Journal of Ecohumanism
2024
Volume: 3, No: 4, pp. 1328 – 1336
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i4.3663

Validity Test of The Results of The Development of Pedagogical Competence Training of Lecturers Based on Action-Based Learning in Colleges

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Abstract

This research aims to clarify the validity of developing a model for the training of pedagogical competence of lecturers in Islamic religious colleges. This study uses the research development method—subjects of research as many as 23 colleges in West Sumatra. The research model uses the ADDIE research model with development stages. The results of the study showed that the results of the validity test derived from the results of the validator against the Development of Competency Training of Lecturers based on Action-based Learning in Colleges were declared valid on each validity test result of the interclass correlation coefficient of the product results, i.e. model book (0.910), material book (0.909), instructor book (0.926), participant manual (0.925). The interclass correlation coefficient of the product is categorized as very high and is effectively used because the interclass correlation coefficient scores in the range of 0.81 to 1.00. The value of the interclass correlation coefficient of the product results based on the validity test results on the development of the competency training of lecturers based on action-based Learning in colleges is stated to have a high level of validity so that it can be used. The results of the validity test are tested for their feasibility so that the results of the product can be used to implement action-based learning-based lecturer competence training in colleges.

Keywords: *Validity, Product development results, Teacher training, Action Based Learning.*

Introduction

The rapid development of science and technology in the early 20th century has given rise to information technology and automated production processes. The use of technology demands that the lecturer can use and meet the requirements of UUD No. 14 of 2005 to have the pedagogical competence of the lecturer in the learning process (Guru Dan Dosen, 2005); (Hazizah, Rusdinal, Ismaniar, Nirwana, et al., 2024). Based on the results of a survey of researchers at Islamic colleges, lecturers have a low interest in the learning design contained in RPS and Syllabus, innovative learning models based on technology, innovative learning media based on technology, and evaluation of learning through student learning outcomes (Rusdinal et al., 2024). This problem can be solved through an action-based learning approach (Lubbe, 2016); (White et al., 2016).

This action-based learning approach is given to the lecturer through training provided by the instructor-trainer. Training in this Action is necessary for lecturers to improve their pedagogical competence. The results of the interviews showed that there was a need for a training design that was able to accommodate the needs of the lecturers. As put forward by Khusniati (2012) suggests that learning planning is done by good learning planning with the development of a syllabus and the preparation of a semester learning plan (RPS)(Khusniati, 2012). Learning Implementation is implementing learning planning to achieve good learning outcomes appropriate to the trainees' ability level and background (Nugraheni et al., 2024); (Syoviana et al., 2024).

The lecturers can carry out the training provided with varying competencies. The answers from the respondents were quite varied, where the respondents wanted the lecturer to be given pedagogical competence, mastering

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2024
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DOI: https://doi.org/10.62754/joe.v3i4.3663

three stages, namely planning, implementation, and evaluation. Planning is planning learning activities, such as the design of Learning realized with RPS. Implementation is the implementation of learning activities, such as modifying teaching skills through innovative learning models and media based on technology, and evaluation is the evaluation of learning in the form of student learning processes and results (Eri Kusumaningrum et al., 2023); (Meizatri et al., 2023).

We can analyze the need for teacher training models of pedagogical competence in action-based learning colleges. Ubar & Wuttke (2000) and Gilhooly & Lynn (2015) meet the demands of learning tasks by applying action-based Learning in an educational environment using technology (Ubar & Wuttke, 2000); (McFarland & Ployhart, 2015); (Komariah et al., 2023). It is assumed to be able to increase the pedagogical competence of lecturers in colleges (Marsidin & Susanti, 2023); (Adriani et al., 2020). In addition, with the application of this action-based learning method, lecturers are trained to think critically about various problems faced in colleges, as shown in the following table.

