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# The Influence of Fashion Technology Courses on the Learning Outcomes of Children's Fashion Production Courses on Students of the Class of 2023 of the Fashion Education Study Program, Semarang State University

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## Abstract

Vocational education in fashion aims to equip students with theoretical knowledge and practical skills relevant to the demands of the industry. In the Fashion Education curriculum, Fashion Technology is positioned as a basic course that supports applied courses such as Children's Fashion Production. This study aims to examine the influence of the learning outcomes of the Fashion Technology course on the learning outcomes of students in the Children's Fashion Production course. This study uses a quantitative approach with an ex post facto design. The population consists of 82 students of the class of 2023 of the Fashion Education Study Program at Semarang State University, and a total sampling method was used. Data is collected through documentation of student academic data records. Data analysis included descriptive statistics and inferential analysis using simple linear regression with SPSS version 26. The results of the regression analysis showed that the learning outcomes of Fashion Technology had a significant positive influence on the learning outcomes of Children's Fashion Production ($F = 24.655$; $p < 0.05$). The coefficient of determination ($R^2$) was 0.233, indicating that Fashion Technology contributed 23.3% to the variance in student achievement in Children's Fashion Production. The regression coefficient ($B = 0.457$) showed that higher achievement in Fashion Technology was associated with better performance in applied courses. These findings affirm the importance of Fashion Technology as a foundational course that supports students' success in practical fashion production and highlight the need for strong alignment between basic and applied courses in fashion vocational education.

**Keywords**: fashion technology, children's fashion production, learning outcomes, vocational education, simple linear regression

## INTRODUCTION

Vocational education in Indonesia plays a strategic role in preparing skilled human resources who are able to meet the demands of the industrial sector, especially the rapidly growing fashion and textile industries. Vocational education has a strategic role in equipping students with relevant skills to answer the needs of the world of work while supporting sustainable development(Rahman & Handayani, 2024). The dynamic growth of the fashion industry requires graduates who not only have creativity but also strong technical competence and technological proficiency. Therefore, modern vocational education is not only measured by technical mastery, but also by the ability of graduates to adapt, innovate, and contribute to the ever-changing work environment. This makes for constant development in the theory and practice of vocational learning, with a focus on the integration of a more eras between education, industry, and technology(Dr. Yose Indarta & Ronal Watrianthos, 2025).

The Fashion Education Study Program, as an integral part of vocational education, is expected to

produce graduates who are not only technically competent but also equipped with a solid theoretical foundation as the basis for professional competency development. In higher education, the concept of prerequisite courses is based on the assumption that mastery of basic knowledge facilitates the learning of more complex material at a later stage.

The Fashion Technology course is one of the core courses and serves as a basic course in fashion production, both theoretically and practically. This course covers important aspects such as textile characteristics, production techniques, and the use of fashion tools and technologies, thus serving as the basis for advanced practical courses, including the Children's Fashion Production course (Ampera & Bahri, n.d.).

Fashion Technology and Children's Fashion Production are two important components of the curriculum in the Fashion Education Study Program that show conceptual and practical interconnectedness. Fashion Technology equips students with basic knowledge related to garment construction techniques, material selection, production technology, and quality standards, which are directly applied in the Children's Fashion Production course. The Children's Fashion Production course requires students to apply this knowledge and skills in practical fashion-making activities that involve special considerations, such as size accuracy, comfort, and safety for children.

Several previous studies have explored the relationship between basic courses and practical courses in Fashion Education. Quantitative research in the field of draping has shown a significant and positive relationship between mastery of basic materials and students' practical performance outcomes. The better students master the basic material, the higher the quality of their practical work. These findings confirm that a strong theoretical understanding is an important foundation for practical skills, and that a balanced integration of theory and practice is essential to improving student learning outcomes (Nurhafizah, 2025).

Research conducted by (Scott, 2025), where this study aims to determine the effectiveness of the field lecture method on student learning outcomes in the Embroidery Technology course. The results show that students' perception of the field lecture method is in the effective category. These results support contextual learning theory and suggest that hands-on experience in the field can improve student comprehension, technical skills, and learning outcomes. Therefore, it is recommended that the field lecture method be applied more widely in practical learning in vocational programs.

