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Portfolio-Based Assessment in Research Methodology Course Students in Vocational Education

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A B S T R A C T

Assessment is one of the important stages in the learning process in order to determine the extent to which learning objectives have been achieved. A portfolio assessment is a continuous assessment based on a collection of information that shows the development of student abilities in a certain period. The purpose of this study was to conduct a portfolio assessment on individual student assignments in the Research Methodology course in the odd semester of the 2022/2023 academic year in the form of a research proposal which includes the preparation of background, problem formulation and research objectives, benefits, and research methods. The method used is descriptive research using a total sample of 69 students who contract research methodology courses. The results showed that the research background preparation score of 69 was in the good category, the formulation and research objectives were in the good category with an average score of 66, and the benefits of research and research methods were in the good category with scores of 71 and 67 respectively. The conclusion of this study shows that portfolio-based assessment on the task of preparing research proposals is in the good category with an average score of 68.

A R T I C L E   I N F O

1. INTRODUCTION

Assessment is the most essential part of the teaching and learning process. Penisin is a process that determines the value of everything (Pereira *et al*., 2016; Wilson, 2018; Fletcher *et al*., 2012). Assessment is different from measurement because the measurement is more quantitative. Measurement is an instrument for making assessments (Wilson, 2018). With assessment, educators will know students' learning process and various research methods can be applied by education, one of which is portfolio-based assessment (Kapucu & Koliba, 2017; Shepard, 2019). A portfolio can be interpreted as a collection of learning results or students' work that shows students' efforts, development, and learning achievements from time to time and from one subject to another (Deeba *et al*., 2023).

Assessment is the most essential part of the teaching and learning process. Penisin is a process that determines the value of everything. Assessment is different from measurement (Krammer *et al*., 2021; Knight *et al*., 2014). Portfolios are used to provide an adequate learning environment for students and assess student responsibility and motivation to learn (Baas *et al*., 2020; Van Wyk, 2017). Portfolios are one way of organizing a suitable learning environment for students. Portfolios function to determine the development of students' knowledge and abilities in certain subjects and the growth of students' abilities (Kim & Yazdian, 2014). In practice, the portfolio is based on four pillars of education: learning to do, learning to know, learning to be, and learning to live together. Learning to do so that students can take action to enrich their learning experience by increasing interaction with the environment and social and cultural aspects (Amundson & Ko, 2021).

Research Methodology Course is one of the Core Study Program Expertise Courses of the Culinary Arts Education Study Program, which must be followed by all Culinary Arts Education Study Program students as one of the requirements for preparing a thesis. A thesis is a final paper made by students as one of the requirements for completing their Bachelor's degree program. After taking the Research Methodology course, students are expected to have knowledge, understanding, and analysis in various types of research in the field of Culinary Arts, have a scientific attitude, and have ethics in scientific writing. In this lecture, the basics of research methodology, components and steps of research, variables, preparation of theoretical studies and frameworks and hypotheses, population, samples and sampling techniques, research instruments, data collection techniques and data analysis, and statistical applications in research are discussed.

Assessment is one of the important stages in the learning process to determine the extent to which learning objectives have been achieved (Sewagegn, 2020). The assessment carried out in the Research Methodology course is in the form of tests at midterm, tests at the end of the semester, and assessments of assignments. The assignment given is a research proposal containing the research background, research problems, research objectives, research benefits, thesis structure and research methods, and bibliography following the UPI scientific writing guide compiled by the students. The assignment is collected at the 14th meeting and is given a reflection for improvement before it becomes the final assignment.

The results of the assessment of the proposal preparation task in the previous batch were still unsatisfactory because students had an average score of 61 out of a maximum score of 100. Therefore, the 2021 batch of students who took the Research methodology course in the odd semester of 2022/2023 had their proposal preparation assignments assessed using a portfolio assessment. Portfolio assessment is one type of assessment used in class-based assessment and has optimal meaning in seeing the achievement of student learning competencies (Halim *et al*., 2019). A portfolio assessment is a collection of student work that

is systematically arranged to show the efforts, processes, results, and learning progress made by students over time (Kim & Yazdian, 2014). The collection of work is used by students to reflect so that they can recognize the weaknesses and strengths of their work (Yan, 2020). These weaknesses will be used as the next learning material. This is by the stages of portfolio assessment (Lam, 2020). Portfolio assessment has five stages, namely evidence collection, reflection on learning, evaluation of evidence, defense of evidence, and assessment decisions. Portfolio assessment applies very well in the learning process at all levels of education, from school to college level (Hidayati *et al*., 2021; Ling, 2016). The results of research related to portfolio assessment show that portfolio assessment has a significant effect on learning outcomes (Gunay & Ogan-Bekiroglu, 2014). Portfolio assessment involves students in collecting various tasks, to monitor the development of each student which ultimately improves student learning ability (Senger & Kanthan, 2012).

