



## Development of Assessment Instruments in Individual Clothing Production Courses

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### Abstract

Learning requires an assessment tool as a standard guideline for assessing student performance. This study aims to develop a set of assessments and knowing the eligibility of assessment in the Individual Fashion Production Course. Development models that adopt 4D procedures are: define, design, develop, and disseminate. Data collection techniques with focus group discussions, observations and interviews. The results of the validity of the contents of the instrument items show that 21 items are valid, of which 18 question items (86%) are included in the very valid criteria (high validity) and 3 question items (14%) are of medium validity. The results of the Kappa analysis showed that the reliability coefficient of the instrument was 0.782. The result of the data acquisition is descriptively obtained the value  $X = 94$ , it can be categorized as "Very Feasible". These results shows that the assessment instrument for the Individual Fashion Production course can be used as a tool to measure student competence, thus the individual clothing production assessment instrument can be used as a guide in conducting an assessment.

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## INTRODUCTION

Improving the quality of education in higher education is an urgent urgency for immediate improvement (Malik, 2018). One form of effort to improve the quality of education is to improve the quality of learning and assessment applied. Learning and assessment are two things that are inseparable from each other (Idrus, 2019). Therefore, how to improve the quality of assessment that is able to support the quality of learning needs to be thought about and considered, especially how to prepare quality assessment instruments that are suitable for use to measure and assess student abilities. In this case, lecturers are responsible for improving the quality of assessment. Quality improvement must begin by paying attention to the current situation obtained through the process of learning outcomes assessment activities. The ability of lecturers to carry out assessments must be a priority in improving the quality of education (Fuadi & Totok Sumaryanto, 2017).

One of the efforts to improve the quality of education graduates can be done through assessment reform (Andrade, 2019; et al., 2019; Salam, 2021). Assessment reform as one of the strategies that is widely used and is believed to improve the quality of learning that has accountability to be trusted (Hopfenbeck et al., 2013). In connection with this, it is said that "effective instruction begins with purposeful assessments" (Saiyed, 2019). In the learning model, students are declared competent (graduate) if they are able to reach the minimum limit of ability that has been determined through assessment instruments used. It should be an instrument in the form of an assessment that not only measures how far the learning material is mastered, but must be able to measure / assess the extent to which students are able to display the competencies they already have (Dinda et al., 2022).

The learning achievement of the Individual Fashion Production course is to be able to equip students with knowledge and skills to manage a modiste business whose production is with custome-made techniques.

Types of production include children's fashion, men's fashion, women's fashion, furry women's party fashion. In the preparatory stage of production, students conduct a survey of fashion and market prices; planning the identitsa of the undertaking; prepare order sheets, labels, hangtags and packaging; prepare production layouts according to the type of clothing to be made; planning the required resources; planning and conducting promotions both online and offline; and communicating with customers. At the production stage, students analyze the design; making patterns; designing materials and prices; students arrange patterns over materials, cut materials according to patterns; splicing of patterns; Fittings; sew; product finishing; installing garritures, buttons, labeling, pressing and packing; and practicing quality control. In the final stage of production, students evaluate and compile a final report.

The achievement of student custome-made clothing competencies is measured through assessment, which aims to find out the true abilities and skills of students. Authentic assessment is an assessment activity that should be assessed on students or students, both processes and results using assessment instruments that are adjusted to the achievement of course competencies. There are various kinds of assessments that can be used by lecturers, including through performance assessment. Performance assessment is an alternative assessment that provides a multidimensional assessment of real and authentic situations (Wulan, 2007). Assessment is carried out by observing and evaluating a process that brings out skills, attitudes, and products together. Performance assessment is an approach to measure the state of learners based on how they complete a particular task (Heri et al., 2017). Performance assessment is recommended to be different from just a true or multiple-choice test (Asrul et al., 2014). There are three stages carried out in developing a performance assessment, namely clarifying the performance to be assessed, designing tasks to obtain the

expected appearance, and designing a scoring plan that reflects the display criteria (Jessica & Sesilya, 2016).