Table 1. The need for product development Development of pedagogical competency training Lecturer based on Action-based Learning in the College

The Three Stages of Domination	Real Condition	Expected conditions
Planning	There has not been any specific training on lecturer competence held by the College, such as design learning that is realized with RPS and the needs of students in class	Available training designs on lecturer competence to improve lecturer competence in higher education
Implementation	The existing training needs to be improved to improve the lecturers' pedagogical competence and solve the problems they face.	There is adequate training in the pedagogical competence required by the lecturer and the ability to solve the problems faced by modifying teaching skills through innovative learning models and media based on technology.
Evaluation	Lack of training in improving the pedagogical competence of lecturers that is reflected in the process and learning outcomes of students	Training design can improve the pedagogical competence of lecturers through the process and learning outcomes of students.

Table 1 above shows that three stages are required in planning, implementation, and evaluation. At the planning stage of the interview, it was mentioned that there had yet to be any special training implemented by the College, such as the learning design realized with RPS and Syllabus that is representative. The implementation stage of the interview results stated that the lecturer still needs to solve the problem of using models and learning media, so the learning material needs to be better conveyed. Next, the evaluation stage mentions the need for lecturers' training to get good student learning outcomes (Prananda & Hadiyanto, 2019). As a result of the above conditions, one of the solutions is to use action-based learning training can improve the academic competence of lecturers in colleges, such as the design of learning load RPS and syllabus to produce a product book of training materials, the use of models and appropriate learning media produce model books, and the evaluation of learning outcomes in the classroom produce participant books and instructor books (Hadiyanto dan Martini, 2018);(Hazizah, Rusdinal, Ismaniar, Handrianto, et al., 2024). In addition, of course, the result of this product can not only be used directly, but it is necessary to test the validity of all products produced, such as trainee books, instructor books, material books, and model books.

Literature Review

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Pedagogical competence is the ability to perform a job or task grounded in skills and knowledge and supported by the attitudes required by the job. Thus, pedagogical competence indicates the skill or knowledge of teaching practice in a particular field as something of paramount importance, as the excellence of that field (Guru Dan Dosen, 2005); (Marta et al., 2020).

Theoretically, this pedagogical competence requires the lecturer to be able to convey knowledge to the students. In this process of knowledge transfer, a lecturer must go through at least three stages: planning, implementation, and evaluation. Planning is the planning of learning activities, implementation is the implementation of learning activities, and evaluation is the evaluation of Learning (Yilmaz & Tinmaz, 2016).

In addition, a young lecturer should pay attention to the planning of learning activities as the initial stage of Learning; the things done in the planning stage are the development of the syllabus, the preparation of the semester learning plan (RPS), and the preparation of teaching materials (Khusniati, 2012); (Amri, Ulil; Ganefri, Ganefri; Hadiyanto, 2021). Implementation of Learning is implementing learning planning to achieve good learning outcomes. Evaluation is essential in seeing whether the planned learning program has been completed or not systematically (Pekkarinen & Hirsto, 2017).

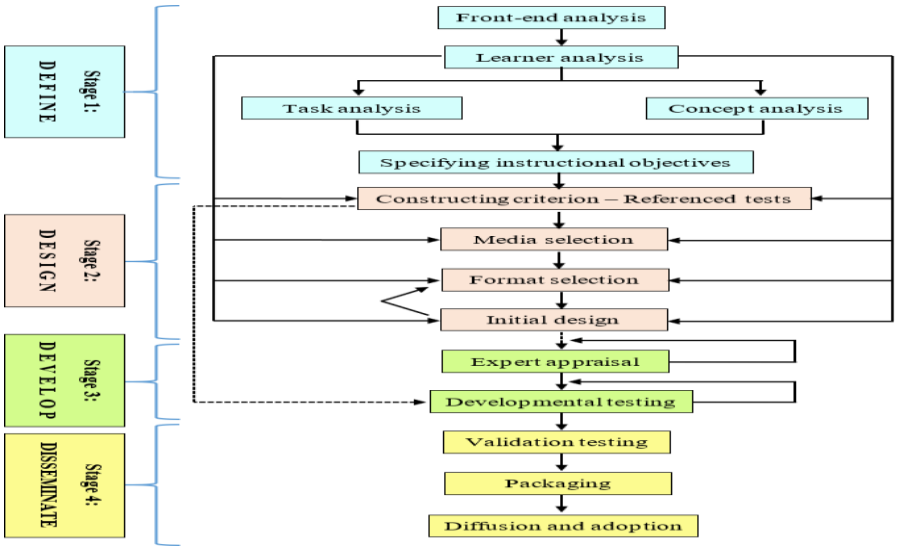
One form of employee development organizations often do is hold training or training. Training is given to new employees and aimed at senior employees so they are ready to lead the organization. Employee training is a worthwhile investment for the individual employee and the company as a whole (Rivai et al., 2018). Based on various definitions of training, training is a learning process planned and guided to improve the knowledge, skills and attitudes of workers individually and in groups. Further, Michael R. has been arrested. Correl et al. in stating the purpose of the training is to improve performance, improve employee skills and, avoid finances, be able to solve various problems; very useful for employee orientation, as preparation for promotion, managerial success, and be able to give satisfaction to personnel (Basri, 2015).

