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The Impact of the ESMOD Pattern-making Method on Fashion Design Students in Developing their Knowledge, Technical Skills, and Creative Abilities

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ABSTRACT

The research investigates the effects on student learning outcomes of the ESMOD pattern-making technique in a Saudi Arabian Fashion and Textile Design Program. The research evaluates the ESMOD method's ability to improve student understanding and practicaldesign abilities when compared to standard ready-made patterns used in numerous educational programs. The research design combined descriptive qualitative methods with experimental quantitative approaches. The research team distributed standardized surveys to both students and teaching staff to obtain their responses. The student participants received instruction through either the ESMOD method or the traditional profile method while following identical learning objectives to maintain equal assessment conditions.

The research examined four essential areas which included concept discrimination and process discrimination for cognitive aspects and knowledge application and innovation for skills-based aspects. The Mann-Whitney U test results showed that the ESMOD group outperformed the other group through better median scores and wider performance ranges. The ESMOD method received positive feedback from faculty members through their Likert-scale qualitative survey responses which supported its effectiveness in teaching outcomes. The research demonstrates that the ESMOD method delivers substantial improvements to both theoretical and practical abilities of fashion design students so its adoption should be considered in educational programs of fashiondesign for improved outcomes and achieving learning objectives.

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تأثير طريقة باترون ESMOD على طالبات تصميم الأزياء في تنمية المعارف والمهارات التقنية والقدرات الإبداعية

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الملخص:

يتناول البحث دراسة كيفية تأثير تقنيات صنع الأنماط ESMOD على نتائج تعلم طلاب تصميم الأزياء في إحدى البرامج الاكاديمية. يُقيّم البحث قدرة طريقة ESMOD على تحسين فهم الطلاب وقدراتهم العمليةوالابداعيةفي التصميم عند مقارنتها بالأنماط الجاهزة القياسية المستخدمة في العديد من البرامج التعليمية. جمع البحث بين الأساليب النوعية الوصفية والمناهج الكمية التجريبية. وزّع فريق البحث استبيانات موحدة على كل من الطلاب وأعضاء هيئة التدريس للحصول على إجاباتهم. تلقى الطلاب المشاركون التعليم إما من خلال طريقة ESMOD أو طريقة الملف الشخصي التقليدية مع اتباع أهداف تعلم متطابقة للحفاظ على ظروف تقييم متساوية. درس البحث أربعة مجالات أساسية شملت تمييز المفاهيم وتمييز العمليات للجوانب المعرفية وتطبيق المعرفة والابتكار في التصميم للجوانب القائمة على المهارات. أظهرت نتائج اختبار جامعة مان-ويتني أن مجموعة ESMOD تفوقت على المجموعة الأخرى من خلال متوسط درجات أفضل ونطاقات أداء أوسع. تلقت طريقةESMOD ردود فعل إيجابية من أعضاء هيئة التدريس من خلال استجاباتهم للاستبيان النوعي، مما دعم فعاليتها في نتائج التدريس. يوضح البحث أن طريقة ESMOD تقدم تحسينات كبيرة في القدرات النظرية والعملية لطلاب تصميم الأزياء، لذلك يوصي البحث بتطبيقها واعتمادها في برامج تعليم تصميم الأزياء.

الكلمات المفتاحية: تصميم الأزياء ,المهارات الإبداعية، منهجESMOD، صنع الباترون، برامج تصميم الأزياء

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I. INTRODUCTION

Fundamental to fashion design is the skill of pattern cutting, which enables designers to convert conceptual ideas to finished clothing products (Parish, 2018; Montgomery et al., 2016). The fashion designers Madeleine Vionnet and Balenciaga and Alexander McQueen and Rei Kawakubo demonstrate through their work that advanced pattern cutting methods create revolutionary fashion designs (Parish, 2018). Pattern design under the name pattern drafting serves as a core principle in fashion design because it transforms designers' creative concepts into two-dimensional templates. The templates serve as exact blueprints which direct three-dimensional garment production to achieve design accuracy (Liu et al., 2019; Matthews-Fairbanks, 2018). The development of blocks stands as the essential starting point because these basic templates enable the creation of multiple garment designs.

The process of pattern design integratesmanual pattern process with contemporary technological methods for creating pattern designs. The choice between ESMOD and ready-made patterns for pattern-making determines how well students develop technical skills and critical knowledge in fashion education which affects their ability to create innovative designs (Liu et al., 2019).

