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Email: educatoriajurnal@gmail.com

REVIEW OF THE VALIDITY OF ECOLOGY PRACTICUM INSTRUCTIONS: AN EVALUATION PERSPECTIVE

Zulhendri
Department of Biology Education, Faculty of Science, Engineering, and Applied Sciences, Mandalika University of Education, Pemuda Street Number 59A, Mataram, West Nusa Tenggara 83125, Indonesia
Email: zzulhendri@gmail.com
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ABSTRACT: This study aims to measure the validity of the ecology practicum instructions. This research is categorized as development research. Data collection techniques employed validation testing. The data analysis technique used the percentage technique. The research findings indicate that the average validity test score of the ecology practicum instructions is 73.33%, categorized as valid. These results suggest that the compiled ecology practicum instructions falls under the valid category and does not require revision.

Keywords: Ecology, Evaluation, Practicum Instructions, Validity.

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INTRODUCTION

Ecology practicum instructions are crucial in facilitating practical learning for students to understand and apply ecological concepts directly. Ecology practicum instructions are not only essential for practical learning but also serve as invaluable resources for reinforcing theoretical knowledge through hands-on experimentation. According to Andana et al. (2023) and Hikmah (2022), the success of laboratory manuals heavily relies on their validity. Validity refers to how much a laboratory manual can measure what it intends to (Guntur, 2017).

Evaluation of the validity of ecology practicum instructions becomes crucial to ensure that these instruments are not only effective in facilitating learning (Fajarianingtyas & Hidayat, 2019) but also capable of providing meaningful and useful learning experiences for students. By considering these evaluative aspects, strengths and weaknesses of existing practicum instructions can be identified, leading to recommendations for improvement and development in the future. This research is expected to contribute significantly to enhancing the effectiveness of ecology education and ensuring that practicum instructions not only meet academic standards but also support optimal learning experiences for students.

Furthermore, the analysis of these evaluative aspects enables educators and curriculum developers to pinpoint specific areas where practicum instructions can be enhanced to better align with evolving educational goals and pedagogical approaches. By addressing identified weaknesses and building on strengths, future

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iterations of practicum instructions can be tailored to cater more effectively to diverse learning styles and educational contexts. This iterative process not only fosters continuous improvement in ecological education but also promotes a dynamic learning environment that engages students and prepares them for real-world applications of ecological principles.

This study aims to explore and analyze in-depth the validity of ecology practicum instructions using an evaluative approach. By considering various evaluation perspectives, it is expected that the findings of this research will contribute significantly to the development and enhancement of ecology practicum instructions as more effective and high-quality learning tools. This contribution is anticipated to advance the field by improving the overall effectiveness of ecology education, ensuring that practicum instructions not only meet academic standards but also enhance the learning experience for students.

METHOD

Research Type

This study employs a development research approach. According to Gay (1981), development research is an effort to create effective products for use in schools, rather than to test theories. In this study, development research aims to produce teaching materials in the form of practicum instructions using the 4D model from Thiagarajan et al. (1974), which consists of define, design, develop, and disseminate stages. However, in this research, the researcher modified it into a 3D model, comprising define, design, and develop stages. The practicum instructions developed are validated by content experts, display experts, and language experts.

Research Approach

The approach used in this study is quantitative. A quantitative approach involves data collected in numerical form (Mukhtar, 2010). In this research, the quantitative approach pertains to data obtained from validation sheets.

Research Instrument

The instrument used in this study is a validation sheet. The validation sheet utilized in this study serves as a reliable tool for assessing the accuracy and effectiveness of the practicum instructions under evaluation, ensuring robust findings and informed recommendations for educational enhancement.

Data Collection Technique

The data collection technique in this study involves the validation of the ecology practicum instructions.

Data Analysis Technique

The data analysis technique in this study utilizes the percentage technique.

Percentage Technique

Data regarding the validity of the ecology practicum instructions compiled are obtained using the following formula.

$$\mathbf{P} = \frac{\sum \mathbf{X}}{\sum \mathbf{X1}} \boldsymbol{x}\mathbf{100\%}$$

Information:
P = Validity value in percentage form;

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∑X = The total number of answers of all respondents in one aspect;
∑X1 = The ideal number of answers in one aspect; and
100% = Constant.

Table 1. Assessment Classification.

Percentage (%)	Feasibility of Teaching Materials
81 - 100	Very Valid (Unrevised)
61 - 80	Valid (Unrevised)
41 - 60	Fairly Valid (Revised)
21 - 40	Invalid (Revised)
0 -20	Highly Invalid (Revised)

Source: Setyosari (2013).

RESULTS AND DISCUSSION

Results

Data from research on the development of ecology practicum instructions was carried out using validation tests by content/material experts, display experts, and language experts. Data from expert analysis can be seen in Table 2.

Table 2. Data from Validation Results of Ecology Practicum Instructions.

