not Suitable with a score of 1. The implementation of the assessment was carried out by fitting the clothes on the bodypattern blocks, then assessed by 15 panelists consisting of 3 lecturers of Fashion Management IKK FPP-UNP who are experts in pattern making and clothing, as well as 12 students of Fashion Management IKK FPP-UNP who have completed all fashion vocational courses. The data analysis technique used descriptive analysis and inferential analysis.

RESULT AND DISCUSSION

1. Results of Origami A Pleated Pentagon Dress Using Shantung and Duchesse Material

1) Aspect of Origami Shape Stability

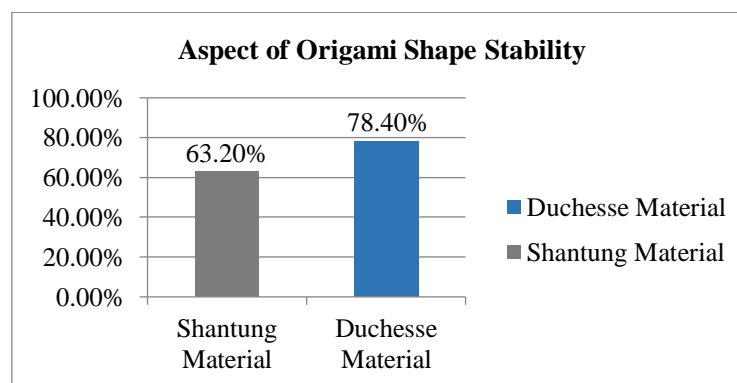


Figure 1. Diagram of Origami Dress Results on the Aspect of Origami Shape Stability

Based on the diagram above, it shows the results of the origami a pleated pentagon dress using shantung material obtained an average value of 63.20% categorized as quite suitable. While the results of the origami a pleated pentagon dress using duchesse material obtained an average value of 78.40% categorized as suitable. The highest average value in the aspect of origami shape stability is found in the results of origami a pleated pentagon dress using duchesse material.

2) Aspect of Origami Fold

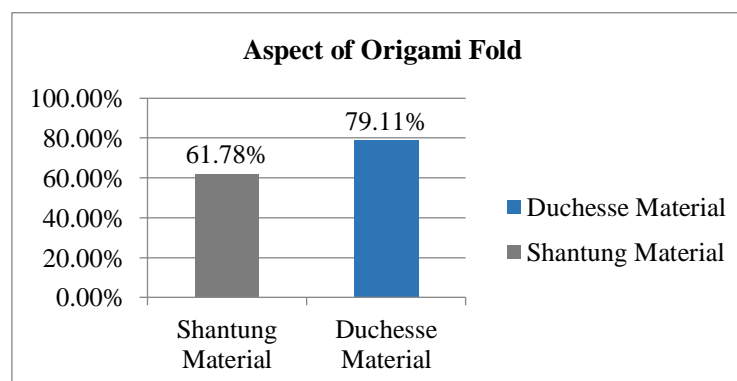


Figure 2. Diagram of Origami Dress Results on the Aspect of Origami Fold

Based on the diagram above, it shows the results of the origami a pleated pentagon dress with shantung material obtained an average value of 61.78% categorized as quite suitable. While the results of the origami a pleated pentagon dress with duchesse material obtained an average value of 79.11% categorized as suitable. The highest average value in the aspect of origami fold is found in

the results of the origami a pleated pentagon dress using duchesse material.

3) Aspect of Size Accuracy

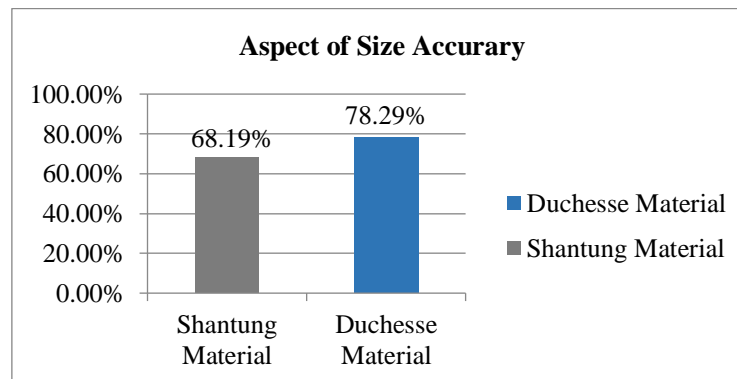


Figure 3. Diagram of Origami Dress Results on the Aspect of Size Accuracy

Based on the diagram above, the results of the origami a pleated pentagon dress with shantung material obtained an average value of 68.19% categorized as suitable. While the results of the origami a pleated pentagon dress with duchesse material obtained an average value of 78.29% categorized as suitable. The highest average value in the aspect of size accuracy is found in the results of the origami a pleated pentagon dress using duchesse material.

a. Results of Origami A Pleated Pentagon Dress Using Shantung Material



Figure 4. Results of Origami A Pleated Pentagon Dress Using Shantung Material

Based on the results of the origami a pleated pentagon dress using shantung material in the aspect of origami shape stability obtained an average value of 63.20% categorized as quite suitable, in the aspect of origami folds obtained an average value of 61.78% categorized as quite suitable and in the aspect of size accuracy obtained an average value of 68.19% categorized as suitable. Based on the overall percentage, the origami a pleated pentagon dress using shantung material obtained a score of 64.39% categorized as quite suitable.