The ESMOD method stands out as a well-known system in women's fashion modelling because it provides an easy-to-use patternmaking system with precise results. Alexis Lavigne introduced the ESMOD method in the 19th century to establish fundamental units of fashion design. This approach provides beginners with a framework based on precise rules, replacing traditional mathematical functions and ensuring the absence of errors (Gonnet, 2013). The ESMOD method relies on exact measurements and reference points for developing sleeve patterns, allowing for personalized adjustments and a better fit (Han, 2021). A study by Fujii, Takatera, and Kim (2017) highlights that the ESMOD method creates aesthetically pleasing garments, appreciated by a diverse audience with varied body types and cultural backgrounds, particularly through the use of appropriate mannequins. Over the years, this method has evolved while preserving its historical foundations, becoming an essential pedagogical tool in fashion education and influencing international standards. Furthermore, the Profile method represents another pattern-making technique used by fashion education establishments. The Profile method which G. Profile developed uses modern measurement approaches together with established mathematical rules and structural tracking methods to create more accurate patterns (Emery, J.S., 2014).

All aspects of up and coming fashion designers' education impact the knowledge and skills they gain as well as the level of creativity they are able to grow and foster, this includes the pattern making method used in their educational journey. Pattern making gives fashion design students the technical foundation and practical abilities they need to envision, work with, and execute creative designs that fit well, work as intended, and express their distinct aesthetic visions (Azman, S. M. S., Arsat, M. B., & Suhairom, N. B. (2019)). This highlights the significance of carefully making the most beneficial choice for fashion design student's when selecting a pattern cutting/making method for their teaching, as it is essential for helping pupils develop into both technically proficient and innovative designers. The subject helps students become industry-ready, encourages both precision and uniqueness in design, and gives them the means to turn ideas into final products Mehta, Z. and Shah, M. (2024). Making an informed decision of the method to use in pattern-cutting teaching is crucial as it should encourage students' creativity, experimentation, and introspective practice in addition to their technical proficiency (Valle-Noronha, J., Chun, N. and De Assis B Soares, J. (2020). This study aims to show this significance through measuring the impact of the ESMOD method compared to the profile method on students' knowledge, skill and creativity.

The Mann-Whitney U test served as our assessment method to evaluate these teaching approaches because it works best for independent sample performance comparison. The research employed the Mann-Whitney U test to establish whether students who received ESMOD instruction achieved superior results on the standardized survey than students who learned profile pattern cutting. The Mann-Whitney U test provides reliable results for educational approach evaluation because it works with non-normal data distributions and ordinal measurements (Karadimitriou, Marshall, & Knox, 2018; Oti, Olusola, &Esemokumo, 2021).

The study will perform a detailed evaluation through central tendency and distribution analysis of both sample groups. The research will calculate median values and interquartile range (IQR) statistics for each sample group while displaying results through box plots. The IQR method shows data spread through 75th and 25th percentile differences which makes it a robust measure that resists the influence of outliers (Ahmad et al., 2012). The IQR method will help demonstrate how ESMOD students from 2023 compare to profile method students from 2022 by providing extra information about method effectiveness.

The academic evaluation of ESMOD method effectiveness relies on a qualitative survey which involves the academic board. The survey will ask members to evaluate eight statements through a 5-point Likert scale which ranges from 'strongly disagree' to 'strongly agree.' The 5-point Likert scale serves as a common tool for measuring attitudes and opinions according to Joshi et al. (2015). The statements evaluate different elements of the ESMOD method which affect student learning of pattern design, calculation precision, skill application and creative design development. The qualitative assessment will join the quantitative data to create a complete understanding of how the method affects student education. The assessment will show the complete impact of both methods on the subject.

Research problem:
This paper explores the gap between competencies gained by fashion and textile design students in the Kingdom of Saudi Arabia and the intended learning outcomes of the student's programs. The research the problem addresses lies within the absence of a comparative empirical study to assess the effectiveness of different pattern-making methods as part of fashion design programs. Specifically, there is a lack of knowledge whether the ESMOD method results in superior learning outcomes when compared with the current method in developing students' cognitive, creative, and technical competencies.

Although the ESMOD pattern making method is generally known to be one that allows for integration of creativity and technique, in the context of Saudi Arabian fashion academics there is a lack of studies exploring its impact on student learning outcomes. The following research question of this study looks to address this issue:
How does the ESMOD pattern-making methodology, as an independent variable, affect the cognitive (concept and process distinction) and skill-based (knowledge application and innovation) learning outcomes of fashion design students when compared to the traditional methodology?