Based on several theories mentioned above, one of the important components in performance assessment is the scoring plan (Milkhatun et al., 2020), including in the form of rubrics. There are two aspects in the rubric, namely the competence that underlies student performance and the qualitative difference in performance levels (Lutasari, 2018). Rubrics are guidelines for scoring in subjective assessments, for example in the assessment of observation results.

The rubric consists of a list of criteria that are embodied in the aspects assessed along with the quality gradation for each of these criteria ranging from the most perfect level to the worst level accompanied by a score for each gradation of that quality. The description of the quality level in the assessment rubric can be general or special. A rubric can also be a rating scale consisting of two parts, namely a statement about the existence of something and a hint of judgment about the statement (Syahputra et al., 2020). For this reason, conducting an assessment requires assessment tools, such as assessment sheets, assessment criteria (rubric), and scoring techniques. The assessment tool is a tool used for assessment, which functions in addition to making it easier for lecturers to conduct assessments, to conduct objective assessments. So it is hoped that they will know the abilities and skills of students authentically.

Based on observations, the Individual Fashion Production assessment tool already exists, but only limited to points globally that have not been developed in detail, both for the assessment sheet and the assessment criteria (rubric). This kind of assessment may be subjective, which depends on the perception of the lecturer, whether the student's practice is appropriate or not (Astuti et al., 2015). Assessment is an important aspect in measuring the development and achievement of students. Assessment is important to always be developed so that it can be an accurate tool

in measuring the development of future learners (Alfianto et al., 2015). Therefore, learning the Individual Fashion Production course requires an assessment tool as a standard guideline for assessing student performance whether the learning has been successful or not. So that researchers intend to conduct research on the development of this course assessment rubric as a clear guideline for measuring student competence. The assessment tool is a tool used for assessment, which functions in addition to making it easier for lecturers to conduct assessments, to conduct objective assessments. So it is hoped that they will know the abilities and skills of students authentically.

## METHODS

This research is a type of development research. The development model used adopts the 4D (Fitria et al., 2017) which consists of four stages, namely: define, design, develop and disseminate. At the defining stage, explore the problems that arise in an effort to develop an assessment rubric. At the design stage, the researcher designs or plans the form of the assessment rubric required as an assessment guideline. Including describing indicators, based on these indicators, an assessment grid and assessment criteria will be made, so that at the stage of activities to be carried out are (1) designing the form of assessment sheets, (2) designing draft rubrics in accordance with the characteristics of the material and learning objectives, (3) selection of formats (format selection), namely reviewing the formats of existing learning tools and determining the format of assessment tools to be developed, and (4) make a preliminary design according to the chosen format.

The development stage is the stage to produce a development product which is carried out through two steps, namely (1) expert appraisal by material experts in the field of clothing to assess the rubric device to be developed, (2) development testing (developmental testing). The goal at this stage

of development is to produce the final form of learning tools after going through revisions based on the input of expert experts / practitioners and data from trial results. Is a product design trial activity on the real target subject. Field trials were carried out to obtain direct input in the form of responses, reactions, student comments as target model users, and observers of the learning tools that have been compiled. The results of the trials are used to improve the product. This stage aims to disseminate the results and distribution of finished products in the form of assessment rubrics.

The research was conducted in the Fashion Engineering Education study program majoring in Boga and Fashion Engineering Education, Faculty of Engineering, Yogyakarta State University. The population of this study is all courses that enter production in the Fashion Engineering Education study program of PTBB FT UNY, and the sample is the Individual Fashion Production course. The sampling technique is carried out by purposive sampling, the sample is selected with the consideration that the Individual Fashion Production course, where in individual clothing many aspects must be assessed (more complex) than others.