A model is a pattern or example, a reference, or a variety of something we will build. A Joyce, Weil, & Calhoun model is a plan or pattern used to plan long-term Learning, design lesson materials and guide learning in space. Another view put forward by the Personality model is that it describes the existence of a thought pattern. A model typically represents a whole of interrelated concepts (Pribadi et al., 2011). A model is also an attempt to concretize a theory and an analogy and representation of the variables contained in the theory. Rusmann also argues that the model is a general pattern of behaviour to achieve the goal (Rusman, 2018).

Research Methodology

Research Design

This research is research and development (R & D). The development model used is the Four D (4D) model proposed by (Joyce & Weil, 2018). This model generally consists of four stages, namely (i) Define, (ii) Design, (iii) Develop, and (iv) Disseminate. Each stage in this 4D modelconsists of several activities. Details of the development stages in the 4D model are described in chart form, as shown in Figure 1



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DOI: https://doi.org/10.62754/joe.v3i4.3663

Figure 1. Development stages in the 4D model

The research focuses on the developmental stage as it produces four research products: the model book, the material book, the participant book, and the instructor book. The construction of a model already designed at the design stage is revised again, resulting in a final model that will be used in training later. Next, complement the model guide with a learning model consisting of syntax, social system, reaction principle and model effects (instructional and accompanying impact) (Mantik & Efendi, 2021). Develop training materials based on the competencies required to improve the pedagogical competence of lecturers and, at this stage, also improve and maximize instructor guides and participant guides, complete with a Training Implementation Plan (RPP), learning resources, and assessments. Other activities in the development stage are validating the training product and carrying out Focus Group Discussions (FGD). There are three steps in the development phase: a) designing prototypes, b) conducting formative evaluations and c) revising prototypes.

Research Procedure

Stage 1: Designing Prototypes

The training model is documented in the form of a textbook. This training model is based on the analysis of theories and concepts and research results on the training model. Books are organized according to the rules of scientific bookmaking. The book contains four parts: part one is the rationale, part two is the supporting theory, part three is the model components and part four is the implementation of the model. The preparation of training books for lecturers based on the classical model by the curriculum of lecturer training development was developed to support the implementation of the pedagogical competence training model based on Action learning (Joyce & Weil, 2018).

Stage 2: Conducting Formative Evaluations

The next stage in the development phase is formative evaluation, also called justice expert or expert validity. Formative evaluation is intended to get expert feedback as material for product revision before use. The formative assessment in this study was an expert validation test using the Aiken-v validity index and the intraclass correlation coefficient (ICC). Expert selection is based on background expertise, needs, and the object of research (Joyce, Bruce; Weil, Marcha; Calhoun, Emily, & Pancasari, 2016).

Stage 3: Revised Prototypes

The next step in the development stage is the revision of the prototype. After validity testing, modifications are made according to the input received. The resulting revision is a training model ready for limited testing. Revisions were made based on expert input. Expert judgments must be in a valid category, and once the product developed is valid, it is usable. If the expert recommends that it is not feasible, then a formative evaluation is performed again. Suppose the expert has already stated that the model created is valid. The research will continue at the next stage.