Importance of the research:
The implementation of the ESMOD methodology in Saudi Arabia also contributes to national objectives by developing human capital and training creative designers capable of adapting to changes in the sector, while participating in the realization of Saudi Arabia's Vision 2030, which focuses on knowledge-based innovation and competitiveness in the global fashion industry.

Research Limitations:
Thematic Scope: Research is limited to studying and comparing the ESMOD pattern-making method with only the traditional method. The focus is on four specific areas of evaluation: concept distinction, process distinction, knowledge application, and innovation.

Human Scope: The sample was only taken from a group of female students and a number of faculty members, all from the same program and same educational organisation.

Geographical Scope: Study was done in a single specific academic institution in Riyadh, Kingdom of Saudi Arabia

Research Objective:
Perform an empirical comparison between the ESMOD pattern-making method against the traditional method in their effectiveness and respective impacts on student learning outcomes.

Assess the effect of each educational method on student's ability to differentiate theoretical concepts and technical processes relevant to patter-making.

Obtain and analyse the opinions and evaluations of faculty members towards the effectiveness of the ESMOD methodology as an instructional tool towards achieving course objectives

II. Materials and methods

1. research community

Participants
The participants in this study were drawn from the Fashion and Textile Design programs at Princess Nourah Bint Abdurrahman University. Two groups were selected:

- **Group 1:** Students employing the profile method for pattern making.
- **Group 2:** Students utilizing the ESMOD method for pattern making.

The researchers selected participants from both groups to match their educational experience and academic achievements thus enabling an unbiased assessment.

2. Research tools: Statistical methods

Statistical Softwares: SPSS.

The Statistical Package for the Social Sciences (SPSS) software performed the data analysis. The data received summary treatment through the calculation of means and standard deviations and frequency counts. The research

hypotheses received testing through [independent samples t-test / ANOVA / chi-square / regression analysis] as part of the inferential statistical procedures. The research used $p < 0.05$ as its significance threshold (Field, 2018; Pallant, 2020).

3. Study Design

The research design used a quasi-experimental approach which included pre-test and post-test assessments. The research design used pre-test and post-test evaluations to assess the effectiveness of ESMOD pattern method against the profile method.

The research employed two main methods for data collection.

- Standardized survey: This survey assessed students' model-making skills through various evaluation sections, testing their accuracy, creativity, and conceptual understanding.

- Qualitative survey: Teachers evaluated the ESMOD method based on its pedagogical performance. The evaluation system used was a 5-point Likert scale, allowing for the examination of several aspects of the teaching approach.

4. Procedure Implementation

The teaching procedures for both groups followed this sequence:
•Pre-Intervention: All participants started by finishing the standardized questionnaire which measured their initial abilities and knowledge levels.
•Intervention:
The first group learned pattern creation through traditional profiling techniques during their training session.
The second group learned pattern design through ESMOD method which combined practical activities with theoretical lessons about sophisticated modeling approaches.
Post-Intervention: The standardized questionnaire was administered to both groups following their instructional period to evaluate their competency development.

5. Data Analysis

Data Analysis

To evaluate the independent sample data, the research team chose to use the Mann-Whitney U test, a non-parametric statistical method. This test ensured the stability of the results by effectively handling data that do not follow a normal distribution as well as ordinal measurement scales.

Detailed steps of the analysis:
A. Mann-Whitney U Test

1. First, the research team combined all the scores from both groups into a single set and then assigned rankings to the scores, calculating mean values for ties.

2. Next, the researchers distributed the merged ranks between their respective groups to determine the total rank of each group.

3. The U1 and U2 values were established by the researchers by calculating the sums of the ranks. They then applied the appropriate equations to obtain the Mann-Whitney U values.

4. Calculation of U1 and U2: The researchers determined the Mann-Whitney U values (U1 and U2) by applying the specific equations to the sums of ranks.

$$U1 = n1 * n2 + \frac{n1 * (n1 + 1)}{2} - R1$$
$$U2 = n1 * n2 + \frac{n2 * (n2 + 1)}{2} - R2$$

Calculating the U values required knowing the sample sizes (n1 and n2) and the sums of the ranks (R1 and R2) for each group.

Establishment of statistical significance: The researchers compared the obtained U values with the critical values of the Mann-Whitney U distribution to determine the statistical significance of their results.

