Modification of Digital Literacy in Contextual-Based Student Work Papers to Increasing Learning Independence

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Abstract. The current development of the Outcome-Based Education (OBE) curricu-lum prioritizes student learning, moving away from a teacher-centered ap-proach. We expect lecturers to adapt to changes and stay aware of the evolving needs of the times. A thorough understanding of the essence of learning and the characteristics of learning materials is essential. We evaluate the quality of higher education based on the quality and competence of its grad-uates. The Industrial World and the World of Work (DUDI) require gradu-ates with measurable competencies, ensuring that graduates not only possess a diploma and course transcripts but also a tangible list of their competen-cies. To produce graduates with strong competencies, a robust educational process is essential, which is why the development of the Outcome-Based Education (OBE) curriculum is critical.

Keyword: Digital literacy, Student working papers, Learning independence, Craft arts

1 Introduction

The next generation of the nation needs to be equipped with various kinds of hard skills and soft skills, one of which is through the field of education. High-er Order Thinking Skill (HOTS) is a soft skill that students must have in order to be able to compete and adapt to changing times. Each curriculum has its own characteristics and focuses on different aspects, but the essence is to coor-dinate with the needs of the times and improve the Outcome-Based Education (OBE) curriculum that is currently being developed, focusing on the student center so that educators are not the only source of learning (teacher center). OBE is an education system that focuses on learning achievement where edu-cation is not only centered on the material that must be completed but also the outcome. In simple terms, this curriculum emphasizes the sustainability of the learning process in an innovative, effective, and interactive manner. We do this to help students develop new skills that will prepare them for a more global perspective.

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In the field of Culinary Arts, the use of engaging and accessible learning media is essential to support the mastery of practical skills, such as cooking techniques, cake decorating, and kitchen management [6-8]. E-Magazine des-sert as a digital learning medium offers various advantages, such as ease of ac-cess, presentation of content in multimedia format, and interactive features that can increase student understanding and motivation to learn. Dessert typi-cally serves as a final course or a meal's dessert. These dishes usually have a sweet taste and can be formed into a wide variety of foods, such as cakes, pud-dings, ice cream, fruits, or even traditional desserts. In some cultures, desserts can also include savory desserts or slightly sour ones, depending on local pref-erences. In addition, E-Magazine Dessert allows the delivery of information that is constantly updated, in accordance with the latest trends in the culinary world, so that students can always get up-to-date information [9-12].

This aligns with the statement that mastering creative thinking is essential for solving problems and generating innovative ideas [1]. However, the crea-tive thinking skills of Indonesian students are generally categorized as low to moderate (Annur & Hafizah, 2016; Doa et al., 2018; Fatmawati, 201; Happy & Widjajanti, 2014; Riyadi, Naparin, & Zaini, 2018). According to the global creativity index, Indonesia ranks poorly in terms of creativity and innovation among its human resources [2]. Many students face challenges in relating the concepts they learn to real-world applications [3]. Therefore, it is important for lecturers to select teaching materials that can stimu-late students' interest, mo-tivation, learning independence, and understanding of the subject matter. The use of student papers in learning activities can encourage students to engage actively with the material and collaborate in group discussions. Additional-ly, student working papers provide a platform for students to showcase their abili-ties and enhance their thinking skills through exploration, inquiry, and reason-ing.

This is evident from the quality of the student paper, which tends to tear easily when printed on thin paper, produces colorless prints, often has unclear images, and features colors that fade quickly when exposed to water. Addition-ally, it is restricted to classroom use only. These factors are leading to a de-crease in the use of student working papers, thereby diminishing their effec-tiveness in facilitating independent learning and negatively impacting their learning outcomes.

Student Working Papers play a crucial role in the learning process, to the extent that they have the potential to act as a substitute for the lecturer's role. However, re-searchers have observed that the frequency of using or developing these papers is low. As a result, teaching materials don't cover craft learning topics well enough, which leads to less-than-ideal results. Students' working papers demonstrate their signifi-cance in several ways: 1) They make it easier for lecturers to manage students' learn-ing by shifting the focus from teacher-centered to student-centered approaches; 2) they help lecturers guide students to explore ideas on their own or with others; 3) they help students develop pro-cess skills, foster scientific attitudes, and get interested in learning; and 4) they let lecturers effectively track students' progress toward meeting learning goals.

Dent working papers are vital in teaching and learning activities and should be adapted or developed alongside an effective learning model. This aligns with the view, which emphasizes that tailoring the teaching model creates a meaningful and

productive learning environment while minimizing boredom and discomfort during the learning process [4].

