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NEEDS ANALYSIS OF TEACHING MATERIALS TO INCREASE PEDAGOGICAL COMPETENCE THROUGH ACTION BASED LEARNING

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Abstract

Needs analysis plays a role in improving training materials to increase pedagogic competence which helps lecturers design training materials in accordance with the target needs of lecturers in learning. The purpose of the research is to outline the target needs of lecturers for pedagogic competence to develop lecturer training materials. This study surveyed 23 Islamic religious universities in Kopertais VI West Sumatra. Data collection using questionnaires and in-depth interviews was then analyzed with SPSS 20 software. The findings show that the target of lecturers' needs in pedagogical competence is learning design based on RPS and Syllabus, learning models based IT, learning media based IT, learning evaluation through learning outcome assessment. Based on this pedagogic competence, the learning design was obtained including RPS and Syllabus (76%), IT-based learning models (87.2%), IT-based learning media (90%), and learning evaluation.

Keywords: Needs Analysis, Lecturer Training Materials, Pedagogical Competence.

INTRODUCTION

Needs analysis directs lecturers to be able to improve pedagogic competence in basic teaching skills. This is an important input in the training material in the lecturer's teaching ability. This needs analysis plays a role in providing important data to assist lecturers in the development of RPS and syllabus [1]. The results of the needs analysis help lecturers in assessing pedagogic competencies related to lecturers' teaching abilities. Needs analysis plays an important role for lecturers to improve teaching ability in the form of developing RPS and syllabus, media and learning models applied, and learning evaluation through learning outcome assessment [2].

Previous research on the development of SmartPLS data processing training to improve lecturers' research skills. The results of their needs analysis stated that there was an increase in the ability of trainees to use SmartPLS software so that it would be easier for participants to process data used for data validity and reliability tests, how to test intervening model hypotheses, and how to test moderating model hypotheses. Thus, there is a significant improvement in the ability of lecturers after the implementation of SmartPLS data processing training for lecturers so that this training is recommended on an ongoing basis, especially practice-based training. The design of training materials using SmartPLS data has been proven to be able to improve lecturers' research skills [3].

Dewi's research (2018) stated that there are six aspects, namely environmental analysis, strategy formulation, planning, implementation, supervision, and evaluation. This research method uses qualitative methods with interview, observation, and documentation study techniques. The results of this study show that (1) environmental analysis has varying strengths, weaknesses, opportunities, and challenges; (2)

activities carried out through the formulation of strategies through the formulation of strategic plans, formulation, and socialization; (3) activities carried out by planning, such as making knowledge work programs contained in the study program budget plan; (4) activities in implementing, such as training, seminars, workshops, and further study programs; (5) control activities carried out through learning monitoring; (6) activities in performance evaluation and learning evaluation based on expected criteria [4].

Sadri's research (2019) states that the pedagogic competence of lecturers and student academic achievement have an effect on student academic achievement. The method used is SPSS with simple linear regression techniques and statistics. The results of the study show that there are not all aspects that include building lecturer competence, especially the development of curriculum and learning methods. Training, education, and educational forums are needed to improve the pedagogic competence of lecturers when providing learning materials [5].

Faris' research (2020) shows that competence, training, and motivation have a significant effect on lecturer performance. The research method uses SPSS with multiple correlation analysis, multiple regression analysis and determination coefficient as evidenced by the results of validity and reliability tests. The results of the study showed a significant effect on competence, training, and motivation on lecturer performance as evidenced by the SPSS test results of 0.141; 0.094 and 0.167. Based on partial multiple regression analysis, the results of the study were 14.1%, 9.4% and 15.7%. The results of the SPSS test have a simultaneous effect on the influence of competence, training and motivation on the performance of UNPRI permanent lecturers by 39.20% and the rest is influenced by other variables that are not proposed in this study. The difference between Faris' research and this research lies in the use of his method [6].

Although previous studies presented evidence that needed analysis, this must be done by the researcher to find the target of the actual needs of the lecturer, so as to lead to the competence of the lecturer. The concept of needs analysis for the development of lecturer training materials to improve pedagogic competence has not been strongly supported by the latest findings [7]; [8].

Another study stated that the analysis of the needs of lecturer training materials requires the success of lecturers in improving pedagogic competence. In this paper, the concept of needs analysis for the development of training materials through pedagogic competence needs to be supported and further researched [9].

The findings of the study have provided evidence that the analysis of the needs of lecturer training materials is very important to develop lecturers' pedagogic competence. Law no. 14 of 2015 concerning teachers and lecturers' states that lecturer competencies include pedagogic competence, personality competence, social competence, and professional competence obtained through professional education, training, and professional experience. The lecturer's competency material contains RPS and Syllabus, critical and creative thinking, encouraging independent learning in collaboration by effectively utilizing technology in teaching.

Needs of Lecturer Training Materials

The initial study of the competency needs of young lecturers was carried out from August 16 to September 20, 2022 at twenty-three PTKIS Kopertais VI West Sumatra.