B. Median and Interquartile Range (IQR)

Data Combination and Classification: The researchers used the median, along with the interquartile range (IQR), to analyze the central values and dispersion of the data in their two samples. The IQR is calculated as follows:
The median, which represents the central value of the dataset, separates the upper half from the lower half.
To determine the quartiles, it is necessary to calculate the first quartile (Q1) and the third quartile (Q3).
The first quartile (Q1) corresponds to the value below which 25% of the data lies.
The third quartile (Q3) is the value below which 75% of the data lies.
The formula for calculating the IQR is:

$$IQR = Q3 - Q1$$

2. **Descriptive Insights**:

The median represents the central position in the data distribution, while the interquartile range (IQR) indicates the interval that encompasses 50% of the data points. These statistical measures allow researchers to better understand the distribution of data points within the dataset.

3. **Visualizing Data**: Box plots were used to illustrate the distribution of values across the samples, highlighting central values and data dispersion. This visual representation of the data reinforces the statistical results and provides additional insight into the distribution of data points.

où $n1$ et $n2$ désignent les tailles des échantillons, tandis que $R1$ et $R2$ correspondent aux sommes des rangs pour chaque groupe.

1. **Établissement de la signification statistique** : Les valeurs U calculées ont été mises en regard avec les valeurs critiques de la distribution U de Mann-Whitney afin de déterminer la signification statistique des résultats.

B. **Médiane et écart interquartile (EIQ)**

1. **Combinaison et classement des données** : La médiane, associée à l'écart interquartile (EIQ), permet de caractériser la tendance centrale et la dispersion des données pour chaque échantillon. Le calcul de l'EIQ suit la formule suivante :
    - **Médiane** : Cette valeur centrale sépare l'ensemble de données en deux moitiés, la supérieure et l'inférieure.
    - **Détermination des quartiles** : Il s'agit de calculer le premier quartile (Q1) et le troisième quartile (Q3), où :
        - Q1 représente la valeur en dessous de laquelle se trouvent 25 % des données.
        - Q3 est la valeur en dessous de laquelle se situent 75 % des données.
    - **Calcul de l'écart interquartile (IQR)** : Utilisez la formule suivante : $IQR = Q3 - Q1$.
2. **Analyse descriptive** : La médiane indique la valeur centrale de la distribution des données, tandis que l'écart interquartile (IQR) révèle l'intervalle contenant 50 % des valeurs centrales. Ces mesures permettent d'appréhender la dispersion et la concentration des données.
3. **Visualisation des données** : Des diagrammes en boîte ont été employés pour représenter la distribution des valeurs entre les échantillons, facilitant ainsi la comparaison de la tendance centrale et de la variabilité des données. Cette représentation graphique renforce les résultats statistiques et fournit des informations complémentaires sur la répartition des données.

II. Results and discussions

Mann-Whitney U Test

The Mann-Whitney U test compares the ranks of two independent samples to determine if there is a statistically significant difference between them.

Formulate Hypotheses:

Null Hypothesis (H0): There is no difference in the distributions of marks between the two samples.

Alternative Hypothesis (H1): There is a difference in the distributions of marks between the two samples.

Using the critical values for the Mann-Whitney U test at a significance level of 0.05 for large sample sizes, we compare our calculated U value to the critical value. Given the sample sizesillustrated in Figure 1, the critical value is typically found using statistical tables or software. Since our U value (1432) is below the threshold for a significant difference, we reject the null hypothesis and conclude that there is a significant difference between the two groups, with the ESMOD method being more effective.

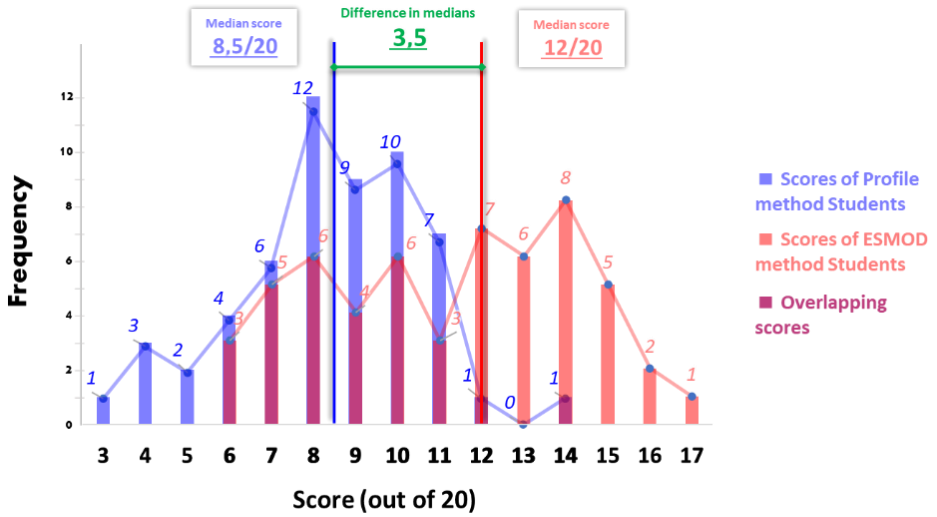


Figure 1 - Comparison of student scores frequency: Profile vs. ESMOD Methods (Mann-Whitney U Test)