Validator	Total Score	Maximum Score	Percentage	Appropriateness
Content/Material	30	40	75%	Valid
Language	33	40	82.50%	Valid
Appearance	25	40	62.50%	Valid

Table 2 shows the data from the validation results of ecology practicum instructions from validation by content/material experts with a percentage of 76.5%, language experts with a percentage of 79%, and display experts with a percentage of 70%. This data can be presented in diagram form as in Figure 1.

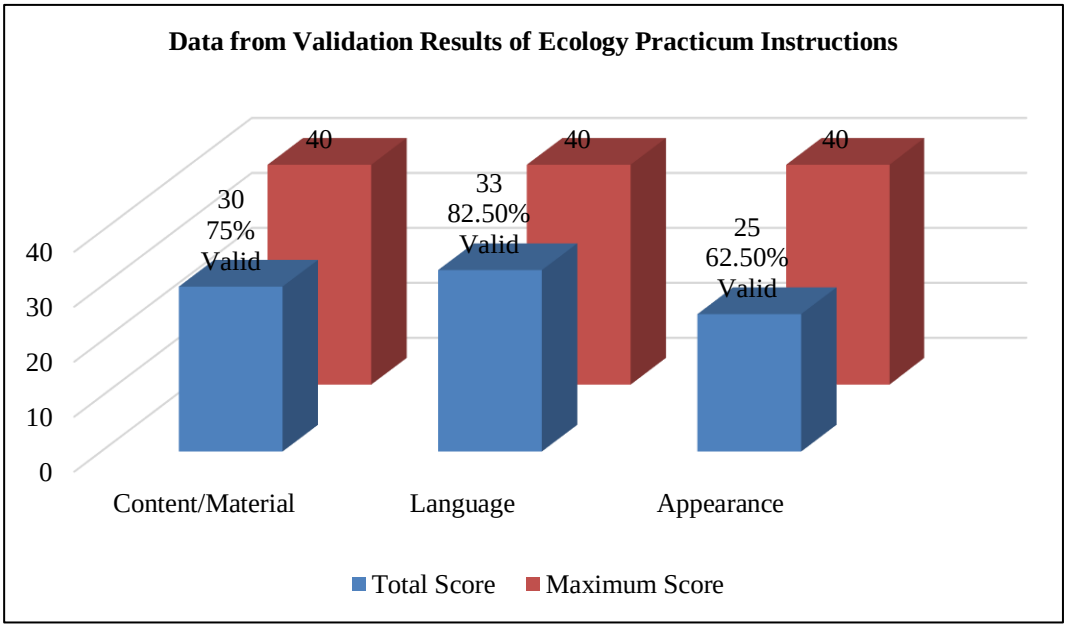

Figure 1. Data Diagram of Validation Test Results for Ecology Practicum Instructions.

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Discussion

Based on the validation results obtained from the ecology practicum instructions that have been prepared, the level of achievement of content/material experts with assessment components with a total score of 30 is qualified as valid and does not need to be revised with a percentage of 75%. This validation outcome indicates that the ecology practicum instructions, as evaluated by content and material experts, have achieved a high level of validity, meeting the established criteria with a commendable score of 75%. This strong validation suggests that the instructions effectively align with the intended learning outcomes and accurately assess the targeted ecological concepts. Moving forward, continuous monitoring and periodic updates can further refine the instructions to ensure they remain current and relevant to the evolving field of ecology, thereby maintaining their efficacy in supporting comprehensive and impactful learning experiences for students. This is in line with research by Harefa & Laoli (2021) which concluded that the results of the scientific-based LKPD feasibility assessment by content/material expert validators obtained percentage results in the initial revision with a score of 75% of the "feasible" criteria. Meanwhile, in the final revision, the percentage results reached a score of 95.8%, the criteria "very feasible".

Then the level of achievement of linguists with several linguistic assessment components, the total score obtained by linguists is 33 with a percentage of 82.50% which is qualified as valid and does not need to be revised. These results are in line with research by Nantana & Wiradimadja (2023) which obtained results of 95% for validation from linguist experts. Meanwhile, the level of achievement of the display expert with 8 assessment components obtained a score of 25 with a percentage of 62.50% which was qualified as valid and did not need to be revised. This percentage result is different from Cholidiyah's (2022) research on the design aspect of e-LKPD which got 92.5% in the valid category. Even though the results are different, they are still in the valid category. Based on the suitability of teaching materials according to Setyosari (2013), 81-100% are very valid (not revised), 61-80% are valid (not revised), and below 60% are revised.

CONCLUSION

Based on the results and discussion of the research, the author can conclude several things, including: the level of quality of achievement of the ecological practicum instructions that have been prepared, the content/material experts are qualified as valid and do not need to be revised, namely 76.5%, then the level of achievement among linguists is qualified valid and does not need to be revised, namely 79%, while the level of achievement of display experts is qualified as valid and does not need to be revised, namely 70%.

SUGGESTION

The suggestions that can be given are to examine teachers' experiences and perceptions regarding the use of practical instructions in teaching ecology, as well as the factors that influence their implementation and effectiveness.

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