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ORIGINAL

Validation of the Syntax of a Local Wisdom-Based Learning Model for Fashion Design in Apparel Creation

Validación de la Sintaxis de un Modelo de Aprendizaje Basado en la Sabiduría Local para el Diseño de Moda en la Creación de Prendas de Vestir

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ABSTRACT

Introduction: this study validates the development of the syntax of a Local Wisdom-Based Fashion Design Learning Model, aimed at supporting students in creating modern fashion designs that align with global trends while remaining rooted in local cultural heritage. The model is designed to expand the theoretical framework of creative learning by integrating cultural exploration, identity reflection, and design idea development into a coherent and structured learning system.
Method: the research used by Plomp (2013) R&D Model, consisting of three phases: Preliminary Research, Prototyping, and Assessment. The validation process involved seven experts through Focus Group Discussions (FGDs), and data analysis was conducted using Confirmatory Factor Analysis (CFA) based on Covariance-Based Structural Equation Modeling (CB-SEM).
Results: the analysis results show that the model demonstrates a high level of validity and reliability, with R-Square values ranging from 0,724 to 0,914. These findings support the internal consistency and structural strength of the proposed learning model.
Conclusions: the Local Wisdom-Based Fashion Design Learning Model is proven to be valid and reliable. It holds significant potential to support the development of fashion design learning that harmonizes global trends with local cultural values, thereby fostering creativity grounded in cultural identity.

Keywords: Syntak; Learning Model; Validation; Fashion Design; Local Wisdom.

RESUMEN

Introducción: este estudio valida el desarrollo de la sintaxis de un Modelo de Aprendizaje del Diseño de Moda Basado en la Sabiduría Local, destinado a apoyar a los estudiantes en la creación de diseños de moda modernos que estén alineados con las tendencias globales, pero que mantengan sus raíces en el patrimonio cultural local. El modelo está diseñado para ampliar el marco teórico del aprendizaje creativo mediante la integración de la exploración cultural, la reflexión sobre la identidad y el desarrollo de ideas de diseño en un sistema de aprendizaje coherente y estructurado.
Método: la investigación utilizó el modelo de I+D de Plomp (2013), que consta de tres fases: Investigación Preliminar, Prototipado y Evaluación. El proceso de validación involucró a siete expertos a través de Grupos Focales de Discusión (FGD), y el análisis de datos se realizó mediante Análisis Factorial Confirmatorio (CFA) basado en el Modelado de Ecuaciones Estructurales por Covarianzas (CB-SEM).
Resultados: los resultados del análisis muestran que el modelo presenta un alto nivel de validez y confiabilidad,

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con valores de R-cuadrado que oscilan entre 0,724 y 0,914. Estos hallazgos respaldan la consistencia interna y la solidez estructural del modelo de aprendizaje propuesto.
Conclusiones: el Modelo de Aprendizaje del Diseño de Moda Basado en la Sabiduría Local ha demostrado ser válido y confiable. Tiene un potencial significativo para apoyar el desarrollo del aprendizaje en diseño de moda que armonice las tendencias globales con los valores culturales locales, fomentando así una creatividad arraigada en la identidad cultural.

Palabras clave: Sintaxis; Modelo de Aprendizaje; Validación; Diseño de Moda; Sabiduría Local.

INTRODUCTION

Fashion is an integral part of the creative industry and plays a strategic role in shaping and representing a nation's cultural identity.[1,2,3,4] In Indonesia, its rich cultural heritage such as batik motifs, handwoven textiles, and various traditional costume patterns not only reflects aesthetics but also embodies values and local wisdom passed down through generations.[5,6] However, the rapid pace of globalization has shifted preferences in fashion design, where global trends tend to dominate and gradually displace the presence of local cultural values.[7,8,9] This shift affects younger generations, including fashion design students, who are more inclined to adopt universal styles without considering local wisdom as a primary source of creative inspiration.[10,11,12,13]