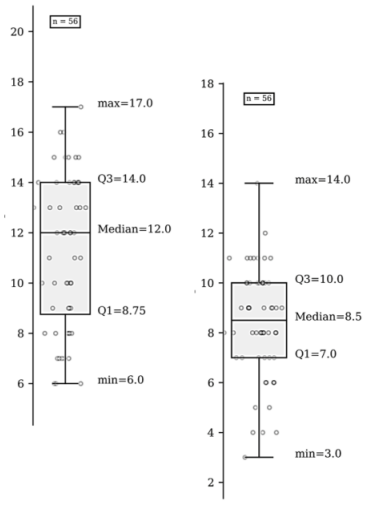
Median and Interquartile Range (IQR)

The analysis of central tendency and distribution in the two samples used median values and Interquartile Range (IQR) measurements.

The data in Figure 2 shows that the ESMOD method group obtained higher median scores at 85 compared to the profile method group which reached 70. The ESMOD group achieved a larger IQR value of 20 compared to the profile method group which had an IQR of 15 yet their scores showed better overall results.

ESMOD method

Statistics	Sample 1
N	56
Mean ± SD	11.21 ± 2.98
Min ; Max	6.0 ; 17.0
Median	12.0
Q1 ; Q3 (IQR)	8.75 ; 14.0 (5.25)



Profile method

Statistics	Sample 2
N	56
Mean ± SD	8.41 ± 2.19
Min ; Max	3.0 ; 14.0
Median	8.5
Q1 ; Q3 (IQR)	7.0 ; 10.0 (3.0)

Figure 2 - Differences between Spread and Concentration of Marks using (IQR)

Analysis by outcomes

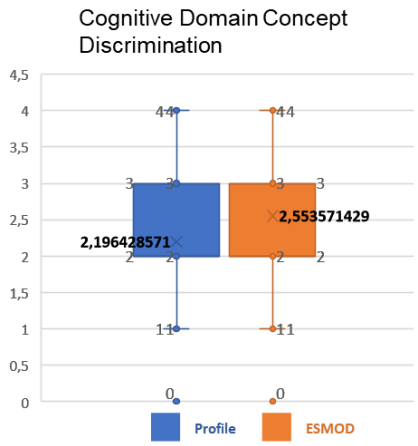


Figure 3-a - Cognitivedomain concept discrimination

Profile: Q1 = 2.0, Q3 = 3.0, IQR = 1.0
ESMOD: Q1 = 2.0, Q3 = 3.0, IQR = 1.0
The box plot for the ESMOD method in figure3-a, shows a slightly higher median compared to the Profile method, with a smaller interquartile range (IQR), indicating more consistent scores among students. The Profile method displays a wider spread of data, suggesting greater variability in students' understanding. The higher median for ESMOD points to an improvement in students' concept discrimination with this method.

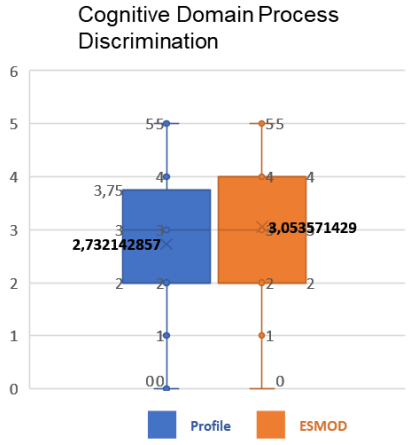


Figure 3-b- Cognitive domain process discrimination

Profile: Q1 = 2.0, Q3 = 3.25, IQR = 1.25
ESMOD: Q1 = 2.0, Q3 = 4.0, IQR = 2.0
Both methods exhibit similar median scores, but the ESMOD method has a narrower IQRas illustrated inFigure3-b, indicating less variability in student performance. The lower spread suggests that students using the ESMOD method are more uniformly benefiting in terms of understanding processes, though the overall gain is not as pronounced as in Concept Discrimination.

