Indonesian Journal of Teaching in Science

IJOTIS

Journal homepage: http://ejournal.upi.edu/index.php/ IJOTIS/

Integrating fitting evaluation into pattern construction instruction to enhance fashion design students' competencies

Asri Andarini Nurlita, Sugiyem, Putu Diah Ari Kusumadewi*

Universitas Negeri Yogyakarta, Indonesia

*Correspondence: E-mail: asriandarininurlita@uny.ac.id

ABSTRACT

Learning fashion pattern construction requires students not only to create patterns according to established procedures but also to evaluate how well the patterns fit the body through the fitting process. Fitting evaluation provides authentic learning experiences that help students analyse and improve their pattern-construction skills. This study aimed to integrate fitting evaluation into pattern-making instruction by analysing the fitting results of the Meyneke, So-En, and Practical basic pattern systems among Fashion Design Education students. A descriptive quantitative approach was employed involving 108 students. Data were collected using a fitting observation sheet covering bust, shoulder, dart, waist, armhole, sleeve, back length, and back width. Descriptive statistics and the Friedman test were used to analyse the data. The results revealed significant differences in fitting performance among the pattern systems ($\chi^2 = 62.566$; $p < 0.05$). Practical pattern 1 achieved the highest average score (3.42; mean rank = 3.24), followed by the So-En pattern (3.26; mean rank = 2.88), the Meyneke pattern (3.07; mean rank = 2.03), and Practical pattern 2 (3.07; mean rank = 1.84). These findings demonstrate that fitting evaluation supports students in understanding the characteristics of different pattern systems, identifying construction errors, and developing analytical and problem-solving skills. Integrating fitting evaluation into pattern construction instruction, therefore, enhances Fashion Design students' competencies through authentic, reflective learning experiences.

ARTICLE INFO

Article History:
Submitted/Received 26 January 2026
First Revised 10 March 2026
Accepted 14 March 2026
First Available online 30 March 2026
Publication Date 30 March 2026

Keyword:
Fitting evaluation,
Pattern construction,
Student competencies,
Fashion design,
Vocational education

1. INTRODUCTION

Vocational education primarily aims to produce graduates who are competent and prepared to meet workforce demands through mastery of knowledge, skills, and professional attitudes. In the Fashion Design Education Program, one of the core competencies that students must master is the ability to create clothing patterns that fit the wearer's body characteristics. Patternmaking is a fundamental process in determining the quality and comfort of the resulting garments. These patterns serve as the foundation for clothing design. They are created using principles such as draping, separation, and relaxation (Wang & Yi, 2011). A basic garment pattern is a prototype of garment components that play a crucial role in the garment-making process. A pattern is a replica of the body's shape, drawn according to a person's body measurements, which are taken carefully and precisely (Muliawan, 2011). The accuracy of pattern-making determines the garment's outcome, both in terms of aesthetics and comfort when worn. Selecting the appropriate basic pattern system is a critical factor in learning garment construction, particularly for producing garments that fit well and conform to the wearer's anatomy (Susmelly et al., 2025a). Basic pattern systems not only serve as technical guidelines for garment construction but also play a crucial role in determining the outcome of garment construction, particularly in how well the pattern aligns with the target body shape (Khaira & Ernawati, 2024).

In the development of fashion design, various basic pattern-making systems have been developed by experts from different countries. These systems are generally named after the pattern's creator, the institution, the country, or the continent where the pattern was created (Soekarno, 2022). In Indonesia, several basic pattern systems are commonly used in fashion design education and practice, including the Meyneke, So-En, Bunka, Dressmaking, and Practical systems (Hidayah & Yasnidawati, 2019). The Pattern Construction course in the Fashion Design Education program at Yogyakarta State University teaches only three basic pattern systems: the Meyneke system, the So-En system, and the Practical system.

The Meyneke pattern system, developed by J.H.C. Meyneke, is a basic flat-pattern construction that features more than one dart: front and back shoulder darts and a waist dart. This pattern offers the advantage of producing the best-fitting seams and clearly highlighting feminine contours (Muliawan, 2011). The Meyneke system can be applied to the creation of form-fitting garments such as lingerie, kebayas, and dresses, using a more comprehensive and detailed measurement process that incorporates control or test measurements (Prahastuti, 2007).

The So-En System originated at Bunka Fashion College, a school for Western-style clothing design for children and women, founded in Japan by Isaburo Namiki in 1919. The rapid growth of Bunka Fashion College led to the launch of So-En magazine in 1936, which published clothing patterns created by alums of the design school (Soekarno, 2022). A distinctive feature of So-En patterns is the inclusion of darts at the front and back waist, with the darts being quite wide, which is particularly flattering for plus-size women.

Meanwhile, the Praktis system is a basic pattern that is easier and simpler to create than other systems. This pattern is suitable for beginners learning to create fashion patterns because it offers simple, easy-to-understand construction formulas and pattern-making methods (Qotimah et al., 2025). Students generally prefer to use the basic patterns of the Practical System when creating women's clothing because it offers fewer size variations than other pattern systems, and its construction techniques are simple, making the process faster and more efficient. In the Fashion Design Education Program, the practical pattern system taught to students is divided into two categories: Practical pattern system 1, based on LSP

DOI: https://doi.org/10.17509/ijotis.v6i1.99094
p- ISSN 2776-6101 e- ISSN 2776-6152

Garmindo Plus training, and Practical pattern system 2, based on a course module written by Widjiningsih in 1994.