The data collection techniques used in this study were focus group discussions, questionnaires and interviews. In the review stage, the instruments developed in this study are in the form of assessment sheets and rubrics. To find out if those assessment sheets and rubrics reflect a tool worth using, validated by experts through a Focus Group Discussion. The instrument for uncovering eligibility is in the form of a questionnaire, using a Likert scale. Interviews were conducted with lecturers of the Individual Fashion Production course as a preliminary basis for research to reveal assessment techniques and assessment tools that have been used in the Individual Fashion Production Course.

## **RESULTS AND DISCUSSION**

### **Initial Product Development Results**

Activities at this stage are carried out to establish and define the terms of development. In this stage, development needs analysis activities are carried out, product development requirements that are in accordance with user needs and selection of research and development (R&D) models that are suitable for use in product development. The results at this stage were obtained interviews with the teachers of the Individual Fashion Production course related to learning tools, One of them is an assessment tool. The interview results show that in the Individual Fashion Production course there is already an assessment sheet but still globally. In addition, there is no assessment criterion (rubric) as a guideline for assessing students. If in the assessment there are no criteria, then in conducting the assessment there must be a tendency towards subjectivity and far from being objective.

Analysis of Semester Lecture Plans (RPS) and curriculum is also carried out as a guideline in developing the assessment rubric for individual clothing production courses, so that the goals and competencies to be achieved can be measured clearly and purposefully. The assessment of learning will be very appropriate if the measuring instrument is in accordance with what should be measured. So that rps and curriculum are very important to be analyzed to develop assessment criteria.

At this design stage, what is done is to design the form of the assessment rubric in accordance with the material in the RPS and the description according to the assessment scale, determination of the aspects assessed, determination of the weight of each aspect, determination of the assessment scale, determination of the level of competence and not. The grid for developing the assessment rubric is as follows:

**Table 1.** Grids for Developing Assessment Rubrics

No	Sub Competence	Indicator
1	Analysis of Fashion Production	<p>Students are able to analyze the type of clothing production business by observing several fashion businesses to get an idea, including: boutiques, modiste, tailors, convection, garments, sewers, etc.</p> <p>Students can conclude the price of sewing costs for various types of clothing as an illustration to determine the cost of sewing, including the cost of sewing the following products: standard blouses, variation blouses, furry blouses, blazers, short skirts, furry short skirts, long skirts, furry long skirts, shorts, trousers, short-sleeved shirts, long-sleeved shirts, batik shirts connecting motifs, pajamas, ordinary kebaya, kebaya with special motifs, modified kebaya, longtorso, dress, home dress, children's play fashion, party children's fashion, overalls</p>
2	Business Planning	<p>Students plan the identity of their fashion business, including the name / brand / brand of the business, create a logo and compile the vision and mission</p> <p>Students prepare order sheets or production planning, labels, hangtags and packaging</p> <p>Students prepare production layouts according to the type of clothing to be produced.</p> <p>Students plan the human resources needed and are able to divide according to the job description.</p>
3	Promotion	<p>Students plan promotions by determining the target or target of promotion appropriately according to the type of business being built, compiling promotional media using various existing media both online and offline.</p> <p>Students promote business</p>
4	Communication with Customers	<p>Students can communicate well with customers and suppliers of key and supporting materials</p>
5	Production Planning	<p>Students can translate consumers' wishes and pour them in order sheets</p> <p>Students can prepare complete tools and materials, according to SOPs, good lighting, and laying tools and materials regularly.</p>
6	Production	<p>Taking the size of the underlying body</p> <p>Taking body size based on fashion design in the form of additional sizes such as the length of the left right skirt or front back, trouser length, length of right and left sleeves, length of decoration etc. that pay attention to fashion design, type of material, size, fall of material and flexibility of material</p> <p>Patterns are made correctly</p> <p>The main and supporting materials are properly cut after the pattern is finished making</p> <p>Sewing with the correct procedure, especially on the seam of the joint which should pay attention to the tension of the thread, the type of thread, the retaining of the material with a stick or needle pentul, the accuracy of the seam marks, the sharpness of the needle, the distance of the setkan, the width of the potentiation and the color of the thread.</p> <p>Applying the kampuh and kelim solution using the hand finish usually applies the costume kampuh the reverse kampuh , the French kampuh kampuh , the finishing scabbard with festoon and with the rompok</p>

