



The Relationship Between Basic Pattern Making and Pattern Drafting Skills and Student Learning Outcomes in the Women's Fashion Making Course

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ABSTRACT - In the context of vocational education, mastery of basic pattern-making and pattern drafting skills is one of the main competency outcomes that must be achieved by students in the Fashion Education Study Program, as it serves as a fundamental basis in the fashion production process. This study aims to examine the relationship between basic pattern-making and pattern drafting skills and students' learning outcomes in the Women's Garment Production course. This research employed a quantitative approach using an ex post facto correlational research design. The population of this study consisted of students of the Fashion Education Study Program, Department of Family Welfare Education, Faculty of Engineering, Semarang State University, class of 2024, who had completed the Clothing Pattern Construction and Women's Fashion Production courses. A total of 91 students were involved as samples using a total sampling technique. Data were collected through documentation in the form of final grades from the Clothing Pattern Construction course as indicators of basic pattern-making and pattern drafting skills, and final grades from the Women's Fashion Production course as indicators of students' learning outcomes. Data analysis included descriptive analysis, normality testing, and Spearman Rank correlation analysis. The results showed a significance value of 0.000 ($p < 0.05$) with a correlation coefficient of 0.537, indicating a significant, strong, and positive relationship between basic pattern-making and pattern drafting skills and students' learning outcomes in the Women's Garment Production course. These findings indicate that mastery of pattern-making skills plays an important role in improving students' learning achievement in Fashion Education.

Keywords: Basic pattern-making skills, drafting pattern, learning outcomes, women's fashion production.

INTRODUCTION

Vocational education at the higher education level is directed toward producing graduates who possess practical skills in accordance with the demands of their respective fields of expertise. In the context of fashion education, student learning outcomes are expected not only to reflect an understanding of theoretical concepts but also the ability to apply these concepts in the form of practical skills, particularly in the Women's Clothing Production course. The Women's Clothing Production course is a practice-based course that equips students with the competencies to design and produce women's garments systematically through stages including body measurement, pattern making, and garment finishing. This course emphasizes the application of theory into practice, requiring students to demonstrate technical skills and precision at each stage of the garment production process. Skills reflect an individual's ability to integrate knowledge, attitudes, and practical abilities to produce meaningful work (Hariyadin & Nasihudin, 2021; Mardhiyah et al., 2021). As a course that integrates fashion design competencies, students' skills in basic pattern making and pattern alteration constitute essential competencies that must be mastered.

Based on preliminary observations, students of the Fashion Education Program, cohort 2024, at Universitas Negeri Semarang exhibit variability in learning outcomes in the Women's Clothing Production course. A considerable

number of students experience difficulties during the stages of basic pattern making and pattern alteration. These difficulties are reflected in pattern construction that is not yet systematic and lacks accuracy, particularly in determining measurements and forming the basic pattern. Such conditions result in discrepancies between the constructed patterns and the intended garment designs, which are presumed to be associated with students' learning outcomes in the Women's Clothing Production course. This situation contrasts with the objectives of the Fashion Pattern Construction course, which aims to equip students with competencies in systematic garment construction. According to Suryani et al., (2018), in the garment production process, pattern making is a critical component that must be executed carefully at every stage, as inaccurate patterns may lead to errors in garment production.

The basic pattern constitutes a fundamental foundation in the garment construction process, serving as a representation of the human body. A basic pattern is an initial prototype drawn on paper based on an individual's body measurements and is used as a reference prior to fabric cutting (Irmayanti, 2017; Ramadhani, 2022). In line with this view, Dassucik et al., (2022) state that the use of basic patterns aims to minimize errors during the fabric cutting process, thereby ensuring that the resulting garments fit the human body appropriately. The quality of the finished garment is highly dependent on the accuracy of the basic pattern constructed according to the wearer's body measurements. Each component of the pattern is interrelated within a garment design; therefore, mastery of various types of basic patterns is a key factor in achieving proficiency in garment construction practice. According to Irmayanti & Hadi (2018), basic patterns are developed for each garment component as a foundation for creating various clothing designs. Consequently, the accuracy of students' pattern-making skills for each pattern component determines the success of all garment elements at more advanced stages of the production process.