In the context of fashion design education at the university level, selecting the appropriate pattern-making system is crucial. As future educators and practitioners in the field of fashion, students need the ability to evaluate and compare various basic pattern-making systems in order to choose the most effective method based on the context and design requirements. There are differences in the level of comfort and accuracy of fitting results among various pattern systems (Pratomi & Zuhnikhayati, 2018). The effectiveness of basic pattern systems can vary depending on factors such as the type of garment being made, the wearer's body shape, and the level of difficulty in the construction process (Şen Kılıç et al., 2024).

The fitting process is a crucial stage in garment production to ensure that the garment fits the wearer's body shape. A poor fit can result from a design that does not accurately match the garment's final shape, the wearer's body proportions, or the way the garment drapes on the wearer's body, thereby affecting the wearer's comfort (Chrimes et al., 2023; Nezla & Emine, 2019; Surikova et al., 2017). Therefore, evaluating the fitting results of various pattern systems is crucial for determining which system is most appropriate to use, as well-fitting garments can enhance the wearer's comfort and body image factors that are vital to overall comfort (Chang et al., 2024; Hunter & Fan, 2015; Li et al., 2024).

A fitting evaluation is the process of testing how well a garment fits the wearer's body shape and is conducted to identify parts of the garment that still require adjustments (Sefenu et al., 2021). In the context of vocational education, a fitting evaluation can serve as an authentic assessment because it provides students with real-world experience in directly evaluating the quality of their work. Through fitting activities, students can observe the accuracy of body circumference, shoulder length, armhole circumference, back width, neckline, and other construction details, thereby gaining an understanding of the relationship between body measurements, patterns, and the finished garment.

The importance of fitting evaluation in pattern-making instruction aligns with the characteristics of vocational education, which emphasises practice-based learning (learning by doing) and the development of competencies through direct experience (Jannah & Irmayanti, 2026). The fitting evaluation process enables students to develop critical thinking, problem-solving, and decision-making skills when they encounter discrepancies in garment results (Galada & Baytar, 2025). Additionally, this activity helps students understand that a pattern is a technical document that must be continuously evaluated and refined to produce high-quality products.

One way to integrate fitting evaluations into pattern-making instruction is to use basic pattern systems commonly used in fashion design education, such as the Meyneke, So-En, and Praktis systems. Each pattern system has distinct construction characteristics, resulting in varying levels of fit when applied to the wearer's body (Astuti, 2023; Saraswati & Sabatari, 2021). These differences can serve as a valuable learning resource for students to understand the strengths and limitations of each pattern system through observation, analysis, and reflection on the resulting fits (Isaji et al., 2022).

Based on observations in the Fashion Pattern Construction course, fitting evaluations have not been fully utilised within a systematic learning process. Assessments often focus more on the accuracy of pattern-making than on students' ability to analyse fit results and revise patterns. As a result, students lack a comprehensive understanding of the relationship between pattern construction and the quality of the finished garment.

This study examined the integration of fitting evaluation into pattern-making instruction by analysing the fitting results of the Meyneke, So-En, and Praktis basic pattern systems

DOI: hhttps://doi.org/10.17509/ijotis.v6i1.99094xxx
p-ISSN 2776-6101 e-ISSN 2776-6152

among Fashion Design Education students. The conceptual framework of the study is presented in **Figure 1**. This study is expected to provide an overview of the pattern system that yields the best fit while demonstrating how the fitting evaluation process can be used as a learning strategy to enhance students' competencies in fashion pattern construction.

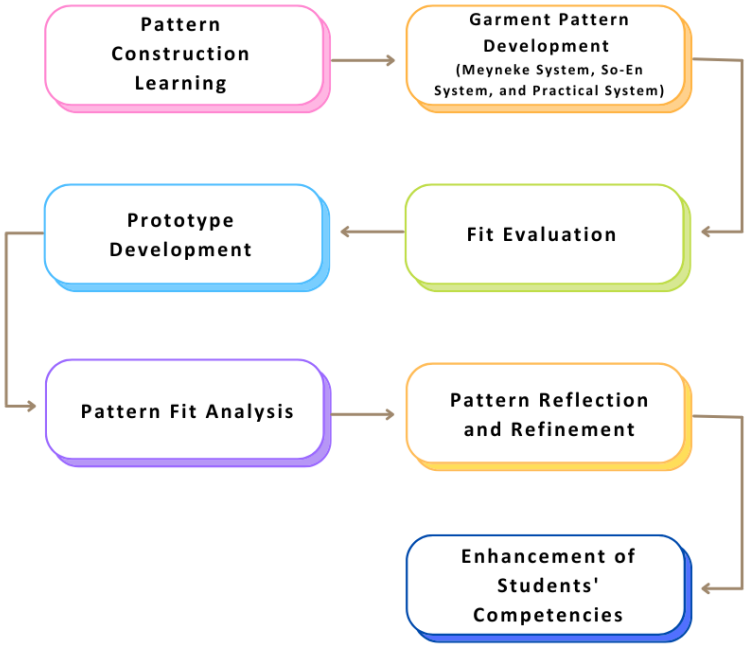

Figure 1. Conceptual Framework for Integrating Fitting Evaluation into Pattern Construction Instruction

This conceptual framework indicates that fit evaluation is integral to the construction of learning patterns. Through pattern drafting, prototyping, fit evaluation, and pattern refinement, students gain experience that supports the development of knowledge, skills, and analytical abilities in fashion pattern construction.