The use of digital student papers is regarded as an effective alternative for learning, as they can assist students in gaining a deeper understanding of con-cepts through systematic learning activities. With modern graphic designs, these digital student papers are visually appealing and bring a fresh perspective to existing craft art teaching methods. These are the study's goals: 1) to see if it's possible to use Digital Literacy Modifications in Student Working Papers to help Fashion Education Study Program students learn to be more independ-ent in their Craft Arts classes; and 2) to see if the Digital Literacy Modified Student Working Papers actually help Fashion Education Study Program stu-dents learn more in their Craft Arts classes.

Student Working Papers are printed learning resources that include content, summaries, and task instructions, both theoretical and practical, tailored to meet the competencies students are expected to achieve. Other teaching mate-rials typically complement their use [5]. This way of looking at things, student working papers have many benefits, such as (a) getting students involved in the learning process, (b) helping students develop their ideas, (c) inspiring students to learn more and make their experience better, (d) helping teachers plan les-sons well, (e) being a reference for both teachers and students during the learn-ing process, (f) giving students well-organized notes on what they've learned, and (g) letting students get more information about the ideas through organized learning activities.

Learning through student working papers can enhance students' motivation, which in turn positively influences their cognitive abilities [6]. However, their use remains limited. Most lecturers tend to develop course modules, and while some create Student Working Papers, their quality is often inconsistent. We should develop these materials according to established quality standards. Em-phasize that group activities allow students to learn independently, deepen their understanding of the material, and make the learning experience more meaningful [7]. Additionally, student working papers often feature open-ended questions, encouraging students to analyze problems from various perspectives and explore alternative solutions. By utilizing student working papers, students are expected to develop greater learning independence.

Learning independence is a critical factor in achieving successful learning outcomes, emphasizing the need to nurture and develop this trait, which is in-fluenced by motivation and creativity in the learning process. The following indicators can identify learning independence: 1) Self-confidence, 2) Active engagement in the learning process, 3) Discipline in learning activities, and 4) Responsibility in managing one's own learning [8].

Learning independence is a process in which students manage their thoughts, behaviors, and emotions to effectively direct their own learning [9]. This process occurs when students' actions are influenced by the knowledge they gain or the skills they develop.

2 Research Methodology

This study centers on the development of modified learning media in the form of digital student worksheets, employing a 4-D development model that has been streamlined into a 3-D model. This adapted model aligns with the 3-P approach, encompassing the stages of definition, design, and development. The research framework is based on the Thiagarajan 4-D development model, a systematic approach to learning development that includes the stages of De-velop and Disseminate. This research provides a detailed description of the stages in the 4-D model.

This study involves 35 students from the Fashion Education Study Program as participants. The student working paper utilized in this research applies a formative evaluation model comprising three steps: (1) Senior evaluation, which includes analysis and design, (2) prototyping, involving expert reviews, one-on-one evaluations, and small group assessments, and (3) field testing. In the analysis phase, which comes first in the development process, the research-er does three things: (1) a curriculum analysis to make sure that problems found are aligned with the development of the OBE curriculum; (2) a student analysis to look at the characteristics of the students as study subjects; and (3) a material analysis to find, structure, and organize the materials and skills that students need to learn.

3 Results

The Fashion Education Study Program conducted this study, with a focus on the Craft Arts course. Following the needs and curriculum analysis, the subse-quent phase involves designing the initial product. The stepsThe steps in this phase are (a) looking at thematic networks, (b) looking at basic competencies, indicators, and course objectives, (c) making a plan for enrichment materials, and (d) coming up with learning actions that fit the course.

The researcher also developed indicators for the Craft Arts course based on competency standards. Several important conclusions were drawn from the analysis of the students: (1) their academic performance, as measured by mid-term exam scores, was significantly below the expected level; (2) they didn't use many learning resources in class, with only a few reference books availa-ble; and (3) they needed to be better at learning on their own.

This supports the assertion that implementing appropriate media and learn-ing models in craft arts courses is vital for increasing students' motivation and comprehension [10]. Additionally, a literature review was conducted to gather and analyze information about the competencies in the craft arts course curric-ulum, project-based learning models, and learning independence. These com-ponents have significant potential to enhance students' learning independence and encourage self-directed learning. Based on these results, a working paper is needed to get students interested and involved so that they can understand and use what they've learned when dealing with problems in putting craft arts courses into place so that students can develop their creativity through inde-pendent learning.