Another quantitative study showed that there was a significant influence between the Fashion Business Management and Excellent Service Courses on entrepreneurial interest in S1 Fashion Education students of the Faculty of Engineering UNNES. This is in line with the implementation of the Fashion Business Management and Excellent Service Course for S1 Fashion Education students which aims to equip students in terms of knowledge, attitudes, and skills by implementing entrepreneurship-based education. In the process of implementing learning, the Fashion Business Management and Excellent Service Course is not only in the form of a theoretical explanation of the concept of entrepreneurship, but also balanced with the formation of attitudes, knowledge, and skills through the creation and management of businesses in the fashion sector. So that the Fashion Business Management and Excellent Service Course can provide an important role for students in increasing their interest in entrepreneurship which will be aimed at providing provisions in the form of practical experience to students to become a business person both on a small, medium and large scale (Fadholi, 2024).

Therefore, it is necessary to conduct research to find out whether there is an influence of the Fashion Technology course on the learning outcomes of the Children's Fashion Production course on students of the 2023 batch of the Fashion Education Study Program, State University of Semarang. The results of this research are expected to contribute to curriculum development, improve the quality of learning, and become evaluation material for lecturers and institutions in improving student competence in the field of fashion.

**METHOD**

**Research Type and Design**

This study uses a quantitative research method with an ex post facto approach. Ex post facto research aims to determine the relationship or influence between free variables and bound variables without giving direct treatment to the research subjects. The Ex Post Facto method is a method used in

research that examines causal relationships that are not manipulated by researchers, the existence of causal relationships is based on theoretical studies, that a certain variable results in certain variables(Syahrizal & Jailani, 2023).

### Population and Research Sample

The population in this study is 82 students of the 2023 class of the Fashion Education study program at Semarang State University. The sampling technique used is the total sampling technique, sampling using the total sampling method, namely the entire population of members that will be observed as samples because large samples tend to give or are closer to the actual value of the population or it can be said that the smaller the error (deviation from the population value), in order to be more efficient(Al et al., 2023). Thus, the number of samples in this study is the same as the number of population, so that all students of the class of 2023 who have taken the Fashion Technology and Children's Fashion Production course are used as research respondents.

### Research Variables

The research variables consisted of independent variables, namely the learning outcomes of the Fashion Technology course, and the bound variables, namely the learning outcomes of the Children's Fashion Production course.

### Data Collection Techniques

The data collection technique used is documentation, documentation involves collecting data from documents, archives, or other written materials related to research phenomena(Islam & Jakarta, 2024). The documents used are data from the archive of students' academic grades stored in the study program.

### Data Analysis Techniques

Data analysis techniques include descriptive analysis and inferential analysis. Descriptive quantitative data analysis is a method that helps describe, show or summarize data in a constructive way. This method refers to a statistical picture that helps to understand the details of the data by summarizing and finding patterns from a specific data sample.(Scientific, 2024). Inferential analysis was carried out using simple linear regression to determine the influence of the learning outcomes of the Fashion Technology course on the learning outcomes of the Children's Fashion Production course. Linear regression is a statistical analysis method that studies the pattern of relationships between two or more variables(Egistin et al., 2025). Data analysis was carried out with the help of SPSS software version 26. The significance test of influence was based on the value of Sig. with a significance level of 0.05, while the magnitude of the contribution of the independent variable to the bound variable was indicated by the value of the determination coefficient ($R^2$).

### Research Hypothesis

The Fashion Technology course acts as a basic expertise course that equips students with knowledge of textile materials, the use of tools and machines, as well as fashion production techniques which are an important foundation in children's fashion production courses. Based on this foundation, the hypothesis in this study can be formulated as follows:

H0 (Hypothesis zero): There is no significant influence between the learning outcomes of the Fashion Technology course and the learning outcomes of the Children's Fashion Production course.

Ha (Alternative hypothesis): There is a significant influence between the learning outcomes of the Fashion Technology course on the learning outcomes of the Children's Fashion Production course.

This alternative hypothesis is based on the view that a strong theoretical understanding is an important foundation in the mastery of practical skills. The balance between theoretical and practical learning is believed to improve the quality of student learning outcomes optimally (Nurhafizah, 2025).