Product Testing Design

Model testing activities in 4D models consist of two types: a) Developmental testing at the development stage and b) validation testing or field trials at the disseminated stage. Developmental testing iscarried out after experts validate the initial product. The data obtained during developmental testing is used to improve the model. The developmental testing was carried out in a limited manner forone class, thus using a one-group pre-test and post-test research design. Validation testing is a summative evaluation that aims to determine the effects of the model being developed.

Data Analysis

Preliminary study data analysis

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The preliminary study's data include qualitative and quantitative information about pedagogical lecturer competency and the learning models or strategies used in Introductory training. The data were analyzed descriptively, quantitatively, and qualitatively.

Data Analysis of the Validity Test

The validity data analysis aims to obtain Kappa moments and determine the categories of validity and practicality. The validity data were analyzed using the Kappa Cohen formula, while the practicality of the feasibility aspect of the model was analyzed using the percentage technique. The data is in the formof an assessment using a Likert scale with four alternatives. Data analysis was carried out by calculating the average score. Validity assessment uses the criteria listed in Table 2 (Widoyoko, 2016).

Table 2. Validity assessment criteria.

Score Interval	Criteria
0,81- 1,00	Very High
0,61- 0, 80	High
0, 41- 0,60	Standard
0, 21 - 0,40	Low
0, 01 - 0, 20	Very Low

Results & Discussion

Testing the Validity of the Model Book

The validity test of the KPDM-ABL model has several assessment indicators: supporting theory, syntax, social system, reaction principle, supporting system, and model effect in the form of instructional impact and accompanying impact. The results of the evaluation calculations of the six validators can be seen in the following tables 3.

Table 3. Validity of the guidance of the KPDM-ABL model.

Validator	Average	Criteria
Validator 1	4,05	Very valid
Validator 2	4,35	Very valid
Validator 3	4,09	Very valid
Validator 4	4,40	Very valid
Validator 5	4,45	Very valid
Validator 6	4,15	Very valid
Average score	**4,24**	Very valid

Table 3 shows that the six validators rated the model guide with a very valid interpretation at an average of 4.24. Thus, theoretically, the guidance of the lecturer training model on the learning tasks in action-based learning colleges is very valid, according to the validators. Meanwhile, the consistency of the validators to the indicators in the model guide is described in table 4 using the following SPSS version 20.

Table 4. Interclass Correlation Coefficient Guide to the KPDM-ABL model and its related classes

	Intraclass Correlation	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	0,345[a]	0,145	0,778	10.567	5	80	0,000
Average	0,910[c]	0,735	0,924	10.576	5	80	0,000

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Measures							

Table 4 shows that the interclass correlation value of 0.910 is 0.800-1,000, which is very high. Thus, it can be concluded that the validators have a very high level of consistency in their assessments according to the guidelines of the KPDM-ABL model.

Testing the Validity of the Material

The KPDM-ABL model's material guidance validity test is validated based on aspects, namely substance, presentation, technical and language. The results of the evaluation of six validators who are experts in language, content and design are presented in table 5 below.

Table 5. Validity of the KDM-ABL model

Validator	Average	Criteria
Validator 1	4,55	Very valid
Validator 2	3,42	Very valid
Validator 3	4,35	Very valid
Validator 4	4,68	Very valid
Validator 5	4,29	Very valid
Validator 6	4,76	Very valid
Average score	**4,34**	Very valid

Table 5 shows that six validators rated the material guide with a very valid interpretation at an average of 4.34. Thus, theoretically, the KPDM-ABL model's material guidelines for improving the pedagogical competence of lecturers are very valid, according to the validators. Meanwhile, the level of consistency of the validators with the indicators contained in the material guide is shown in table 6 using the following SPSS version 20.