7	Quality	<p>which of course adjusts the type of clothing material to be completed.</p> <p>The quality of pressing can be seen from the flatness of the seam joints on the surface of the fabric / not corrugated, does not cause shadows, the results of the pressing are not folded and imprinted, the kelim part does not wrinkle</p> <p>The quality of the seam can be seen from the type and color of the thread used, the evenness of the setikan / material is not corrugated the distance of the seam, the seam does not have many joints and the straightness of the seam.</p> <p>The quality of the materials used is in accordance with the design, the installation of supporting materials according to the design, the color of the supporting materials according to the main material, the size of the supporting materials according to the design, the quality of the supporting materials according to the standards</p>
8	Final Report	<p>Students compile a final, complete and correct report containing, among others, business identity, production planning, production process, product detail results, and recapitulation of profits and losses.</p>

The rubric or assessment criteria that have been designed, at the next stage are validated by experts / experts. This validation is done by 3 experts. Input or advice from experts / experts, then revised so that the results of the assessment rubric can be maximized and can be used as a guide in assessing student work. The performance appraisal device has met the validity of the content with expert judgement and has obtained empirical evidence. Furthermore, according to Ambarwati et al. (2019), it is explained that the use of product assessment instruments used by teachers must have validity with very good criteria and be suitable for use. This means that the product assessment instrument meets the valid

category, and according to it is explained that the evaluation according to experts in the field of measurement states that the evaluation instrument developed is in accordance with the aspects to be measured and is included in the criteria quite well, in terms of language and scoring.

**Validity and Reliability Results**

Product testing is the stage where the rubric that has been developed is validated to experts as users of the product. Validation aims to determine the feasibility of rubrics, using a questionnaire with a likert scale. The validation results of three experts from the teaching staff of the Individual Fashion Production course are shown in table 2.

**Table 2.** Validity Results with Aiken's V Index.

Grain	R	Io	$\sum s$	n(c-1)	V	Interpretation
1	5.4.4	1	10	12	0.833	Valid
2	5.4.5	1	11	12	0.917	Valid
3	5.4.5	1	11	12	0.917	Valid
4	4.5.5	1	11	12	0.917	Valid
5	5.5.4	1	11	12	0.917	Valid
6	4.4.4	1	9	12	0.750	Valid
7	4.4.5	1	10	12	0.833	Valid
8	5.4.5	1	11	12	0.917	Valid
9	4.4.5	1	10	12	0.833	Valid
10	5.5.4	1	11	12	0.917	Valid
11	5.4.4	1	10	12	0.833	Valid

12	5.4.4	1	10	12	0.833	Valid
13	4.5.5	1	11	12	0.917	Valid
14	5.4.5	1	11	12	0.917	Valid
15	5.5.4	1	11	12	0.917	Valid
16	4.5.5	1	11	12	0.917	Valid
17	4.4.4	1	9	12	0.750	Valid
18	5.4.4	1	10	12	0.833	Valid
19	4.5.5	1	11	12	0.917	Valid
20	4.4.4	1	9	12	0.750	Valid
21	5.4.4	1	10	12	0.833	Valid

Lutasari (2018), formulated Aiken's V formula to calculate the content-validity coefficient which is based on the results of the assessment of experts (raters) as many as n people on an item in terms of the extent to which the item represents the construct being measured. Index V values range from 0-1, and from the calculation results of the V index, an item or device can be categorized based on its index. If the index is less or equal to 0.4 it says the validity is less, 0.4 – 0.8 it says the validity is moderate, and if it is greater than 0.8 then it is said to be very valid (the validity is high). Referring to these criteria and based on the index of Aiken's V Table 4.1, it can be said that of the 21 question items, there are 18 question items (86%) included in the very valid criteria (high validity) and 3 question items (14%) whose validity is moderate.