### RESULTS AND DISCUSSION

This section presents the results of data analysis and discussion of the influence of the learning

outcomes of the Fashion Technology course on the learning outcomes of the Children's Fashion Production course in students of the 2023 batch of the Fashion Education Study Program, State University of Semarang. Data analysis was carried out in stages, starting with a descriptive analysis to provide an overview of student learning outcomes, then continued with an inferential analysis using simple linear regression to test the influence of the learning outcomes of the Fashion Technology course as a basic course on the learning outcomes of the Children's Fashion Production course as an applicable course.

The results of simple linear regression analysis are presented through three main components, namely *Busanal Summary*, *ANOVA*, and *Coefficients*, each of which provides information about the strength of the relationship, the feasibility of fashion, and the direction and magnitude of the influence between variables. The quantitative findings are further discussed by linking them to theoretical foundations and previous research that affirm the role of basic courses in supporting the success of practical learning in the field of fashion.

To determine the strength of the relationship and the magnitude of the contribution of the learning outcomes of the Fashion Technology course to the learning outcomes of the Children's Fashion Production course, a simple linear regression analysis was carried out. A summary of the results of the regression analysis is presented in Table 1.

Table 1. Summary of Simple Linear Regression between Fashion Technology Learning Outcomes and Children's Fashion Production

| R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|
| 0.483 | 0.233 | 0.224 | 4.22 |

Based on Table 1, the value of the determination coefficient (R Square) of 0.233 shows that the learning outcomes of the Fashion Technology course contributed 23.3% to the variation in learning outcomes of the Children's Fashion Production course. Meanwhile, 76.7% of the variation in learning outcomes of the Children's Fashion Production course was influenced by other factors outside the variables studied.

Regression busanal feasibility test was performed using variance analysis (ANOVA)- which strengthened the validity of the model (Nugraha et al., 2024), this analysis is also to find out whether the regression fashion formed is suitable for use in explaining the influence of the learning outcomes of the Fashion Technology course on the learning outcomes of the Children's Fashion Production course. The results of the ANOVA test on regression busanal are presented in Table 2.

Table 2. ANOVA Test Results on Simple Linear Regression Busanal

| Busanal | Sum of Squares | df | Red Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 439.065 | 1 | 439.065 | 24.655 | 0 |
| Residual | 1442.478 | 81 | 17.808 | | |
| Total | 1881.542 | 82 | | | |

The results of the ANOVA test in Table 2 showed an F value of 24.655 with a significance level of 0.000 ($p < 0.05$). This indicates that the simple linear regression model used in this study is feasible and significant to explain the influence of the learning outcomes of the Fashion Technology course on the learning outcomes of the Children's Fashion Production course.

To determine the direction and magnitude of the influence of the learning outcomes of the Fashion Technology course on the learning outcomes of the Children's Fashion Production course, a regression coefficient test was carried out. The regression line linearity test is used to test whether an X-free variable actually contributes to the Y-bound variable.(Refiantoro, 2022). The results of the analysis of simple linear regression coefficients which include constant values, regression coefficients, t-values, and significance are presented in Table 3.

Table 3. Simple Linear Regression Coefficient of Fashion Technology Learning Outcomes on Children's Fashion Production

| Busanal | Unstandard-dized Co-efficients (B) | Std. Error | t | Sig. |
|---|---|---|---|---|

| (Constant) | 45.849 | 7.322 | 6.262 | 0 |
| Fashion Technology | 0.457 | 0.092 | 4.965 | 0 |

The results of the regression coefficient analysis in Table 3 show that the learning outcomes of the Fashion Technology course have a regression coefficient of 0.457 with a significance value of 0.000 ($p < 0.05$). These findings show that the learning outcomes of the Fashion Technology course have a positive and significant effect on the learning outcomes of the Children's Fashion Production course. The regression equation obtained is **Y = 45.849 + 0.457X**, which means that every one unit increase in the learning outcome of the Fashion Technology course will be followed by an increase of 0.457 in the learning outcomes of the Children's Fashion Production course.