As a consequence, many Indonesian fashion products are losing their cultural identity, which should serve as a distinctive feature and competitive advantage in the global market .[14,15] On the other hand, local wisdom has enormous potential as a source of inspiration that can foster innovation and product differentiation in fashion design.[16,17] Overreliance on global trends without contextual approaches risks producing homogeneous designs that lack cultural value and distinctiveness.[18,19] Therefore, it is essential to develop educational approaches that emphasize not only technical skills but also the integration of local cultural values.[20,21]

Unfortunately, the fashion design learning models currently implemented in many educational institutions have yet to fully accommodate the strategic role of local wisdom in the learning process.[22] Students often receive insufficient guidance in systematically exploring local culture as a creative source.[23] This indicates a critical need to design a learning model that effectively incorporates the exploration of local wisdom into the stages of modern fashion design development.[24]

In response to this need, the present study aims to develop a syntax for a fashion design learning model based on local wisdom. This model is conceived as an innovative approach to bridging the richness of cultural heritage with the demands of modern, globally competitive fashion trends. The model focuses on exploring cultural motifs, design philosophy, production techniques, and presentation of works.[25,26] It is expected to produce graduates who are not only technically skilled and creative but also have a strong awareness of the importance of preserving cultural identity.[27,28,29]

In this context, syntax refers to a systematic and structured sequence of learning activities, ranging from the introduction to local culture, exploration of cultural values, idea development, to the creation of original and meaningful fashion designs. Validation of this syntax is essential to ensure the effective integration of local cultural values throughout the entire fashion design learning process.

METHOD

This study employed a Research and Development (R&D) approach, referring to the development model proposed by Plomp (2013), which consists of three main phases: (1) Preliminary Research, (2) Prototyping Phase, and (3) Assessment Phase.[30] In the preliminary research stage, a needs analysis and theoretical review were conducted to identify relevant issues in fashion design education as well as the potential for integrating local wisdom values. Data were collected through literature studies, observations, and interviews with lecturers and fashion industry practitioners.

In the prototyping phase, an initial model of fashion design learning based on local wisdom was developed, including the formulation of the learning syntax. This initial model was then validated through a Focus Group Discussion (FGD) involving eight experts, comprising experts in learning models, vocational education specialists, evaluators, language experts, and industry practitioners. The FGD aimed to obtain feedback and validation regarding the content and syntax of the proposed model.

The validity of the learning syntax was measured using a validation questionnaire developed based on indicators of instructional syntax. Assessments were conducted using a Likert scale, and the data were analyzed using Confirmatory Factor Analysis (CFA) using the CB-SEM Approach with the assistance of JASP software.[31] CFA was used to examine the construct validity of the learning syntax to ensure that each element in the model contributes significantly and can be effectively applied within the context of fashion design learning grounded in local wisdom.

Table 1. Aspects and Indicators for Validating the Syntax

Evaluated Aspect	Indicator
Exploration Local Wisdom (ELW)	Students are able to identify forms of local wisdom in their surrounding environment.
	Students demonstrate an understanding of the values, symbols, or philosophies of regional culture.
	Students are able to explain the relevance of local wisdom to the field of fashion design.
Identification Local Wisdom (ILW)	Mention the elements of local culture such as motifs, colors, textures, or materials.
	Analyze the meaning and function of local cultural elements in community life.
	Compare the uniqueness of local elements with global visual references.
Idea Development (PID)	Develop design concepts based on the exploration of local culture
	Create moodboards or storyboards as the foundation for idea development.
	Generate original, innovative, and contextual design ideas.
Creation and Stilation of Designs (KDS)	Create sketches or illustrations that aesthetically highlight local elements.
	Apply design principles and stylization techniques in accordance with the cultural theme.
	Manipulate materials and forms to produce communicative designs.
	Demonstrate novelty, germinal ideas, and elaboration in local wisdom-based designs.
Evaluation and Reflection (ER)	Assess the alignment of the design with local cultural values and identity.
	Provide critical reflections on the design process and the final work.
	Give and respond to feedback for design improvement
Showcasing and Execution (SE)	Ability to reflect on the strengths and weaknesses of the design.
	Assessment of the local relevance in the product.
	Design critique based on feedback from lecturers and industry professionals.
	Confidence in possessing sufficient skills and knowledge to apply the FD-LW model in the fashion design creation process.