2. METHODS

This study uses a quantitative descriptive approach to analyse fitting results as part of the evaluation of pattern-making instruction. The research was conducted using several basic pattern systems that students use in their fashion pattern-making practice. This study was carried out from August to December 2025 in the Fashion Design Education Program at Yogyakarta State University. The population in this study consisted of first-semester (1) students in the Fashion Design Education Study Program. The research sample was determined using purposive sampling, a technique that involves selecting participants based on specific criteria relevant to the research objectives. The sampling criteria for this study were female students enrolled in the Pattern Construction course who were willing to serve as research respondents. The selection of female students as the research sample was based on the consideration that the material in the Pattern Construction course focuses more on the creation of women's clothing patterns; thus, female students were deemed to have learning and practical experiences more relevant to the research subject. Consequently, this sample selection is expected to yield data that is more appropriate and provides deeper insights into the research objectives. Based on these criteria, the sample size used in this study was 108 students.

DOI: https://doi.org/10.17509/ijotis.v6i1.99094
p- ISSN 2776-6101 e- ISSN 2776-6152

The research procedure was carried out through several stages integrated into the learning process of basic garment pattern construction, as shown in **Figure 2**. In the initial stage, students learned about the concepts and techniques of basic pattern making using the Meyneke, So-En, and Praktis systems. Next, students create basic patterns according to the construction steps applicable to each pattern system. The completed patterns are then made into prototypes to facilitate the observation and evaluation of fitting results.

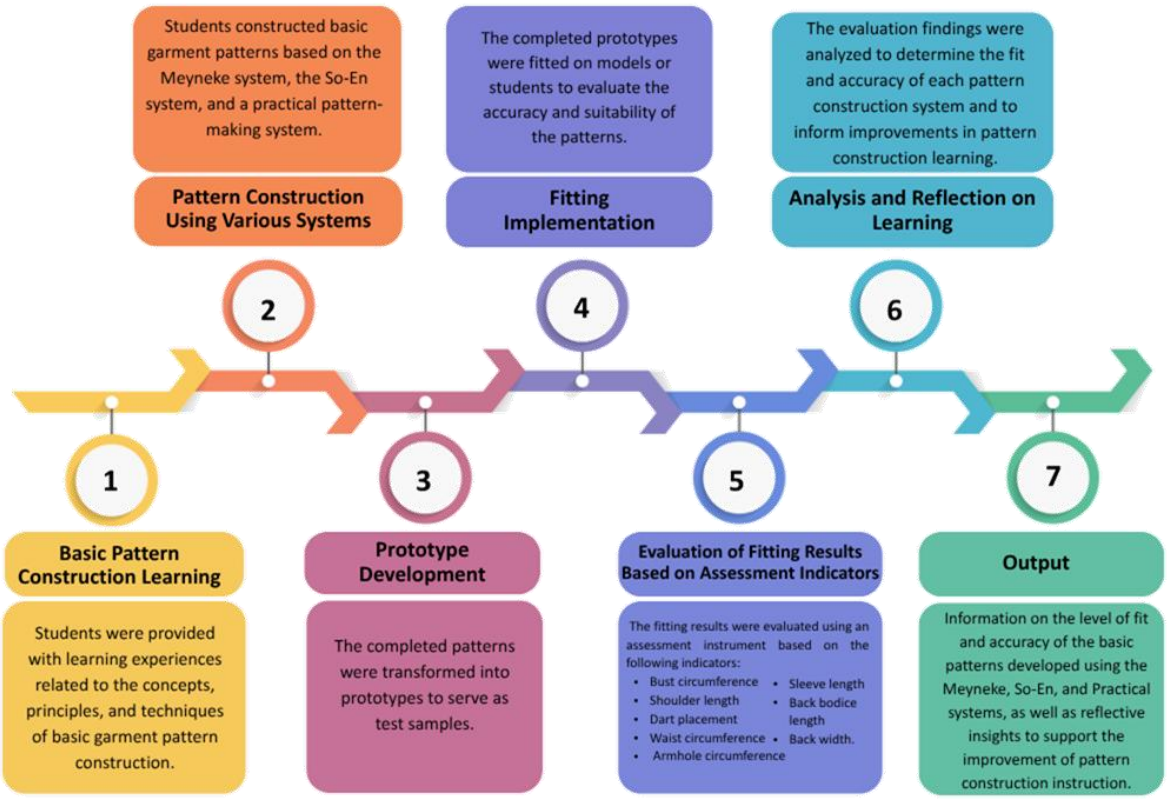

Figure 2. Research Procedure Diagram

The next step is to conduct a fitting on a mannequin or a student serving as the research subject. The fitting is performed to assess how well the pattern fits the wearer's body shape. The fitting results are evaluated based on several indicators, including body circumference, shoulder length, neckline, waist circumference, armhole circumference, sleeve length, back length, and back width. Each indicator is assessed using a predetermined evaluation instrument to determine the fit score for each pattern system.

The data from the fitting evaluation were then analysed descriptively to assess the fit of the basic patterns produced by each pattern-making system. In addition to being used to compare fitting results across pattern systems, these evaluation results were also utilised as material for reflection in pattern construction learning. Through the evaluation and reflection process, students were able to identify the strengths and weaknesses of the patterns they created, understand the relationship between pattern construction and the finished garment, and gain learning experiences that support the development of competencies in garment pattern construction.