The results of the study show that learning outcomes in the Fashion Technology course have a significant and positive influence on the learning outcomes of students in the Children's Fashion Production course. Regression analysis showed that Fashion Technology contributed 23.3% to the variance in student achievement in Children's Fashion Production, which confirms its role as an important basic course in the Fashion Education curriculum.

This result theoretically makes sense, as Fashion Technology equips students with essential knowledge related to textile characteristics, garment construction techniques, production processes, and the use of tools and machines. This competency is directly needed when students are involved in the practical tasks of Children's Fashion Production, which demand precision, material suitability, comfort, and safety considerations. Without adequate mastery of these fundamental concepts, students may have difficulty translating theoretical understanding into effective practical performance.

A positive regression coefficient (B = 0.457) further showed that an increase in student learning outcomes in Fashion Technology was followed by a corresponding increase in their performance in Children's Fashion Production. These findings support the assumption that basic theoretical and technical knowledge plays an important role in improving applied learning outcomes. In vocational education, alignment between basic and applied courses is essential, as learning is designed to evolve from conceptual understanding to hands-on application.

In addition, the significance of the regression (F = 24.655; $p < 0.05$) suggests that the relationship between the two courses is not coincidental but reflects a structured curricular linkage. The sequence of Fashion Technology as a prerequisite course allows students to build cognitive readiness and technical competence before enrolling in more complex and practice-oriented courses. This supports the principle of structured learning in vocational education, where prior knowledge serves as a framework for subsequent skill development.

The findings of this study are consistent with previous research that emphasizes the importance of mastery of theory in supporting practical skills. Nurhafizah (2025) reports that students with a stronger understanding of theory show superior performance in practical sewing tasks, highlighting the need to balance theory and practice in fashion education. Similarly, this study confirms that basic learning outcomes significantly affect students' ability to perform applied tasks effectively, particularly in subjects that require detailed technical execution such as Children's Fashion Production.

In addition, (Princess & Suci, 2025) revealed that the characteristics of the fabric can affect the wear of clothing, the comfort of the wearer, and the visual quality of the products produced. This is relevant to the Fashion Technology course which emphasizes the selection and use of materials in accordance with the function of clothing. In the context of children's clothing, the selection of the right materials is an important factor because it relates to the comfort and safety of children.

The results of this study also support the findings (E-ISSN et al., 2022) which states that the understanding of toeri has a simultaneous influence on the competence of vocational education students. The Fashion Technology course which contains elements of theory and practice is able to increase students' readiness to take the Children's Fashion Production course which emphasizes more on practical skills.

However, the determination coefficient also showed that 76.7% of the variance in the learning outcomes of Children's Fashion Production was explained by factors outside of Fashion Technology. This may include students' motor skills, learning motivation, previous sewing experience, creativity, teaching methods, and learning facilities. These findings show that although Fashion Technology is a major contributor, learning outcomes in applied fashion courses are multifactorial and must be supported by a

comprehensive pedagogical strategy.

Overall, the results of the study strengthen the strategic role of Fashion Technology as a basic course that significantly supports students' success in applied fashion production courses. Strengthening students' learning experiences in Fashion Technology through effective instructional design, practical integration, and alignment with applied course requirements can make a meaningful contribution to improving learning outcomes in Children's Fashion Production and vocational fashion education more broadly.

## CONCLUSION

This study concludes that the learning outcomes in the Fashion Technology course have a significant and positive influence on the learning outcomes of students in the Children's Fashion Production course in the Fashion Education Study Program. The results of a simple linear regression analysis showed that Fashion Technology contributed 23.3% to the variance in student achievement in Children's Fashion Production, with a regression coefficient of 0.457, which showed that higher achievement in basic courses was associated with better performance in applied courses.

These findings affirm the strategic role of Fashion Technology as a foundational course that provides the essential theoretical and technical knowledge needed for successful engagement in the production of practical garments, particularly children's clothing, which demands rigor, material suitability, and safety considerations. Although most learning outcomes are influenced by other factors, Fashion Technology's significant contribution highlights the importance of strengthening basic teaching to support students' applied learning. Therefore, it is recommended that Fashion Technology continues to be aligned with the learning objectives and practical demands of Children's Fashion Production to increase curricular coherence and improve overall learning outcomes in fashion vocational education.

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