This table outlines the key aspects and indicators used to validate the syntax of the fashion design learning model based on local wisdom. The model aims to create modern fashion designs that align with global trends while remaining rooted in cultural heritage by integrating motif exploration, philosophy, cultural elements, and modern design innovation.

RESULTS

Confirmatory Factor Analysis (CFA) was performed to evaluate the construct validity and reliability of the fashion design learning model based on local wisdom, comprising six syntax phases: Exploration of Local Wisdom (ELW), Identification of Local Wisdom (ILW), Idea Development (PID), Creation and Stylization of Designs (KDS), Evaluation and Reflection on Local Wisdom-Based Designs (ER), and Showcasing and Execution (SE). The analysis was conducted using Covariance-Based Structural Equation Modeling (CB-SEM) via the JASP software.

The CFA results indicated that all indicators within each phase significantly loaded on their respective constructs, demonstrating satisfactory convergent validity. Construct validity was assessed by calculating the Average Variance Extracted (AVE) for each construct, with all AVE values exceeding the recommended threshold of 0,50, indicating that more than 50 % of the variance is captured by the construct rather than measurement error.

Composite Reliability (CR) values for all constructs ranged between 0,65 and 0,85, surpassing the acceptable threshold of 0,60, confirming the internal consistency and reliability of the model constructs. Furthermore, discriminant validity was verified by comparing the square root of each construct's AVE with the correlations between constructs; in all cases, the square root of the AVE was greater, confirming distinctiveness between constructs.

These results validate that the proposed learning syntax effectively captures the multi-dimensional process of integrating local wisdom into fashion design education. Each phase from exploration to execution is reliably represented by its indicators, supporting the structural integrity and applicability of the model for guiding students in culturally grounded yet globally relevant fashion design creation.

The results of the Confirmatory Factor Analysis (CFA), as presented in Table 2, reveal diverse psychometric characteristics across the six syntaxes of the local wisdom-based fashion design learning model. The outer loading values indicate strong contributions of the indicators to their respective latent constructs. Several indicators, such as ELW2 (0,965), ELW1 (0,933), and SE3 (0,850), demonstrated high factor loadings, reflecting their strong association with the intended constructs. However, some indicators such as PID2 (0,480), ILW3 (0,650), and KDS1 (0,648)—showed relatively lower loadings, though they still fall within acceptable limits for model validity.

Table 2. CFA Output Using the CB-SEM Approach

Syntax	Indikator	Outer Loading (λ)	CR	AVE	Kategori
Exploration Local Wisdom	ELW1	0,933	0,939	0,837	High Validity and Reliability
	ELW2	0,965			
	ELW3	0,841			
Identification Local Wisdom	ILW1	0,875	0,810	0,591	Validity and Reliability
	ILW2	0,765			
	ILW3	0,650			
	PID1	0,883	0,773	0,545	Fairly Effective
Idea Development	PID2	0,480			
	PID3	0,788			
	KDS1	0,648	0,819	0,604	Validity and Reliability
Creation and Stilation of Designs	KDS2	0,823			
	KDS3	0,846			
	KDS4	0,705			
Evaluation and Reflextion	ER1	0,893	0,888	0,726	Very Good
	ER2	0,817			
	ER3	0,844			
Showcasing and Execution	SE1	0,869	0,878	0,706	Very Good
	SE2	0,800			
	SE3	0,850			
	SE4	0,765			

In terms of reliability, Composite Reliability (CR) values ranged from 0,773 to 0,939. The highest CR was found in the Exploration of Local Wisdom syntax (0,939), indicating excellent internal consistency, while the lowest was found in Design Idea Development (0,773), which still meets acceptable reliability standards. The Average Variance Extracted (AVE) values also confirmed adequate convergent validity, with all constructs exceeding the recommended threshold of 0,50. The highest AVE was observed in Exploration of Local Wisdom (0,837), and the lowest in Design Idea Development (0,545), indicating that each construct explained a satisfactory proportion of variance in its indicators. Overall, these findings validate the construct structure of the developed model and confirm that the syntax components are both statistically reliable and conceptually sound. The model demonstrates strong potential for guiding the implementation of culturally grounded, innovation-driven learning in the context of fashion design education.