The results of the validity of the contents of the instrument items above show that all items are valid, meaning that the assessment aspects contained in the instrument have measured several aspects (Astuti et al., 2015). In the Individual Fashion Production course, the aspects measured start from analyzing the fashion production business and its opportunities, planning a business, promoting, communicating with customers, managing production, maintaining and improving quality, to compiling financial statements. Thus, the assessment instrument developed has covered all aspects of the Individual Fashion Production course.

Furthermore, to find out the consistency of the expert's assessment of the rubric developed by looking at the coefficients between raters in the Kappa analysis. The

results of the Kappa analysis showed that the reliability coefficient of the rubric was 0.782. The reliability index has met the specified reliability index, which is  $r \geq 0.70$ . Thus the developed rubric shows the same understanding between experts. If the rater produces the same understanding, if the rubric is used by other party dressmakers with different times and places, it will show the same or not much different results.

### Product Eligibility Results

The results of the rubric eligibility can be seen in the following table.

**Table 3.** Data Acquisition Results

Minimum Score	15
Minimum Score	105
X	94
0.80 X Highest Score	84
0.60 X Highest Score	63
0.40 X Highest Score	42

**Table 4.** Rubric Eligibility Result Categories

Category	Value Interval	Result
Very Decent	$X \geq 0.80 \times \text{Skor}$	$X \geq 60$
Decent	$0.80 \times \text{Skor}$	$60 > X \geq$
Less Decent	$0.60 \times \text{Skor}$	$45 > X \geq$
Not	$X < 0.40$	X

Based on the table above, the value of X = 94 can be categorized as "Very Decent". The acquisition of these results shows that the assessment instrument for the Individual Fashion Production course can be used as a tool to measure student competence in producing individual clothing. Thus, individual clothing production assessment

instruments can be used as guidelines in conducting assessments. The developed rubric is equipped with an assessment sheet because the assessment sheet is the basis for the preparation of the rubric. The results of the assessment using instruments are made to be able to comprehensively inform student performance during practical learning.

The dissemination of learning assessments is carried out after learning assessments are declared feasible and ready to be used as learning assessments. The distribution of this assessment is carried out on a limited basis for students of the Fashion Education Study Program. Making custom made that requires design analysis in it, it is important that the assessment is done correctly. These results are in line with the results of research that says assessment is an important element in learning (Fatimah Zahro, 2015; Halimah, 2022), because it is a measure of learning success (Wijayanti & Wimbari, 2012). The effectiveness of assessment is measured by the extent to which the assessment can measure what is to be measured (Hidayat et al., 2006, Sudarminta, 1970).

## CONCLUSION

Based on the description of the research results and discussion, the conclusions in this study are the rubric developed in this study includes a) define, namely reviewing the assessment techniques of individual clothing production courses, analyzing the curriculum and rps; b) design, namely planning the form of the rubric, determining the aspects assessed, determining the weight of each aspect, determining the scale of the assessment, determining the level of competence; c) develop, i.e. compile assessment sheets & rubrics, rubric validations, and revisions.

The results of the validity of the contents of the instrument items show that 21 items are valid, of which 18 question items (86%) are included in the very valid criteria (high validity) and 3 question items (14%) whose validity is moderate. And the results of

the Kappa analysis showed that the reliability coefficient of the instrument was 0.782. The reliability index has met the specified reliability index, thus the developed instrument shows the same understanding between experts.

The result of obtaining data descriptively obtained the value  $X = 94$ , can be categorized as "Very Feasible". The acquisition of these results shows that the assessment instrument for the Individual Fashion Production course can be used as a tool to measure student competence in producing individual clothing, thus the individual clothing production assessment instrument can be used as a guide in conducting assessments. This shows that the individual clothing production assessment rubric is important to be applied in learning, to find out the actual competence of students based on clear criteria.

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