The curriculum maps the competencies that students need to master during the planning stage. This process pinpoints the skills and abilities that the prod-uct will foster. The digital student working papers include topics that aim to enhance creativity and promote independent learning. These topics emphasize craft art materials used to produce household items such as tablecloths, nap-kins, bed sheets, and pillows, which are designed to encourage self-directed learning. In the third stage, the focus shifts to the initial development of the product by compiling materials relevant to the learning indicators and objec-tives.

The structure of student working papers includes components such as the ti-tle, student details, basic competencies, learning objectives, and instructional content [11]. On the other hand, it lists six important parts of a student working paper: (1) the title; (2) study instructions; (3) basic skills or material topics; (4) supporting details; (5) assignments or steps for doing the work; and (6) as-sessment tools [12].

The product testing phase included limited trials and field trials. The fifth stage involved a limited trial with three students chosen randomly to represent different ability levels: low, medium, and high. Afterward, data were analyzed, and necessary revisions were made to the product based on the limited trial findings. A field trial involving classroom learning subsequently tested the re-vised product. This trial used a quasi-experimental method with a one-group pretest-posttest design. The field trial subjects consisted of 10 sixth-semester students from the Fashion Education study program. We carried out data anal-ysis and further revisions after the field trial to complete the Digital Student Working Paper product.

Students in the limited trial rated the quality of the digital-based student working papers with an average score of 6.24 out of 9, categorizing it as good. These digital-based student working papers are designed to act as a supplemen-tary tool to enhance the learning process, stimulate student interest and partici-pation, and encourage higher levels of learning independence.

Table 1. Results of pairied sample t-test data pretest and post-test student learning independence

	Paired Differences						
	Mean	**Std Deviation**	**Std. Error Median**	**95% Confidencien Interval of the Difference**	**t**	**f**	**Sig. (2 tailed)**
Pair 1 Pre-test-Post test	-3.38889E1	12.53440	4.17	-24.2	-8.1		.000

Table 1 shows that the analysis yielded a significance value greater than 0.05 (Sig > 0.05), indicating the acceptance of Ho. This means the pretest and post-test data for student learning independence in the experimental and con-trol classes follow a normal distribution. Additionally, the significance value was found to be less than 0.025 (Sig < 0.025), which leads to the rejection of Ho. Therefore, we can conclude that the

use of digital-based student working papers significantly enhanced student learning independence.

Lecturers plan the activities that students will do while they are learning. For example, they plan the order of the experiments, walk students through the steps of the experiments, make sure that accurate data is collected, and teach students how to properly write reports that explain the results of the experi-ments.

Table 2. Percentage of Validity Score of Digital Literacy Products Student Worksheets

Students working paper of the craft arts course	Score Percentage (%)
Process skills	92,36%
Lecturer creativity factor in craft learning	86,11%
Digital student working paper in learning	87,50%

Experts, specifically lecturers in the field of Fashion Design, evaluate the quality of the developed digital Student Papers (see table2). A summary of the content feasibility validation results from two experts is provided in table 3. The assessment includes four key aspects: 1) the feasibility of the content, 2) the appropriateness of the language, 3) the quality of the presentation, and 4) the suitability of the graphics. Content feasibility is evaluated based on indica-tors such as: (a) the presence of enrichment materials, (b) alignment with Core Competencies and Basic Competencies, (c) the accuracy of the content, (d) content that fosters critical thinking, (e) materials that arouse curiosity, and (f) content that aids in developing life skills.

Table 3. Analysis of Student Working Paper Validation Results per Assessment Indicator

Assessment Indicators	e– KKM 1	e – KKM 2	e – KKM 3
Content eliglibility	93,75%	84,37%	90,63%
Feasibility Characteristics of Digitas student working papers	87,5%	81,25%	81,25%
Language Qualifications	93,75%	87,50%	93,75%
Eligibility of Serving	87,5%	78,12%	75%
Graphics	96,88%	100%	93%

Table 4. Recapitulation of Content Aspect Validation Results

No	Content Eligibility Indicators	Score	
		Validator 1	Validator 2
1	Load enrichment materials	5	5
2	The enrichment materials presented can support the achievement of Core Competencies and Basic Competencies	5	5

3	The material presented is accurate	5	4
4	The material presented contains insight into prudence	4	3
5	The material presented can stimulate curiosity	4	4
6	The material presented can develop life skills	4	3
Sum		52	
Average		4,3	
Criterion		Very good	

Table 4 reveals that the validation score from the two experts totals 52, with an average rating of 4,3. This average place the content's feasibility in the very good category. The assessment results for the linguistic aspects are presented in table 5.