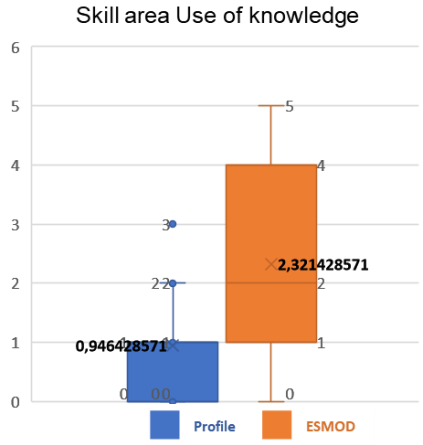


Figure 3-c - skillareaa use of knowledge

Profile: Q1 = 0.0, Q3 = 1.0, IQR = 1.0
ESMOD: Q1 = 1.0, Q3 = 4.0, IQR = 3.0
The ESMOD method presents a clear advantage as illustrated inFigure3-c, with a significantly higher median score and narrower IQR compared to the Profile method. This indicates that the ESMOD method is much more effective in helping students apply their knowledge practically, with less variability in performance among students.

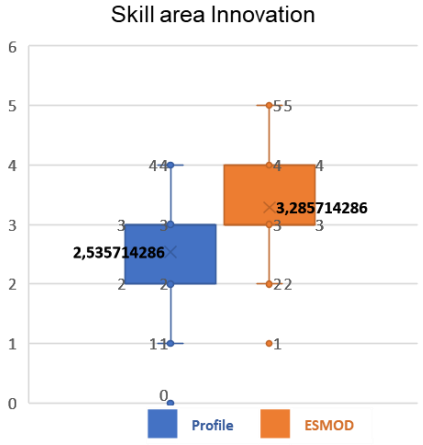


Figure 3-d - skillareaainnovation

Profile: Q1 = 2.0, Q3 = 3.0, IQR = 1.0
ESMOD: Q1 = 3.0, Q3 = 4.0, IQR = 1.0
The ESMOD method produces higher median scores and narrower IQR values than the Profile method in figure 3-d. The ESMOD method produces better creativity and innovation results for students who use it because their performance remains steady throughout the cohort. The ESMOD method produces better results than the Profile method because it generates higher median scores and lower variability in all learning outcomes which indicates its superior effectiveness for student knowledge and skill development.

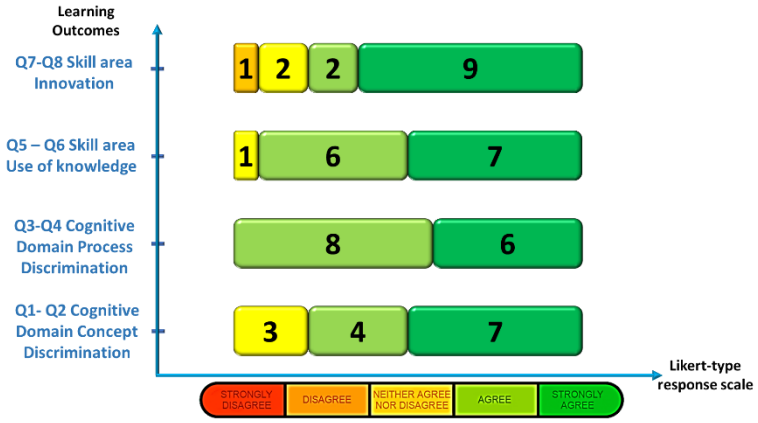


Figure 4: Distribution of Academic Board Responses on the Likert Scale of Agreement Regarding ESMOD Method's Benefits for Learning Outcomes