The research instrument used was an observation sheet for fitting results, compiled based on indicators of the fit of the basic garment pattern, including body circumference, shoulder length, neckline, waist circumference, armhole circumference, sleeve length, back length, and back width. Each indicator was assessed using a predetermined rating scale to describe the

DOI: hhttps://doi.org/10.17509/ijotis.v6i1.99094xxx
p- ISSN 2776-6101 e- ISSN 2776-6152

level of pattern fit to the wearer's body shape. The assessment was conducted by the instructor of the Pattern Construction course, who has expertise in pattern construction and garment fitting.

Research data were collected through direct observation of the fitting results of prototypes created by students using the Meyneke, So-En, and Praktis pattern systems. In addition, photographic documentation of the fitting results was used as supporting data to reinforce the observational findings and facilitate the evaluation process. In the context of learning, the fitting evaluation results were utilised as material for reflection to identify the strengths and weaknesses of each pattern system and to help students understand the relationship between pattern construction and garment fit on the body.

The fitting data were analysed using descriptive statistics to determine the level of fit for each pattern system. Furthermore, differences in fitting results across pattern systems were analysed using the Friedman test, as the data consisted of ordinal scores obtained from repeated measurements on the same subjects across several basic pattern systems. The analysis results were used to identify the pattern system with the best fit and to serve as a basis for evaluation in the study of garment pattern construction.

3. RESULTS AND DISCUSSION

3.1. Result

The results of the study show that the three basic pattern systems, JHC, Meyneke, and So-En, exhibit varying levels of fit among fashion design students. Fit assessments were conducted based on several key indicators, including body circumference, shoulder width, bust, waist, armhole, sleeve length, hip circumference, and back width. The fitting results were evaluated for four basic pattern systems: Practical pattern 1, Practical pattern 2, the Meyneke pattern, and the So-En pattern using a four-level fit scale. To serve as a basis for analysing differences in fit levels among basic garment pattern systems, a fitting assessment was conducted with students in the Fashion Design Education Program. The assessment covered several key components of pattern construction that influence how well the garment drapes on the wearer's body. The measurement results and fitting assessments for each pattern system are presented in **Table 1** below.

Table 1. Comparison of Basic Pattern Fitting Scores for Students in the Fashion Design Education Program

Pattern System	Bust	Shoulder	Dart	Waist	Armhole	Sleeve	Back Length	Back Width	Average	Category
Practical Pattern 1	3,52	3,36	3,32	3,47	3,49	3,83	3,43	3,25	3,44	Highly Appropriate
Practical Pattern 2	2,88	3,22	2,88	3,06	3,15	3,54	2,73	2,88	3,03	Moderately Appropriate
Meyneke Pattern	3,02	3,11	3,01	3,15	2,93	3,08	2,94	3,04	3,05	Moderately Appropriate
So-En Pattern	3,21	3,27	3,07	3,42	3,43	3,46	3,23	3,31	3,38	Highly Appropriate

Category Description:
1,00–1,75 = Not Appropriate
1,76–2,50 = Less Appropriate
2,51–3,25 = Moderately Appropriate
3,26–4,00 = Highly Appropriate

DOI: https://doi.org/10.17509/ijotis.v6i1.99094
p- ISSN 2776-6101 e- ISSN 2776-6152

Based on **Table 1**, the results of basic garment pattern fitting among students in the Fashion Design Education Program indicate differences in fit levels across the Praktical, Meyneke, and So-En pattern systems. These differences are evident in the average scores for each pattern system and in the results for each observed body measurement component.