Table 5. Recapitulation of Linguistic Aspect Validation Results

No	Language Eligibility Indicators	Score	
		Validator 1	Validator 2
1	According to the level of development of the student	5	5
2	Communicative	4	3
3	Dialogical and Interactive	4	3
4	Conformity with the rules of the Indonesian language that	4	5
Sum		34	
Average		4,25	
Criterion		Very good	

Table 5 indicates that the score obtained is 34, resulting in an average of 4,25. This places the language feasibility aspect in the very good category.

Table 6. Recapitulation of the Results of Validation of Presentation Aspects

No	Serving Eligibility Indicators	Score	
		Validator 1	Validator 2
1	Completeness of Digital Student Working Papers	5	5
2	Digitals student working papers present learning in accordance with the rules of digital writing	4	4
3	The formulation of instructions or instructions for the Digital Student Working Paper is simple so that it is easy to understand	4	4
4	The formulation of learning activities in the Digital Student Working Paper is short and simple so that it is easy to understand	4	5
5	Learning activities enable the achievement of learning indicators	4	5
6	The Digital Student Working Paper facilitates students to carry out scientific activities, namely observing, questioning, trying,	3	5

	analyzing, and concluding		
7	Digital Student Paperwork facilitates students to communicate	3	5
Sum			60
Average			4,30
Criterion		Very good	

Table 6 shows a score of 60, with an average rating of 4,3, placing the Digi-tal Student Working Paper in the very good category. The last aspect reviewed by the validators is the graphics feasibility, and a summary of the evaluation results from two experts is provided in table 7.

Table 7. Recapitulation of Graphics Aspect Validation Results

No	Graphics Eligibility Indicators	Score Validator 1	Score Validator 2
1	Cover of Digital student working paper	5	4
2	The attractiveness of the display of Digital student worksheets	5	4
3	Typography according to student development	4	3
4	Colored illustration	4	5
Sum			34
Average			4,25
Criterion		Very good	

Based on Table 7, the graphics aspect scored 34, Based on Table 7, the graphics aspect scored 34, with an average of 4,25, which is classified as "very good." The cumulative average score from the two validators is 4,28, placing it in the "very good" category and indicating its readiness for use. However, we recommend certain improvements prior to implementation. We suggest includ-ing prerequisite and enrichment materials in the content to support student preparation. To align with students' cognitive abilities and ensure the material's effectiveness for self-directed learning, limit sentences to a maximum of 6 words in language.

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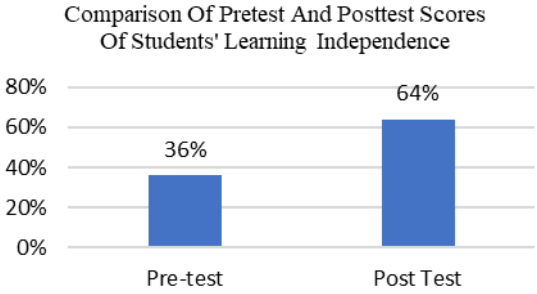

Figure 1 Comparison of pretest scores and learning independence post-test

The use of digital student working papers demonstrates improved learning effectiveness and significance by providing more detailed problem scenarios. This clarity helps students understand the issues more thoroughly, enabling them to explore and address the problems effectively. Through project assign-ments, students are encouraged to build material concepts using the problem-solving outcomes outlined in the digital student working papers, supported by various learning resources or references.

4 Discussion

According to the development results, experts rated the product with an av-erage score of 4.28, classifying it as very good and suitable for limited testing. Similarly, users, including teachers and students, rated the product with an av-erage score of 4.55, indicating its excellent quality and readiness for imple-mentation. This aligns with the study by Danang et al., which found that digital student working papers enhance students' talents and abilities in addressing learning [14]. Moreover, these working papers help students develop essential skills such as critical thinking, problem-solving, and collaboration [15].Additional research by Clara et al. showed that student working papers meant to improve creative thinking skills helped develop those skills effective-ly, getting an N-gain of 0.78 and receiving high ratings [16].