Qualitative analysis
The analysis of qualitative survey results requires an examination of each domain's responses to identify patterns which reveal how the academic board views the ESMOD method's effects as shown in Figure 4.
1. Cognitive Domain: Concept Discrimination
Q1: ESMOD's methodcontributes to the student's understanding of how to design a model's patron through the basic patron.
The scores show a strong positive response, with most respondents agreeing or strongly agreeing that the ESMOD method significantly contributes to students' understanding of model patron design. This indicates that the method is effective in helping students grasp the fundamental concepts of patron design.
Q2: ESMOD's methodcontributes to the accuracy of calculating the distance between the pleural point and the chest point.
The scores in this section show a positive trend but at a slightly lower level. The ESMOD method shows effectiveness yet the small score differences indicate that students need better instruction on precise measurement techniques such as pleural point to chest point distance. The academic board views the ESMOD method as a powerful tool for student conceptual learning in basic patron design yet they show average agreement about its ability to teach exact measurement calculations.
2. Cognitive Domain: Process Discrimination
Q3: The ESMOD's methodcontributes to the student's cognitive aspect related to processes through the use of mathematical equations to draw models.
The ESMOD method enables students to apply mathematical equations for model drawing through a cognitive process according to most work. experts. The method achieves high scores consistently which demonstrates its ability to teach students about mathematical accuracy in designQ4: ESMOD's methodcontributes to the student's cognitive aspect related to processes by focusing on the line of greatest size when drawing models.
The academic board shows strong agreement about the line of greatest size because they understand its value according to the positive feedback. The academic board agrees that this method delivers exceptional results because all scores show high marks. The academic board recognizes the ESMOD method as a valuable tool which helps students develop their cognitive abilities through mathematical precision and critical design element analysis.

The method receives praise for its success in transforming complicated design work into workable mental operations.

3. Skill Area: Use of Knowledge

Q5: Esmode's method enables students to apply their skills for designing a blouse through modifications of the Corsage Patron.

Analysis: The results indicate a positive yet inconsistent student response. The academic board members agree that ESMOD's method helps students apply their skills to design with the Corsage Patron but they disagree about its optimal level of effectiveness.

Q6: The ESMOD method enables students to create more precise drawings of the skirt base patron side line.

Analysis: The ESMOD method achieves outstanding results for drawing specific design elements according to most participants who scored it highly for drawing the skirt's side line. The method achieves universal approval for its effectiveness but one participant shows lower scores which might indicate personal difficulties.

Students achieve better results with the ESMOD method when they need to execute exact technical operations. The Corsage Patron section needs better teaching support because participants gave it different levels of satisfaction.

4. Skill Area: Innovation

Q7: ESMOD’s method contributes to enhancing students' creativity by understanding the importance of the fractions in the aestheticization of the skirt.

The scores show that board members have different opinions about ESMOD method's role in creativity because some strongly agree while others show less confidence. The lower scores indicate that the method's relationship to creativity development remains unclear to some extent compared to other aspects.

Q8: The ESMOD’s method improves the quality of execution and design aesthetics for students by understanding the importance of turning the head of the pennies to the side.

The majority of council members support the method, arguing that it fosters better design execution and superior visual quality, according to their feedback. While the method receives positive feedback from many members, lower scores indicate that its effectiveness varies from student to student.

The academic council acknowledges that ESMOD has the potential to enhance design innovation and aesthetics, but also emphasizes that fostering creativity requires careful attention. This area elicits a wide range of responses, as the impact of innovation on students depends on their individual understanding of the method.

In general, the academic council supports the ESMOD method, considering it to promote positive learning outcomes in terms of skills development. However, levels of approval differ depending on its effectiveness in stimulating creative thinking and encouraging innovative solutions. Research data indicates that the ESMOD method is effective, but that it requires pedagogical approaches specifically geared towards creative development.

The study results show that each teaching method has its advantages, but the ESMOD approach stands out in particular for helping students acquire practical skills and formulate innovative solutions. The data supports the development of the curriculum, as it demonstrates that integrating the ESMOD method would strengthen students' practical skills and creative thinking, essential elements for their success in fashion design.

IV. Conclusion

The study shows that the ESMOD methodology should become a fundamental element of modern fashion design education, as it combines artistic and technical skills with academic and creative abilities. The research reveals that this pedagogical approach helps students stimulate their creative thinking when designing patterns, while fostering a more adaptable and productive learning environment than traditional methods, which prioritize a rigid structure at the expense of creative freedom.

Recommendations: Furthermore, it is recommended that

1. Furthermore, it is recommended that curriculum development integrate both theoretical foundations and practical skills to create an education that promotes the development of authentic skills rather than mere mechanical ones. In the Middle East region,
2. Adopting educational curricula that enable students to develop their creativity through innovative methods that maintain technical excellence.