Based on the explanation above, this study aims to conduct a portfolio assessment on individual student assignments in the Research Methodology course in the odd semester of the 2022/2023 academic year. The assignment assessed is a research proposal assignment which includes the preparation of background, problem formulation and research objectives, benefits, and research methods.

2. METHODS

This research is quantitative research descriptive, the population of this study was all students of class 2021 who contracted the Research Methodology course in the odd semester of the 2022/2023 academic year as many as 69 students. The sample used is the total, the same size as the population. The research was carried out for one semester under the UPI academic calendar, from September 1, 2022, to December 23, 2022.

The research procedure, according to Margery (2005), consists of five stages for each task given in the proposal preparation, namely (1) evidence collection, (2) reflection on learning, (3) evaluation of evidence, (4) defense of evidence and (5) assessment decision. Tasks as a collection of evidence in portfolio assessment include the task of compiling background, problem formulation and research objectives, benefits, and research methods. The task will be done by students after giving the theory related to the task. Students will collect tasks as evidence and then will be given a reflection to further develop or improve understanding related to the tasks that have been done. The next stage is to evaluate the evidence by conducting an assessment by the course lecturer by analyzing the performance evidence in the portfolio, knowing the achievement of learning and what changes are needed for improvement. The evidence defense stage is related to the confirmation made by students related to the evaluation that has been assessed by the lecturer. The assessment decision stage is related to the score given for the tasks that students have done.

Scoring for each task uses a hundred scale, where the minimum score is 0 and the maximum score is 100. The scores are then categorized into 5 groups, namely very poor (0 - 20), poor (21 - 40), sufficient (41 - 60), good (61 - 80), and excellent (81 - 100).

3. RESULTS AND DISCUSSION

The results of this study are based on data obtained from the scores of each task given continuously and analyzed descriptively. Each task was scored using a hundred scale and categorized into 5 groups, namely very poor, poor, sufficient, good, and excellent. The score given is the decision of the assessor after passing through the stages of task collection, reflection, evaluation, and evidence defense. The results of the data obtained regarding the

categories of background tasks, problem formulation and research objectives, research benefits, and research methods are presented in **Table 1**.

Table 1. Summary of Scoring Groups of Research Proposals.

Score Group	Research Introduction	Problem formulation and research objectives	Research Benefits	Research Methods
0 - 20 (Very Poor)	0%	0%	0%	0%
21- 40 (Poor)	0%	0%	0%	0%
41 - 60 (Sufficient)	11%	11%	9%	14%
61 - 80 (Good)	77%	81%	75%	72%
81 - 100 (Excellent)	12%	8%	16%	14%

The research introduction writing task is the first task in a series of research proposal preparation tasks. Based on **Table 1**, most respondents were in a good category, namely 77%. While a small portion was in the sufficient category as much as 11% and the excellent category as much as 12%. The minimum score obtained by respondents was 50 and the maximum score was 80 with an average score of 69. With an average score of 69, it shows that the introduction writing task score is in a good category. The author's first step in describing the research to be conducted is writing the background. The background provides initial information about all research activities that contain the issues or topics raised (Byrnes, 2013; Derntl, 2014). The background also provides an idea of whether the researcher is a person who understands the topic being discussed and is a careful user of language or vice versa (Reybold *et al*., 2013).