The results of origami a pleated pentagon dress using shantung material are said to be quite suitable because the shape of the origami folds is still bulging on the body, less shaping of the body, the angle of each level is less aligned on the cut line, the effect of the unstable volume of origami folds, and the influence of materials that are quite suitable for forming origami on clothing. Shantung material has light and stiff characteristics with medium thickness and has a slightly slippery texture, this is a factor of difficulty in the sewing process of the origami dress, especially at the corners, so that the resulting origami shape is less fixed and slightly shaky. The origami folds are still uneven,

and there are wavy folds on certain folds, and the accuracy of the size of the origami folds is in accordance with the size of the pattern.

b. Results of Origami A Pleated Pentagon Dress Using Duchesse Material



Figure 5. Results of Origami A Pleated Pentagon Dress Using Duchesse Material

Based on the results of the origami a pleated pentagon dress using duchesse material in the aspect of origami shape stability obtained an average score of 78.40% categorized as suitable, in the aspect of origami folds obtained an average score of 79.11% categorized as suitable and in the aspect of size accuracy obtained an average score of 78.29% categorized as suitable. Based on the overall percentage of origami a pleated pentagon dress using duchesse material obtained a score of 78.60% categorized as suitable.

The results of origami a pleated pentagon dress using duchesse material are said to be suitable because the origami folds do not bulge on the body, can slightly form the curve of the body, the angle of each level is aligned on the cut line, the effect of the volume of the origami folds is stable, and the effect of the material is suitable for forming origami on clothing. Duchesse material has stiff and thick characteristics, so that in the process of sewing the origami dress, especially at the corners, it is not too difficult so that the resulting origami shape is fixed and does not shake. The origami folds are flat, although there are slight waves in certain folds, and the accuracy of the size of the origami folds is in accordance with the size of the pattern.

2. Differences in Results of Origami A Pleated Pentagon Dress Using Shantung and Duchesse Material

1) Test of Normality

The normality test uses the Shapiro-Wilk test with the help of the SPSS version 26 application. Data is normally distributed if the significance value is > 0.05. The results of the normality test can be seen in the following table:

Table 1. Test of Normality

		Tests of Normality					
		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Bahan	Statistic	df	Sig.	Statistic	df	Sig.
Dress	Shantung	.181	15	.199	.950	15	.527
	Duchesse	.152	15	.200*	.941	15	.397

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

2) Test of Homogeneity

The homogeneity test was carried out using the Levene Statistic formula with the help of the SPSS version 26 application. The data is said to be homogeneous if the significance value is > from 0.05. The results of the homogeneity test can be seen in the following table:

Table 2. Test of Homogeneity

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Dress	Based on Mean	.701	1	28	.410
	Based on Median	.667	1	28	.421
	Based on Median and with adjusted df	.667	1	26.979	.421
	Based on trimmed mean	.676	1	28	.418

3) Independent Sample T-Test

The independent sample t-test is used to determine whether there is a difference in the results of origami a pleated pentagon dress using shantung and duchesse materials. The results of the independent sample t-test can be seen in the following table:

Table 3. Independent Sample T-Test

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Hasil Dress	Equal variances assumed	.701	.410	-3.720	28	.001	-.65333	.17563	-1.01309	-.29358
	Equal variances not assumed			-3.720	26.134	.001	-.65333	.17563	-1.01425	-.29242

Based on the independent sample t-test, the significance value is 0.001 where the value is less than the significant level of 0.05 or $0.001 < 0.05$. It can be concluded that there is an average difference in the results of origami a pleated pentagon dress using shantung and duchesse material..

CONCLUSIONS

Based on the results of the study, it can be concluded that the best results in making origami a pleated pentagon dress in terms of the stability of the origami shape, origami folds and accuracy of size are using duchesse material with a percentage value of 78.60% categorized as suitable. While the results of the origami a pleated pentagon dress using shantung material obtained a percentage value of 64.39% categorized as quite suitable. Data analysis obtained from the independent sample t-test obtained a significance value of $0.001 < 0.05$. So it can be concluded that there is a significant difference in the results of origami a pleated pentagon dress using shantung and duchesse material.

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