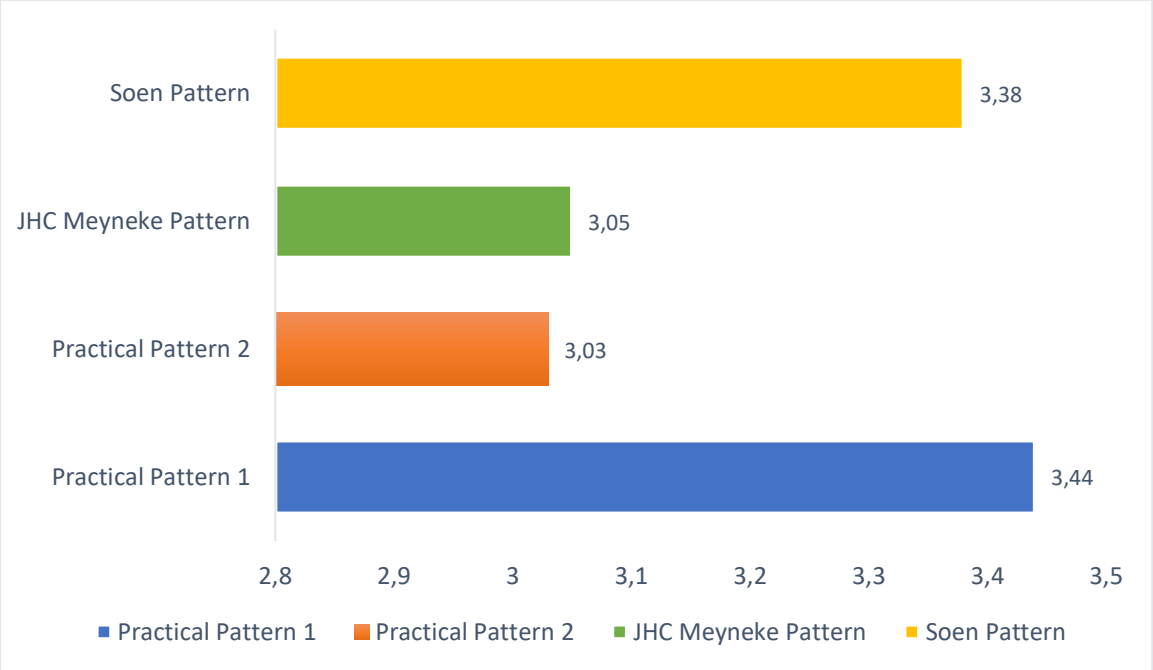

Figure 3. Comparison of the Average Fitting Results for Four Basic Pattern Systems

The visualisation in **Figure 3** reinforces the findings in **Table 1** that Practical Pattern 1 and the So-En Pattern have better-fitting performance than the other two pattern systems. The relatively small difference in scores between Practical pattern 1 and the So-En pattern indicates that both systems are equally capable of producing pattern constructions that match the students' body characteristics, although Practical pattern 1 yields more optimal results.

The research results show that Practical pattern 1 achieved the highest average score of 3.44, placing it in the highly appropriate category. This score indicates that Practical Pattern 1 has the best fit for students' body shapes compared to the other pattern systems. High scores on most indicators, such as bust (3.52), armhole (3.49), sleeve (3.83), and back length (3.43), demonstrate that the Practical pattern 1 construction achieves a good balance of proportions across body parts. Technically, this indicates that the construction formula used in pattern 1 is better suited to the body-size characteristics of the students in the study sample.

Meanwhile, the So-En pattern received an average score of 3.38 and was also classified as highly appropriate. Although its score was slightly lower than that of Practical pattern 1, the So-En pattern system demonstrated good consistency across nearly all evaluation aspects. The highest scores were observed for the sleeve (3.46), armhole (3.43), and waist (3.42) indicators. These results indicate that the So-En pattern system can produce fairly precise patterns, particularly for body parts involved in arm mobility and body silhouette balance. This finding aligns with the characteristics of the So-En pattern system, which is known for its detailed construction calculations, resulting in patterns that closely approximate the wearer's body measurements.

DOI: hhttps://doi.org/10.17509/ijotis.v6i1.99094xxx
p-ISSN 2776-6101 e-ISSN 2776-6152

In contrast to the two systems, the Meyneke pattern received an average score of 3.05, placing it in the moderately appropriate category. This score indicates that the Meyneke pattern can still be used to produce acceptable garments, but its fit on students' bodies is not yet optimal. Several indicators received relatively low scores, such as the armhole (2.93), back length (2.94), and sleeve (3.08). This suggests a lack of fit in certain areas of the body, which could affect both the comfort and appearance of the garments when worn. These discrepancies are likely due to the characteristics of the Meyneke pattern formula, which was developed based on the body proportions of a specific population and thus does not fully align with the anthropometric characteristics of the students in this study. The Meyneke pattern system requires additional adjustments when applied to students' body characteristics. This indicates that although the resulting patterns remain usable, further adjustments are needed in certain body areas to achieve optimal fit. These differences may be due to measurement approaches and construction calculations that are insufficiently adaptive to variations in students' body shapes.

The lowest average score was obtained by Practical pattern 2, at 3.03, which falls into the moderately appropriate category. Although this system has the advantage of ease of pattern creation, the fitting results show that some parts still require adjustments. The lowest scores were observed in the back length (2.73), bust (2.88), dart (2.88), and back width (2.88). This indicates that Practical Pattern 2 tends to produce shapes that do not follow the body's contours as optimally as Practical Pattern 1 and So-En. Therefore, the use of Practical Pattern 2 may require further corrections or modifications to achieve a better level of fit.

When evaluated on individual indicators, sleeve length had the highest score across nearly all pattern systems, particularly in Practical pattern 1, which achieved 3.83. This finding indicates that sleeve length is relatively easy to adjust across various pattern systems. Conversely, indicators such as the back body, back width, and armhole showed greater variation across pattern systems, suggesting that these are the parts most sensitive to differences in pattern-construction methods. The accuracy of body proportion calculations and pattern-making techniques significantly influences these parts.

Table 2. Results of the Friedman Test

Statistic	Score
N	72
Chi-Square	62,566
df	3
Sig.	0,000

To determine whether the differences in fitting results among the pattern systems were significant, a Friedman test was conducted, as shown in **Table 2**. The analysis results showed a Chi-Square value of 62.566 with a significance level of 0.000 ($p < 0.05$). These results indicate significant differences in the fitting results among the Practical 1, Practical 2, Meyneke, and So-En pattern systems.

Table 3. Mean Rank of Fitting Results

Pattern Systems	Mean Rank
Practical Pattern 1	3,24
So-En Pattern	2,88
Meyneke Pattern	2,03
Practical Pattern 2	1,84

DOI: https://doi.org/10.17509/ijotis.v6i1.99094
p- ISSN 2776-6101 e- ISSN 2776-6152

Based on the mean rank values shown in Table 3, Practical pattern 1 received the highest ranking, followed by So-En, Meyneke, and Practical pattern 2. These findings indicate that Practical Pattern 1 achieves a higher level of fitting accuracy than the other pattern systems.