Mastery of basic pattern making ensures the accuracy of garment construction, while pattern alteration skills enhance students' ability to develop basic patterns into various women's garment models accurately in accordance with the intended design concepts. According to Sindi T Rampe et al. (2025), without accurate mastery of fundamental skills, students will experience difficulties in both basic pattern making and pattern alteration. The quality of garments produced by students largely depends on their proficiency in creating and modifying patterns. Adequate mastery enables students to minimize errors during the pattern-making process, thereby ensuring garment accuracy in terms of both comfort and visual appearance. Conversely, weak mastery of pattern techniques is often associated with lower learning achievement in the Women's Garment Production course.

Students' learning outcomes in practical courses reflect the level of mastery of skills and conceptual understanding, as well as the ability to apply work procedures accurately throughout the learning process. Learning outcomes also indicate the development of students' competencies after acquiring learning experiences over a certain period, which is manifested through the quality of performance and the products produced (Mala et al., 2024; Yandi et al., 2023; Yogi Fernando et al., 2024).

In the Women's Garment Production course, student learning outcomes are assessed based on practical performance that requires technical accuracy and mastery of fundamental skills. One of the technical skills that plays a crucial role in the garment production process is proficiency in basic pattern making and pattern alteration. Therefore, basic pattern making and pattern alteration skills constitute essential competencies that students must master in the Women's Garment Production course. The level of mastery of these skills is assumed to be associated with students' learning outcomes, as reflected in the grades obtained in the Women's Garment Production course. Accordingly, this study aims to examine whether there is a relationship between students' skills in basic pattern making and pattern alteration in the Pattern Construction course and their learning outcomes in the Women's Garment Production course.

Although basic pattern making and pattern alteration skills are widely recognized as important competencies in the Women's Garment Production course, empirical studies that specifically examine the relationship between these skills and student learning outcomes at the higher education level remain limited. Most previous studies have been conducted in the context of vocational secondary education or have focused on general sewing skills, thus providing limited and less comprehensive insights into the contribution of basic pattern making and pattern alteration skills to student learning outcomes in the Women's Garment Production course at the university level.

Therefore, this study offers novelty in terms of its research context and focus by examining the relationship between basic pattern making and pattern alteration skills and student learning outcomes in the Women's Garment Production course within higher education. This focus is important, as basic pattern making and pattern alteration skills represent fundamental competencies that underpin success throughout the garment production process.

METHOD

This study aims to examine the relationship between basic pattern making and pattern alteration skills and student learning outcomes in the Women's Garment Production course. Based on the research objective, the study was designed as an ex post facto correlational study using a quantitative approach. The population of this study consisted of 91 students of the Fashion Education Study Program, Department of Family Welfare Education, Faculty of Engineering, Universitas Negeri Semarang, class of 2024, who had completed the Women's Garment Production course. The sampling technique employed was total sampling, in which the entire population was included as the research sample, due to the relatively small population size of fewer than 100 students. The use of total sampling involving the entire population ($N = 91$) implies that the findings of this study can only be generalized to the context of Fashion Education students of the 2024 cohort at Universitas Negeri Semarang, and therefore their application to broader contexts should be approached with caution.

The basic pattern making and pattern alteration skills variable (X) refers to students' level of understanding and practical competence in basic pattern making and pattern alteration, as measured by their final grades in the Pattern Construction course. The student learning outcomes variable (Y) represents students' competency achievement in the Women's Garment Production course. The instrument used in this study was documentation. Documentation was employed to collect data on students' basic pattern making and pattern alteration skills (X) as well as their learning outcomes in the Women's Garment Production course (Y) using students' final course grades.

Data analysis techniques included descriptive statistical analysis and correlation analysis. A normality test was conducted as a prerequisite for inferential analysis. Based on the results of the normality test, which indicated that the data were not normally distributed, the relationship between variables was analyzed using a nonparametric correlation test, namely Spearman's rank correlation. This test was employed to determine the strength of the relationship between basic pattern making and pattern alteration skills (X) and students' learning outcomes in the Women's Garment Production course (Y).

RESULTS AND DISCUSSION

This study analyzed students' basic pattern making and pattern alteration skills as well as their learning outcomes in the Women's Garment Production course based on grade data obtained from 91 students of the Fashion Education Study Program, Department of Family Welfare Education, Faculty of Engineering, Universitas Negeri Semarang, cohort of 2024. Data were collected through documentation of students' final grades in the Pattern Construction course as a representation of basic pattern making and pattern alteration skills, and final grades in the Women's Garment Production course as indicators of students' learning outcomes.