Challenges and questions presented in student working papers on craft arts require students to exhibit a high degree of learning independence to complete them effectively. It has been observed that student working papers can foster active participation in the learning process [17]. The integration of digital stu-dent working papers into learning increases student interest and engagement, which enhances their understanding of the material and fosters greater learning independence. The tasks in student working papers inspire students to explore and understand concepts on their own [18]. This study revealed that digital stu-dent working papers foster learning independence by enhancing fluency, preci-sion, adaptability, and creativity. Based on the explanation, it is evident that student working papers positively contribute to learning independence

The ability of digital student working papers to enhance the achievement of learning objectives reflects their effectiveness. Student learning outcomes measure their

impact during the learning process. The activities conducted by the students yielded a score of 86.7%, all within the allocated timeframe. Alt-hough some activities faced initial challenges due to time limitations and un-familiarity, the lecturer addressed these in subsequent sessions by guiding stu-dents to actively participate and remain focused. This indicates that the student working papers are practical and manageable for teachers to use. In practical, a tool is allows teachers to facilitate learning in a logical, consistent manner without major obstacles. Therefore, other relevant study programs can adopt these student working papers as a model [19].

5 Conclusion

The findings from the research and development indicate the following con-clusions: (1) The process of creating digital-based student working papers comprises several steps, including a preliminary study, planning, initial prod-uct development, product validation, limited trials, revisions based on limited trial results, field trials, revisions after field trials, and limited dissemination; (2) The quality of the digital-based student working papers, reviewed in terms of learning, content structure, and technical criteria, was assessed across eight aspects: craft arts material development, concept depth and scope, sentence clarity, language, evaluation of learning outcomes, student activities, imple-mentation, and physical presentation. All aspects are rated B (good), signifying the product's suitability for learning; (3) Utilizing digital-based student work-ing papers in craft arts education enhances students' creative thinking abilities. This is evidenced by a higher average post-test score compared to the pretest score, with t-test results showing a significant difference between the two.
Led the research design, data collection, and analysis. Also coordinated the development of the e-magazine and conceptualized the study framework. Con-tributed to content development, expert validation, and conducted interviews and observations during implementation. Also assisted in writing the research findings. Handled quantitative and qualitative data analysis and contributed to writing the methods and data analysis sections. Also supported the revision of the final manuscript.

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References

1. Chan, Z. C.: A systematic review of creative thinking/creativity in nursing education. Nurse Education Today. 33(11), 1382–1387 (2013)
2. Florida, R., Mellander, C., King, K: The Global Creativity Index 2015. Toronto, Canada: Martin Prosperity Institute (2015)
3. Marselina, D., Sujatmika, G.: The Challenges of Relating Theoretical Concepts to Real-World Applications in Education, in Proc. of the International Conference on Education (2017)
4. Joyce, B. R.: Models of Teaching. In: 8th ed. Boston, MA, USA: Pearson, (2011)
5. Prastowo, A.: Thematic Teaching Material Development: Theory and Prac-tice. Kencana, Jakarta (2013)
6. Sari, S., Sugiyarto, I.: The impact of student working papers on motiva-tion and cognitive development. Journal of Educational Research and Learning5(2) pp. 112-120 (2015).
7. Tivani, T., Paidi.: The impact of group activities on independent learn-ing and material comprehension. Journal of Educational Studies 5(2), pp. 112-120, (2016)
8. Mudjiman, A.: Independent Learning. UNS Press, Surakarta (2006)
9. Zumbrunn, S., Tadlock, J., Roberts, E.: D. Encouraging Self-Regulated Learning in the Classroom: A Review of the Literature. Richmond, VA: Metropolitan Educational Research Consortium (2011)
10. Herni, Setiawan, R.: Implementing Appropriate Media and Learning Models in Craft Arts Courses to Increase Students' Motivation and Com-prehension (2019)
11. Astusi, R., Setiawan, A.: Student Working Papers: Structure and Compo-nents (2013)
12. Prastowo, A.: Creative Guide to Developing Innovative Teaching Materials. Diva Press, Yogyakarta (2012)
13. Widiyawati: Hands-on and Minds-on Activities for Independent Knowledge Construction (2017)
14. Wijaya, D., Karmila., Amalia.: Digital Student Working Papers for En-hancing Students' Talents and Abilities in Addressing Learning Challenges (2015)
15. Messier, W.F: Auditing & Assurance Services: A Systematic Approach, 9th ed. New York, NY, USA: McGraw-Hill Education (2015)
16. Aldila, N., Abdurrahman, A., Sesunan, R.: The effectiveness of student working papers in enhancing creative thinking skills. International Journal of Educational Research and Innovation. 5(2) pp. 120-135 (2017)
17. Nugraheni, N.: Student Working Papers and Active Participation in Learn-ing 1st ed. Jakarta, Indonesia (2018)
18. Hairida.: The influence of student worksheets on conceptual understanding and exploration skills. Journal of Education and Learning 10(2), pp. 150–157 (2016)
19. Sugiyono.: Metode Penelitian Kuantitatif, Kualitatif, dan R&D. Alfabeta, Bandung (2017)