The results of the Friedman test, which showed significant differences among the pattern systems, indicate that fitting evaluations can serve as a learning tool to help students understand the characteristics of each system. Through the fitting process, students not only assess the fit of the pattern but also identify areas for improvement, thereby developing their analytical and problem-solving skills in fashion pattern construction.

Overall, the research results show that Practical pattern 1 is the pattern system with the best fit, followed by the So-En Pattern, while the Meyneke pattern and Practical pattern 2 fall into the moderately appropriate category. These findings indicate that the Practical Pattern 1 system is better able to accommodate the body measurements of Fashion Design students. Therefore, the Practical Pattern 1 system can be recommended as a more effective alternative basic pattern for use in both learning and garment-making practice. In contrast, the So-En pattern can be a second choice, as it also demonstrates a high level of fit.

3.2 Discussion

The results of the study show differences in the level of fit among the basic pattern systems used by students in the Fashion Design Education Program. The Friedman test indicates significant differences in fit among the Praktical 1, Praktical 2, Meyneke, and So-En pattern systems ($p < 0.05$). These findings indicate that the pattern systems used influence the level of garment fit on the wearer's body. Thus, each pattern system has distinct construction characteristics, resulting in varying levels of fit quality when applied to Fashion Design Education students.

Based on the mean rank values, the Practical Pattern 1 system received the highest rank among the pattern systems, followed by the So-En, Meyneke, and Practical Pattern 2 systems. These results show that the Practical Pattern 1 system produced a better fit across most indicators. This high level of fit indicates that the pattern construction used can accommodate students' body-size characteristics more effectively than other pattern systems.

Based on the average fitting scores, Practical Pattern 1 received the highest score (3.44). It was classified as highly appropriate, followed by the So-En Pattern (3.38), which was also classified as highly appropriate. Meanwhile, the Meyneke Pattern (3.05) and Practical Pattern 2 (3.03) fell into the moderately appropriate category. These findings indicate that each pattern system has a different level of effectiveness in producing garments that fit the students' body characteristics.

The construction characteristics of each pattern system can explain these differences in fitting results. Practical Pattern 1 showed relatively high scores on nearly all indicators, particularly sleeve (3.83), armhole (3.49), and bust (3.52). These results indicate that this pattern system can produce pattern proportions that more closely match respondents' body measurements, thereby requiring minimal adjustments during the fitting process. In garment construction, the accuracy of the base pattern is a key factor in determining the quality of the finished product, as the pattern serves as the initial template for developing various garment designs. This is consistent with research by Kusumawardani et al., which states that the accuracy of pattern system selection affects the comfort, fit, and quality of the resulting garments (Kusumawardani Hapsari, Prahastuti Endang, 2017).

The finding that the So-En pattern received a highly appropriate rating also indicates that this system remains relevant for use in pattern-making instruction. The relatively high scores

DOI: hhttps://doi.org/10.17509/ijotis.v6i1.99094xxx
p-ISSN 2776-6101 e-ISSN 2776-6152

for waist (3.42), armhole (3.43), and sleeve (3.46) suggest that the So-En system can achieve a balanced fit in these body areas. These findings are supported by research by Krisjayusman and Mariah, who found that the Practical and So-En pattern-making systems produce relatively equivalent fit factors across several areas such as the shoulders, armholes, and back making both suitable for women's apparel production (Krisjayusman & Mariah, 2024).

Conversely, the Meyneke pattern and Practical pattern 2 yielded lower average values than the other two systems. Although they still fall within the moderately appropriate category, several indicators show discrepancies in the back section, back width, and armhole. This suggests that the pattern construction formulas used are not yet fully capable of accommodating the anthropometric characteristics of the student subjects in this study. Differences in users' body characteristics are indeed one of the factors influencing the success of a pattern system in producing a good fit. Therefore, not all pattern systems yield the same results when applied to different user groups (Kusumawardani Hapsari, Prahastuti Endang, 2017).

The results of this study have important implications for learning in the Fashion Pattern Construction course. In vocational fashion design education, learning success is measured not only by students' ability to draw patterns but also by their ability to produce patterns that fit well when applied to the wearer's body. Therefore, evaluating the fit of patterns must be an integral part of the learning process.

The finding that Practical Pattern 1 and So-En produced a highly appropriate category indicates that both systems can serve as primary alternatives in teaching basic patternmaking to students. The use of pattern systems proven to yield better fits can help students more concretely understand the relationship among body measurements, pattern construction, and the finished garment. Thus, the learning process focuses not only on pattern-making procedures but also on the ability to analyse and evaluate fit results.

Furthermore, the results of this study reinforce the importance of practice-based learning in fashion design education. Students need to be allowed to directly compare various pattern-making systems through activities such as creating patterns, sewing toiles, conducting fittings, and evaluating the results. Through these experiences, students can develop critical thinking skills in selecting the most appropriate pattern-making system for specific body characteristics. Research by Setiawati et al. shows that the development and reconstruction of pattern-making techniques in the learning process can improve students' ability to create fashion patterns and enhance their learning outcomes (As-as Setiawati, Astuti, 2016).