The problem formulation and research objective writing tasks are given together, so the score is an assessment of both. The task of writing the problem formulation and research objectives is given after the assessment decision of the research background task. Based on **Table 1**, most of the respondents were in the good category, namely 81%. While a small number were in the sufficient category as much as 11% and the excellent category as much as 8%. The minimum score obtained by respondents was 40 and the maximum score was 95 with an average score of 66. With an average score of 66, it shows that the score of the task of writing the formulation of the problem and research objectives is in a good category. After successfully finding the problem, theme, or topic to be researched, the researcher prepares a problem formulation (research question). Finding the problem and formulating it further is the initial research stage from the other stages and is admittedly challenging (Barroga & Matanguihan, 2022). Research starts from a problem and is carried out to answer the problem (Mildeová, 2013). Selecting a researchable problem and formulating it correctly is recognized as a stage that takes work (Ratan *et al*., 2012).

The benefits of research writing tasks include theoretical and practical benefits. The research benefit task is given after the assessment decision of the writing task of the problem formulation and research objectives. Based on **Table 1**, most of the respondents were in the good category, namely 75%. While a small number were in the sufficient category as much as 9% and the excellent category as much as 16%. The minimum score obtained by respondents was 50 and the maximum score was 95 with an average score of 71. With an average score of 71, it shows that the score of the research benefit writing task is in a good category. Research benefits in general are a series or collection of uses for research results, both for program development purposes and scientific interests that are considered important to carry out. The main purpose of creating this research benefit is to inform action (Kahlke, 2018). Apart from that, the benefits of research are also made to prove the theoretical basis that has been

prepared in scientific papers so that the benefits of the research can contribute to developing knowledge in a particular field or study (Smart, 2022).

The task of writing research methods is the last in a series of research proposal preparation tasks. Based on **Table 1**, most of the respondents were in the good category, namely 72%. While a small number are in the sufficient category as much as 14% and the excellent category as much as 14%. The minimum score obtained by respondents was 50 and the maximum score was 95 with an average score of 67. With an average score of 67, it shows that the score of the research method writing task is in a good category. The writing method is a scientific way to obtain data to be able to describe, prove, develop and specific knowledge, theories, actions, and products are discovered so that can be used to understand, solve, and anticipate problems (Snyder, 2019; Mohajan, 2018).

The results showed that the portfolio assessment carried out on the task of compiling a research proposal for students of the 2021 Culinary Arts Education Study Program who contracted the research methodology course was in the good category. This shows that students can compile the background, problem formulation and objectives, research benefits, and research methods well. Students can write proposals well because reflection and evaluation have been carried out on each assignment so that students can better understand their writing weaknesses and strengths. To master these competencies, project-based learning with portfolio assessment was carried out. The results showed that portfolio assessment allows students to reflect on what they have mastered and what they have not mastered concerning action research competence so that in the end students can prepare a research proposal at the end of the semester.

Portfolio assessment in the research proposal preparation task is carried out to assess and construct student knowledge in the form of a research proposal report (Zlatkin-Troitschanskaia *et al.*, 2015). The results of the assessment of the proposal preparation portfolio are in a good category with an average score of 68 on a scale of 100. This shows that the ability of students to write proposals still needs to be improved. Although each task has been given a reflection in the form of an oral assessment as input to develop and improve understanding, perhaps not all students can absorb this information. Reflection may be difficult for some individuals, but it can be learned (Denton, 2011). Students who have poor academic performance will find the task challenging, so teachers must be flexible to match expectations with the tasks that students can complete. If necessary, the evaluation rubric is changed to match the student's learning progress (Ballou & Springer, 2015).

In portfolio assessment, the assessment rubric is important. In this study, the assessment rubric was made not in detail but in outline (Gu & Ku, 2018; Muktiarni *et al.*, 2020). For example, the research background must include ideal conditions, and factual conditions to show the gap between ideal and factual and then determine the focus of research from the gaps that occur (Nyanchoka *et al.*, 2019; Baako *et al.*, 2022). The assessment rubric can be given to students so that students can conduct an internal evaluation so that the teacher can start the discussion by focusing on topics that may be of concern (Ling, 2016; Dawson, 2017).

4. CONCLUSION

The conclusion of the portfolio assessment research on individual student assignments in the odd semester Research Methodology course in the 2022/2023 academic year in the form of a research proposal which includes the preparation of the background, formulation of problems and research objectives, benefits and research methods is in a good category with an average score of 68. The preparation of the research background is in a good category with an average score of 69, the formulation and objectives of the research are in a good category

with an average score of 66, and the benefits of research and research methods are in a good category with an average score of 71 and 67 respectively.

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6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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