Table 3. R-Squared Values for Indicator Reliability of Each Construct

	R^2
ELW 1	0,784
ELW 2	0,885
ELW 3	0,892
ILW 1	0,768
ILW 2	0,835
ILW 3	0,763
PID 1	0,700
PID 2	0,810
PID 3	0,816
KDS 1	0,878
KDS 2	0,792
KDS 3	0,833
KDS 4	0,824
ER 1	0,824
ER 2	0,914
ER 3	0,869
SE 1	0,724
SE 2	0,885
SE 3	0,878
SE 4	0,899

To further support this validation, the coefficient of determination (R^2) was calculated for each observed indicator. The R^2 values reflect the extent to which the latent variables explain the variance in their respective indicators, thereby demonstrating the internal consistency and predictive strength of each construct. Table 3 presents the R-squared values for all indicators involved in the model.

Based on the R-Squared (R^2) analysis, the values obtained for each indicator reflect the extent to which the variance of a construct can be explained by its associated indicators. As shown in Table 1, the R^2 values for indicators PID2 and PID3 were 0,810 and 0,816, respectively, indicating that over 81 % of the variance in Idea Development can be explained by the relevant construct. Similarly, indicators under the Creation and Stylization of Design (KDS) construct—namely KDS1, KDS3, and KDS4—showed high R^2 values of 0,878, 0,833, and 0,824, respectively. This demonstrates the strong contribution and stability of these indicators.

The highest R^2 values were observed in ER2 (Evaluation and Reflection) at 0,914 and SE4 (Self-Efficacy) at 0,899, suggesting that these constructs are highly influenced by their respective indicators. These findings support the structural validity of each latent construct and indicate that the proposed learning model has strong explanatory power across all phases. CFA test data using the CB-SEM approach can also be seen in figure 1 below.