The research findings also indicate that the fitting process is integral to learning pattern construction. Errors in bust, armhole, or back width can only be clearly identified when the user is wearing the garment. Therefore, learning basic pattern construction should not stop at the pattern-drawing stage but should continue through the fitting and pattern-revision processes. This approach will help students understand that a pattern is a dynamic technical document that requires continuous evaluation to achieve optimal results. These findings are consistent with the development of the So-En basic pattern e-module, which emphasises the importance of students' integrated understanding of the stages of measurement, pattern construction, fitting, and garment finishing (Susmelly et al., 2025b).

From a pedagogical perspective, the results of this study also support the use of demonstration and direct instruction models in pattern-making courses. Pattern-making is a procedural skill that requires mastery of systematic steps and repeated practice. Instruction that provides direct examples, technical demonstrations, independent practice, and feedback during the fitting process will help students achieve greater proficiency in creating basic clothing patterns (Febriani, 2017).

DOI: https://doi.org/10.17509/ijotis.v6i1.99094
p- ISSN 2776-6101 e- ISSN 2776-6152

Overall, the research results show that Practical Pattern 1 and So-En have a better fit than the Meyneke and Practical pattern 2 systems. These findings contribute to the development of fashion pattern construction instruction by providing empirical evidence regarding which pattern systems are more effective for students in fashion design education programs. Thus, the research results can serve as a basis for selecting materials and learning strategies, and for evaluating basic fashion pattern-making practices in vocational fashion design education. The fitting evaluation process provides students with the opportunity to develop pattern-making competencies by identifying pattern errors in the body circumference, armhole, and back width. Through these activities, students gain reflective and practical learning experiences.

4. CONCLUSION

Based on the research results, there are significant differences in the fitting results among the Practical 1, Practical 2, Meyneke, and So-En pattern systems. The results of the Friedman test showed a significance value of 0.000 ($p < 0.05$), indicating that the pattern system used affects the level of fit among Fashion Design Education students. Based on the mean scores and mean ranks, the Practical 1 pattern system showed the highest level of fit, followed by the So-En, Meyneke, and Practical 2 systems.

The research results also indicate that fitting evaluation can be integrated as an important component of fashion pattern construction instruction. Through fitting activities, students gain hands-on experience in identifying the fit and misfit of patterns to body shapes, analysing the causes of construction errors, and reflecting on the patterns they have created. This process not only helps students understand the characteristics of various basic pattern systems but also supports the development of analytical, problem-solving, and decision-making skills in fashion pattern construction.

Thus, fitting evaluations can be utilised as a learning strategy to support the development of pattern-making competencies among Fashion Design students. In addition to serving as a tool for assessing outcomes, fitting evaluations also function as a means of reflective learning that connects pattern-making theory with the practical application of garment construction.

The implications of this research indicate that instructors teaching the Fashion Pattern Construction course need to integrate fitting evaluation activities into the learning process systematically. Fitting evaluation should be used not only to assess the final pattern but also to help students develop technical competencies and analytical skills in producing patterns that align with the wearer's body characteristics.

7. REFERENCES

As-as Setiawati, Astuti, dan C. R. (2016). *Rekontruksi Pola Busana Teknik Kombinasi Untuk Pembelajaran Busana Butik*. 291–300.

Astuti, A. (2023). Development of a Bustier Pattern with the So ' En System Basic Pattern. *Proceedings of the 5th Vocational Education International Conference*, 672–677.

Chang, H. J. (Julie), Rakib, M. A. N., Foysal, M. K. H., & Chong, J. W. (2024). Clothing suggestions based on comfort extracted from physiological and emotional parameters. *International Journal of Clothing Science and Technology*, *36*(5), 761–775. https://doi.org/10.1108/IJCST-10-2022-0141

DOI: hhttps://doi.org/10.17509/ijotis.v6i1.99094xxx
p-ISSN 2776-6101 e-ISSN 2776-6152

Chrimes, C., Boardman, R., McCormick, H., & Vignali, G. (2023). Investigating the impact of body shape on garment fit. *Journal of Fashion Marketing and Management: An International Journal*, *27*(5), 741–759. https://doi.org/10.1108/JFMM-03-2022-0049

Febriani, R. (2017). Penerapan Model Pembelajaran Langsung Pada Materi Pembuatan Pola Rok Hip Yoke Circular Teknik Draping Di Kelas Xi Busana Butik Smk Negeri 1 Jabon Sidoarjo. *Jurnal Tata Busana*, *6*(3), 57–62.

Galada, A., & Baytar, F. (2025). Developing an instrument with simulations to measure 3D to 2D fit correction skills in fashion design. *Fashion and Textiles*. https://doi.org/10.1186/s40691-025-00417-y

Hidayah, N., & Yasnidawati, Y. (2019). Penyesuaian Pola Dasar Busana Sistem Indonesia Untuk Wanita Indonesia Dengan Bentuk Badan Gemuk. *Gorga : Jurnal Seni Rupa*, *8*(1), 222. https://doi.org/10.24114/gr.v8i1.13595

Hunter, L., & Fan, J. (2015). Improving the Comfort of Garments. In *Textiles and Fashion* (pp. 739–761). Elsevier. https://doi.org/10.1016/B978-1-84569-931-4.00029-5

Isaji, A., Kim, K., & Takatera, M. (2022). Developing A Basic Pattern For A Design Based On The Comparison Of Four Basic Pattern Approaches. *International Journal of Clothing Science and Technology*, *34*(4), 485–501. https://www.emerald.com/ijcst/article-abstract/34/4/485/128487/Developing-a-basic-pattern-for-a-design-based-on?redirectedFrom=fulltext

Jannah, N. R., & Irmayanti, I. (2026). The Relationship Between Pattern Making and Pattern Alteration Skills and Students ' Learning Outcomes in Tailoring. *Jurnal Teknologi Busana dan Boga (TEKNOBUGA)*, *14*(1), 139–144.