Table 6. Interclass Correlation Coefficient Material guide to the KDM-ABL model

	Intraclass Correlation	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	0,456a	0,193	0,854	10.355	5	60	0,000
Average Measures	0,909c	0,723	0,980	10.355	5	60	0,000

Table 6 shows that the obtained interclass correlation value of 0.909 is in the range of 0.800-1,000, which can be interpreted as very high. Therefore, the validators have a very high level of consistency in their assessment of the KPDM-ABL model's guidance material.

Testing the Validity of the Instructor's

The KPDM-ABL model is validated based on the components of substance and presentation. The results of the evaluations of six expert authors' validators are presented in table 7.

Table 7. Validity of the instructor guide of the KPDM-ABL model

Validator	Average	Criteria
Validator 1	4,35	Very valid
Validator 2	4,33	Very valid
Validator 3	4,55	Very valid

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DOI: https://doi.org/10.62754/joe.v3i4.3663

Validator 4	4,55	Very valid
Validator 5	4,44	Very valid
Validator 6	4,65	Very valid
Average score	**4.47**	Very valid

Table 7 shows that out of six validators, the instructor's guide was interpreted as very valid at an average of 4.47. Thus, theoretically, the KPDM-ABL model instructor's guide to increasing the pedagogical competence of lecturers is categorized as valid. Meanwhile, table 8 shows the level of consistency of the validators with the components contained in the instructor's guide using the following SPSS version 20.

Table 8. Interclass Correlation Coefficient The instructor's guide to the KPDM-ABL model

	Intraclass Correlation	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	0,425a	0,203	0,833	15.567	5	80	0,000
Average Measures	0,926c	0,825	0,985	15.567	5	80	0,000

Table 8 shows that the obtained interclass correlation value of 0.926 is in the range of 0.800-1,000 by interpreting very high. Thus, it can be concluded that the validators have a very high level of consistency in providing assessments to the KPDM-ABL model instructor guides.

Stage 4: Testing the Validity of the Participant's

The KPDM-ABL model validity test guides participants are validated based on their components, namely substance and presentation. The results of the evaluation of six validators who are experts in language, content and design can be seen in table 9.

Table 9. Validity of the participant guide of the KPDM-ABL model

Validator	**Average**	**Criteria**
Validator 1	4,45	Very valid
Validator 2	4,36	Very valid
Validator 3	4,44	Very valid
Validator 4	4,43	Very valid
Validator 5	4,45	Very valid
Validator 6	4,59	Very valid
Average score	**4,45**	Very valid

Table 9 shows that six validators rated the instructor's guide as very valid on average, at 4.45. Thus, it can be concluded that the KPDM-ABL model participant guides are very valid theoretically. Meanwhile, table 10 shows the level of consistency of the validators with the components contained in the instructor's guide using the following SPSS version 20.

Table 10. Interclass Correlation Coefficient Participant Guidance Model of the KPDM-ABL

	Intraclass Correlation	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	0,405a	0,176	0,814	13.657	5	80	0,000
Average	0,925c	0,804	0,987	13.657	5	80	0,000

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Measures							

Table 10 shows that the obtained interclass correlation value of 0.925 is in the range of 0.800-1,000 by interpreting very high. Thus, it can be concluded that the validators have a very high level of consistency in providing assessments to the KPDM-ABL model trainee guide (Sukmadinata, 2006).

Conclusions

The study's results showed that the validity test results derived from the validator's results against the Development of Competency Training of Lecturers based on Action-based Learning in Colleges were declared valid on each validity test result. The validity test results showed an increase in a very high category because the results of each product showed a value range of 0.81 to 1.00. The value of the interclass correlation coefficient of the resulting product, namely the model book (0.910), the material book (0.909), the instructor book (0.926), and the participant guidebook (0.925). The interclass correlation coefficient of the product is categorized as very high and is effectively used because the interclass correlation coefficient scores in the range of 0.81 to 1.00. The value of the interclass correlation coefficient of the product results based on the validity test results on the development of action-based Learning based on lecturer competence training in colleges is stated to be a high level of validity so that it can be used. The validity test results are tested for feasibility so that the product results can be used to develop action-based Learning Lecturer Competency Training in colleges.

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