Data analysis began with descriptive statistical analysis to provide an initial overview of the characteristics of both variables, including minimum and maximum scores, mean, and standard deviation. Subsequently, a normality test and Spearman's rank correlation analysis were conducted to examine the relationship between the research variables.

TABLE 1. Descriptive statistic.

	Descriptive Statistics					
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Pattern Making Skills	91	17	76	93	84.87	3.436
Learning Outcomes	91	41	50	91	78.60	13.222
Valid N (listwise)	91					

Based on the results of the descriptive analysis, students' basic pattern making and pattern alteration skills had a mean score of 84.87 with a standard deviation of 3.436. The highest score was 93 and the lowest score was 76, resulting in a score range of 17. These results indicate that students' skills in basic pattern making and pattern alteration were generally in the high category.

Furthermore, the descriptive analysis showed that students' learning outcomes in the Women's Garment Production course had a mean score of 78.60 with a standard deviation of 13.222. The highest score was 91 and the lowest score was 50, with a score range of 41. The relatively wide score range indicates variability in students' learning outcomes in the Women's Garment Production course. This variation suggests that students' ability to apply basic pattern making and pattern alteration skills has not been evenly distributed. Therefore, further analysis was conducted

to examine the relationship between basic pattern making and pattern alteration skills and students' learning outcomes in the Women's Garment Production course.

After conducting the descriptive analysis, the next stage of this study was the normality test as part of the prerequisite analysis. The normality test was performed to determine whether the data on students' basic pattern making and pattern alteration skills and their learning outcomes in the Women's Garment Production course were normally distributed. The results of the normality test were used as the basis for determining the appropriate subsequent statistical analysis in accordance with the characteristics of the research data.

TABLE 2. Test of normality.

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pattern Making Skills	.157	91	.000	.976	91	.084
Learning Outcomes	.292	91	.000	.675	91	.000

a. Lilliefors Significance Correction

The Kolmogorov-Smirnov test was used as the primary reference for assessing data normality because the research sample consisted of more than 50 respondents. Based on the results of the normality tests using both the Kolmogorov-Smirnov and Shapiro-Wilk tests, the significance value for the variable of basic pattern making and pattern alteration skills was 0.000 in the Kolmogorov-Smirnov test. These results indicate that the data for basic pattern making and pattern alteration skills were not normally distributed, as the significance value ($p < 0.05$). Similarly, the learning outcomes variable in the Women's Garment Production course also showed a significance value of 0.000 in both the Kolmogorov-Smirnov and Shapiro-Wilk tests, indicating that the learning outcomes data were not normally distributed ($p < 0.05$). Therefore, since all variables did not meet the assumption of normality, the analysis of the relationship between variables was conducted using a non-parametric correlation test, namely the Spearman Rank correlation.

After conducting the normality test as a prerequisite analysis and determining that the data were not normally distributed, the analysis of the relationship between variables in this study was performed using the Spearman Rank correlation test. The Spearman Rank correlation test was selected because it is a non-parametric statistical technique that does not require the data to be normally distributed. This is in line with the opinion of Akhirudin et al. (2025), who state that this correlation test is used when research data are not normally distributed or do not meet parametric statistical assumptions. This test was employed to determine the existence and the degree of the relationship between basic and development pattern-making skills and student learning outcomes in the Women's Clothing Production course.

TABLE 3. Correlation test of spearman rank.

Correlations			Pattern Making Skills	Learning Outcomes
Spearman's rho	Pattern Making Skills	Correlation Coefficient	1.000	.537**
		Sig. (2-tailed)	.	.000
		N	91	91
	Learning Outcomes	Correlation Coefficient	.537**	1.000
		Sig. (2-tailed)	.000	.
		N	91	91

**. Correlation is significant at the 0.01 level (2-tailed).

Based on the Spearman Rank correlation test, a significance value of Sig. (2-tailed) of 0.000 ($p < 0.05$) was obtained; thus, it can be concluded that there is a significant relationship between basic and development pattern-making skills and student learning outcomes in the Women's Clothing Production course. The correlation coefficient value of $r = 0.537$ indicates that the relationship between the two variables falls into the strong category with a positive direction.