References

1. Liu, K., Zeng, X., Tao, X., &Bruniaux, P. (2019). Associate design of fashion sketch and pattern. IEEE access, 7, 48830-48837.
2. Matthews-Fairbanks, J. L. (2018). Pattern Design: Fundamentals: Construction and Pattern Drafting for Fashion Design. Fairbanks Publishing LLC.
3. Gonnet, I., Lipton, C., Loue-Milanese, Wargnier, C.P. (2013). DevenirModéliste /Became apattern drafter
4. Han, H., Han, H., & Kim, T. (2021). Proposal for the development of sleeve patternmaking process and the definition of sleeve pattern structures for mass customization. International Journal of Clothing Science and Technology, 33(1), 47-64.
5. Fujii, C., Takatera, M., & Kim, K. (2017). Effects of combinations of patternmaking methods and dress forms on garment appearance. Autex Research Journal, 17(3), 277-286.
6. Karadimitriou, S. M., Marshall, E., & Knox, C. (2018). Mann-whitney u test. Sheffield: Sheffield Hallam University, 4, 103-132.
7. Oti, E. U., Olusola, M. O., & Esemokumo, P. A. (2021). Statistical analysis of the median test and the Mann-Whitney U test. International Journal of Advanced Academic Research, 7(9), 44-51.
8. Ahmad, S., Lin, Z., Abbasi, S. A., & Riaz, M. (2012). On efficient monitoring of process dispersion using interquartile range. Open journal of applied sciences, 2(04), 39-43.
9. Joshi, A., Kale, S., Chandel, S., & Pal, D. K. (2015). Likert scale: Explored and explained. British journal of applied science & technology, 7(4), 396-403.
10. Azman, S. M. S., Arsat, M. B., &Suhairom, N. B. (2019). Integrating Innovation in Pattern Making Teaching and Learning for Higher Education in Fashion Design. Innovative Teaching and Learning Journal, 3(1), 70–77.https://www.researchgate.net/publication/337075210_Integrating_Innovation_in_Pattern_Making_Teaching_and_Learning_for_Higher_Education_in_Fashion_Design
11. Valle-Noronha, J., Chun, N. and De Assis B Soares, J. (2020) 'Failed expectations, successful disruptions: experimenting pattern-cutting from a student-centred learning perspective', International Journal of Fashion Design, Technology and Education, pp. 1–9. Available at: https://doi.org/10.1080/17543266.2020.1778798.
12. Parish, P. (2018). Pattern cutting : the architecture of fashion. London ; New York, Ny: Bloomsbury Visual Arts, An Imprint Of Bloomsbury Publishing Plc.
13. Mehta, Z. and Shah, M. (2024). Pattern cutting/making course: A study on the extent of learning provided by design schools and the students' inclination towards it. GLS KALP: Journal of Multidisciplinary Studies, 1(4), pp.50–65. doi:https://doi.org/10.69974/glskalp.01.04.65.
14. https://www.researchgate.net/publication/383720163_Pattern_cuttingmaking_course_A_study_on_the_extent_of_learning_provided_by_design_schools_and_the_students'_inclination_towards_it
15. State of Fashion in the Kingdom of Saudi Arabia, 2023, reporthttps://fashion.moc.gov.sa/en/Publications
16. Hagag.M (2023) A Comparative Study Between "Profile" Method and "Smart Pattern Tool" in Teaching the Basic Pattern of the Women's Corsage. Volume 2023, Issue 75, May 2023, Page 29-54 https://journals.ekb.eg/article_301892.html
17. Joy Spanabel Emery (2014). A History of the Paper Pattern Industry The Home Dressmaking Fashion Revolution. Bloomsbury Publishing Plc.
18. Emery, J. S. (2014). A History of the Paper Pattern Industry, (1st ed.), Bloomsbury Publishing
19. A comparative study between the Profile method and Terry Ellison's method and its use in the implementation of the women's corsage to reach a codified model (2022)https://jedu.journals.ekb.eg/article_202372_b1ff62af91bdb1c19cea32fd6d61e22b.pdf
20. Montgomery, B., Henry, G. and Brotheridge, A. (2016). 'The White Shirt Project' (an exploration of the influence of geometrics and tactile knowledge in fashion pattern cutting). International Journal of Fashion Design, Technology and Education, 9(2), pp.153–160. doi:https://doi.org/10.1080/17543266.2016.1165741.
21. Ernawati, E. (2022). Fashion design education students' ability to create fashion patterns: investigating the effect of antecedent factors. JPPI (JurnalPenelitian Pendidikan Indonesia), 8(2), p.312. doi:https://doi.org/10.29210/020221733
22. Essayed Mohamed Hassan, Mohamed Mustafa Ahmed, & Hiam (2017). The Effectiveness of Learning Dimensions Models in Developing Pattern Design Skills among Secondary School Female Students. Qualitative Research in Science and Arts, 4(2), 127-162.