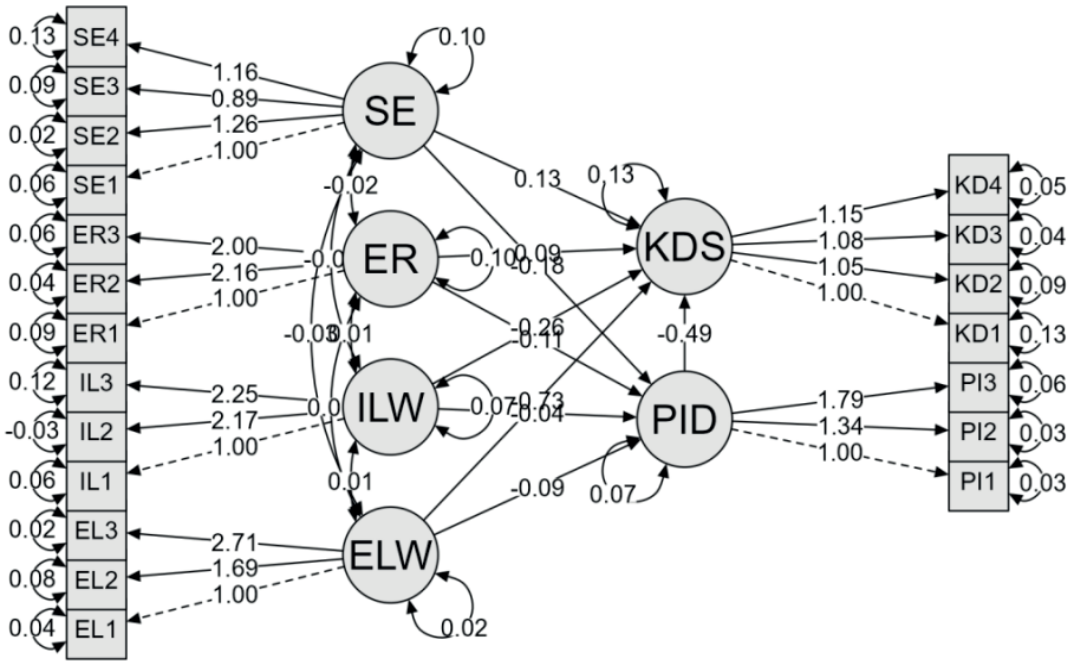

Figure 1. CFA Test Output using CB-SEM Approach Path diagram

Based on the results of Confirmatory Factor Analysis (CFA) using the CB-SEM approach, the fashion design learning model based on local wisdom in the creation of clothing designs demonstrates that each construct Exploration of Local Wisdom, Identification of Local Wisdom, Idea Development, Creation and Stylization of Design, Evaluation and Reflection on Local Wisdom-Based Designs, and Showcasing and Execution has a significant interrelationship. The paths indicated by arrows and their corresponding coefficients show that the processes of exploration and identification of local culture serve as a strong foundation for idea development and design creation, which are subsequently evaluated, presented, and executed. The high path coefficient values indicate that this model has a solid and consistent structure in integrating all instructional syntaxes of local wisdom-based learning.

DISCUSSION

The results of the Confirmatory Factor Analysis (CFA) using the CB-SEM approach demonstrate that the Fashion Design Learning Model Based on Local Wisdom has a robust and well-connected syntactic structure. The path diagram reveals that the stages of Exploration of Local Wisdom (ELW) and Identification of Local Wisdom (ILW) make significant contributions to the Process of Idea Development (PID), which subsequently influences the Creation and Stylization of Design (KDS). This indicates that a deep engagement with local cultural values is foundational to the development of fashion design outputs that are not only visually appealing but also carry cultural significance.

These findings highlight the model's ability to integrate cultural reflection with contemporary design practices, emphasizing that fashion education need not abandon its local roots in pursuit of global trends.[32,33,34,35,36]

Instead, the distinctive identity and richness of local culture can serve as a powerful source of innovation and creative direction.[37] This is consistent with the core principles of vocational education, which prioritize contextual relevance, applied competencies, and the cultivation of character and identity in learners.[38,39,40,41,42]

Moreover, the model shows that student involvement in the Evaluation and Reflection (ER) phase significantly impacts the quality of design outputs. Engaging in reflective assessment of local wisdom-based designs fosters critical thinking and cultural awareness, suggesting the presence of metacognitive learning processes.[43,44,45,46,47] This is a crucial dimension in nurturing sustainable creativity and innovation within fashion design education.[48]

The final phase, Showcasing and Execution (SE), provides students with authentic platforms to present their ideas and design works, whether through exhibitions, fashion shows, or public presentations.[49,50,51,52,53] This not only enhances their confidence and visual communication skills but also bridges the gap between education and the creative industries.[54,55] The model, therefore, facilitates a reflective-progressive learning cycle that aligns with long-term educational objectives producing adaptive, culturally grounded, and character-driven young fashion designers.[56]

CONCLUSIONS

The Fashion Design Learning Model Based on Local Wisdom has been proven to possess a strong and well-integrated structure among its components. The CFA results using the CB-SEM approach indicate that the exploration and identification of local wisdom play a crucial role in idea development and the creation of culturally meaningful fashion designs. This process not only encourages students to be more creative and innovative but also fosters an awareness of local values that serve as the foundation of identity in design work.

The model's success in integrating cultural reflection with contemporary design practices demonstrates that fashion education can remain globally relevant without neglecting the richness of local culture. The stages of evaluation, reflection, and real-world presentation of design outputs further enhance students' metacognitive abilities and practical skills, while also strengthening the link between educational institutions and the creative industry.

Overall, this model supports the development of a reflective and progressive learning cycle and contributes to the emergence of young designers who are adaptive, character-driven, and culturally aware. These findings provide a solid foundation for the continued development of local wisdom-based fashion learning models within the context of vocational education in the global era.

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