The research results show a significant and positive relationship between basic and development pattern-making skills and student learning outcomes in the Women's Clothing Production course. The correlation coefficient of 0.537 falls within the strong relationship category, indicating that basic and development pattern-making skills have a strong

and direct association with student learning outcomes. These findings indicate that pattern-making skills play a vital role in supporting student success within the clothing production process.

However, student learning outcomes are not solely influenced by basic and development pattern-making skills. Variations in learning outcomes can also be affected by other factors, such as learning motivation, work precision, repetitive practical exercises, prior experience, and the students' ability to manage time and follow work procedures in the Women's Clothing Production course. Therefore, even though basic and development pattern-making skills have a significant relationship with learning outcomes, other supporting factors still need to be considered in the learning process.

The findings of this study are in line with the research conducted by Nurul Shoumi et al. (2016), which showed a significant positive relationship between sewing skills and grades in the Women's Clothing Construction course among Home Economics students at FKIP, Syiah Kuala University, with a correlation coefficient of $r = 0.600$, falling into the strong relationship category. These results reinforce the findings of the present study, suggesting that practical skills play a vital role in supporting student learning outcomes in courses that emphasize practical competence. Furthermore, the study by Agus Firman et al. (2024) also found a significant positive relationship between the effectiveness of practical learning and student learning outcomes with a high correlation coefficient, indicating the connection between vocational practice and academic achievement.

Based on the guidelines for interpreting correlation coefficients, the obtained coefficient value indicates a strong category of relationship. The positive direction of the relationship signifies that the higher the proficiency in basic and development pattern-making, the higher the tendency for learning outcomes in the Women's Clothing Production course. Conversely, less than optimal skills in basic and development pattern-making tend to be associated with lower practical learning achievement. This is because basic and development pattern-making skills serve as the primary foundation in the garment production process, determining measurement accuracy, design suitability, and the final quality of the clothing produced by students. Nevertheless, the relationship identified in this study is correlational in nature; therefore, it cannot be interpreted as a causal relationship between basic and development pattern-making skills and student learning outcomes.

These findings align with the characteristics of vocational education, which emphasizes the mastery of practical skills as the primary indicator of learning success. According to Sunarti Rahman (2021), the identification and a deep understanding of factors supporting learning success are essential steps in guiding students to optimize their learning outcomes. Within the context of the Clothing Education Study Program, basic and development pattern-making skills fall under the psychomotor domain, which suggests that practical skills acquired through repetitive practice and direct experience will enhance the quality of an individual's work. This is consistent with the view of Nurhasnah et al., (2023), who state that the psychomotor domain focuses on physical abilities, motor skills, and bodily coordination in performing an activity.

Therefore, students who possess good basic and development pattern-making skills tend to be more capable of producing garments that meet technical and aesthetic standards, which is consequently associated with better practical learning outcomes. These findings indicate that the mastery of basic technical skills, particularly in basic and development pattern-making, is a crucial factor in supporting successful practical learning in the Women's Clothing Production course. Therefore, improving the quality of vocational education, especially in the field of clothing expertise, should be directed toward strengthening core skills as the foundation for developing students' professional competencies.

CONCLUSION

Based on the results of the data analysis, it can be concluded that there is a significant relationship between basic and development pattern-making skills and student learning outcomes in the Women's Clothing Production course. The Spearman Rank correlation test results showed a significance value of 0.000 ($p < 0.05$) with a correlation coefficient of 0.537, indicating that the relationship between the variables is strong and positive. This suggests that basic and development pattern-making skills are closely linked to students' academic achievement. These findings demonstrate that the better the students' proficiency in basic and development pattern-making, the better the learning outcomes achieved in the Women's Clothing Production course. As a fundamental competence in the garment production process, pattern-making skills are a crucial aspect that needs to be prioritized in practical learning within vocational education. Therefore, instruction in the Pattern Construction and Women's Clothing Production courses should be directed toward strengthening basic and development pattern-making skills through the design of structured

practical exercises, an emphasis on pattern accuracy, and the provision of continuous feedback to support the improvement of student learning outcomes.

This study still has limitations as it only examines the relationship between basic and development pattern-making skills and student learning outcomes. Therefore, future research is suggested to investigate other factors that potentially influence student learning outcomes in the Women's Clothing Production course. The use of regression analysis could be considered to examine the contribution of each variable in greater depth. Furthermore, research using an experimental design could also be conducted to obtain a more comprehensive overview of the influence of basic and development pattern-making skills on practical learning outcomes.

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