Khaira, N. D., & Ernawati, E. (2024). Penggunaan Pola Dasar Sistem Pamela C. Stringer Pada Bentuk Tubuh Gemuk Pendek Wanita Indonesia. *Gorga : Jurnal Seni Rupa*, *13*(1), 259–266. https://doi.org/10.24114/gr.v13i01.52601

Krisjayusman, Z., & Mariah, S. (2024). Komparasi Fitting Factor Pola Konstruksi Praktis Dengan Pola So-En Pada Busana Wanita Model Blazer. *Seminar Nasional Pendidikan Teknik Boga Dan Busana*, *19*(1), 1–9.

Kusumawardani Hapsari, Prahastuti Endang, H. I. (2017). Analisis Fitting Factor Busana Anak Basic Dress Pola Konstruksi. *Prosiding Seminar Nasional Pendidikan Teknik Boga Dan Busana*, *12*(1), 1–6.

Li, J., Su, X., Liang, J., Mok, P. Y., & Fan, J. (2024). Tailoring Garment Fit for Personalised Body Image Enhancement: Insights from Digital Fitting Research. *Journal of Theoretical and Applied Electronic Commerce Research*, *19*(2), 942–957. https://doi.org/10.3390/jtaer19020049

Muliawan, P. (2011). *Konstruksi Pola Busana Wanita*. Libri.

Nezla, Ü., & Emine, U. (2019). Impacts of female body shapes on patternmaking. *Industria Textila*, *69*(06), 519–523. https://doi.org/10.35530/IT.069.06.1222

Prahastuti, E. (2007). *Analisis Pola Dasar Pakaian Sistem Meyneke Pada Berbagai Bentuk Tubuh Mahasiswa*. Pusat Penelitian IKIP Malang.

DOI: https://doi.org/10.17509/ijotis.v6i1.99094
p- ISSN 2776-6101 e- ISSN 2776-6152

Pratomi, R., & Zuhnikhayati, E. (2018). Analisis Hasil Pas Suai Gaun Casual Untuk Wanita Bertubuh Gemuk Dengan Pola Dasar Sistem Bunka dan So-En. *Jurnal Pendidikan Tata Busana*, 1–12.

Qotimah, K., Zuhnikhayati, E., & Budiastuti, E. (2025). Kualitas Pas Suai Busana Muslimah Menggunakan Konstruksi Pola Zero Waste Dan Pola Praktis. *Seminar Nasional PTBB*, *20*(1), 1077–1092. https://jurnal.uny.ac.id/index.php/ptbb/article/view/93948/24712

Saraswati, I. S., & Sabatari, W. (2021). Pas Suai Hasil Pembuatan Blus Dengan Pola Dasar Sistem Meyneke Dan Sistem Danckaerts Untuk Wanita Bertubuh Pendek Gemuk. *Prosiding Seminar Nasional Pendidikan Teknik Boga Busana*, *16*(1).

Sefenu, F. Y., Saani, A. J., & Amonoo, J. (2021). Clothing Fit Preferences and Dressing Behaviour of Undergraduate Students: The Case of Public Universities in Ghana. *International Journal of Innovative Research and Development*, *10*(2). https://doi.org/10.24940/ijird/2021/v10/i2/FEB21005

Şen Kılıç, A., Ünal, C., & Ondogan, Z. (2024). AnMePa: development of a new method for preparing trousers pattern by using the antropometric measurement system. *International Journal of Clothing Science and Technology*, *36*(2), 367–382. https://doi.org/10.1108/IJCST-09-2023-0141

Soekarno. (2022). *Buku Penuntun Membuat Pola Tingkat Dasar*. PT Gramedia Pustaka Utama.

Surikova, O. V., Kuzmichev, V. E., & Surikova, G. I. (2017). Improvement of Clothes Fit for Different Female Bodies. *Autex Research Journal*, *17*(2), 111–119. https://doi.org/10.1515/aut-2016-0003

Susmelly, S., Ernawati, E., Nelmira, W., Suci, P. H., & Hadiastuti, H. (2025a). Pengembangan E-Modul Materi Pembuatan Pola Dasar Sistem So-En Mata Kuliah Konstruksi Pola Busana Untuk Mahasiswa Tata Busana Universitas Negeri Padang. *EDUTECH*, *24*(3), 1289–1298. https://doi.org/10.17509/e.v24i3.85042

Susmelly, S., Ernawati, E., Nelmira, W., Suci, P. H., & Hadiastuti, H. (2025b). Pengembangan E-Modul Materi Pembuatan Pola Dasar Sistem So-En Mata Kuliah Konstruksi Pola Busana Untuk Mahasiswa Tata Busana Universitas Negeri Padang. *Edutech*, *24*(3), 1289–1298. https://doi.org/10.17509/e.v24i3.85042

Wang, J.-J., & Yi, X. (2011). Dart processing of automatic pattern grading techniques in computer-aided garment design. *Journal of Beijing Institute of Clothing Technology (Natural Science Edition)*.

DOI: hhttps://doi.org/10.17509/ijotis.v6i1.99094xxx
p- ISSN 2776-6101 e- ISSN 2776-6152