The data collection instruments used by the researcher are interview and questionnaire guidelines. The researcher conducted interviews and distributed questionnaires to young lecturers at 23 PTKIS Kopertais VI West Sumatra. This is done to obtain more complex data on the training needs of young lecturers on learning tasks in universities based on action-based learning [10].

Based on the results of interviews and observations, it appears that when the training took place, it was designed for young lecturers about learning tasks that did not exist. So far, the training prepared or attended by young lecturers has been inadequate, such as Technology Guidance (BIMTEK) and Promotion Training. The training that was followed was not adequate based on the needs of young lecturers. Furthermore, so far the training that has been attended by young lecturers has not obtained adequate training materials and solved the problem of young lecturers' competencies in the field [11].

Training materials are needed to solve problems in higher education. Thus, the determination of the content of training materials is relevant to the needs of young lecturers about learning tasks in higher education. In addition, the content of the training material must be in accordance with the objectives that have been set in the training. As stated by Khusniati [12] stated that learning planning is carried out with good learning planning with the development of a syllabus, the preparation of semester learning plans (RPS). Learning Implementation is the implementation of learning planning with the aim of achieving good learning outcomes. must be in accordance with the level of ability and background of the trainees [13]; [14].

Another problem faced is about the lack of young lecturers to take part in the training because of the classic problems that are difficult to leave the family, operational costs, time problems and long distances to take part in the training. This causes young lecturers to be not serious in participating in training. In addition, the knowledge and experience gained are not well explored, making it difficult to apply them.

Young lecturers can carry out the training provided with varying competencies. The answers from the respondents were quite varied, where the respondents wanted young lecturers to be given the competence to master three stages, namely planning, implementation, and evaluation. Planning is planning learning activities, such as learning designs that are realized with RPS. Implementation is carrying out learning activities, such as modifying teaching skills through the use of innovative IT-based learning models and media, and evaluation is evaluating (assessing) learning in the form of student learning processes and outcomes [15].

So it can be concluded that the analysis of the needs of the training model for young lecturers on university learning tasks based on action-based learning can be concluded. Ubar & Wuttke (2000) and Gilhooly & Lynn (2015) meet the demands of learning tasks by implementing action-based learning in an educational environment using technology. This is assumed to be able to improve the competence of young lecturers in higher education.

Learning Design

The term design means structure, frame or outline, and order or systematic activity. In addition, word design can also be interpreted as a systematic planning process that is carried out before an activity or implementation. Efforts to design a learning process, efficient, efficient and interesting, learning system or lesson system design (ISD).

Dick and Carrie's classic and amazing book, The Systematic Design of Instruction, was first published in 1985. At that time, the budget for the implementation of education and training programs was very high. Many companies and industries have the courage to make large investments to organize formal training so that their employees have the necessary skill level" [16].

Learning system design continues to evolve as an area that can be used to design learning and training programs. The design of this learning system is expected to be able to produce quality and competent talents so that they can show optimal learning results and performance.

Innovative Learning Model based IT

The world of education for now has entered the digital era around the world, therefore learning is important to use many media or technology-based models, especially in today's learning that emphasizes skills and active learning, so the role of media and models is based. There are several roles of media and technology-based learning models, creating active, creative and responsive learning, accelerating the learning process. Based on the advancement of educational technology, teaching technology demands more awkward learning models and media to promote learning (Nurseto, 2011); [17].

In a learning model, there is a component that makes continuity and influence the learning model and its implementation. The components include design, management and application. Related to technology learning or e-learning is not only intended to make teaching materials but to design learning efficiently and effectively (Hanum, 2013); [18].

Technological improvements in the world of education bring a positive influence and also provide options to improve the learning process and also students need to get general information and also multimedia facilities that can provide interesting, creative, innovative, visual and interactive learning. With the rapid development of technology, the internet can become a center of learning using this technology, learning is carried out with the ordinary internet or it can be called technology or web learning (Lawanto, 2001); [19].

The learning model becomes the life or role of the learner in the learning process or as a guideline/reference to apply a learning. Therefore, learning uses a systematic conceptual model in achieving learning goals.

Innovative Learning Media based IT

The concept of learning media must contain two elements, namely software and hardware. Software in learning media is information or messages contained in the learning media itself, while hardware is hardware or equipment used as a means of conveying information or messages. For example, a model of the human body, it is categorized as a learning medium if the model contains information or messages that can be learned by the learner. If the model does not contain information, then it is only limited to a teaching tool. For this reason, it is necessary to distinguish between learning media, teaching aids and learning aids [20].

According to Sujana (1990), teaching aids are tools used by teachers to help clarify the subject matter conveyed to students and prevent verbalism in students. Meanwhile, Hamalik (1994) explained that learning aids are all tools that can be used

to help students do learning acts, so that learning activities become more efficient and effective. Thus, it is clear that both props and aids are only limited to the hardware or equipment, while the media must contain hardware and software [21].

Action based Learning

The academic competence of young lecturers based on action-based learning referred to in this study involves action-based learning which is part of the approach to training in order to improve competencies in the training development model. This is due to the fact that this action-based learning approach is able to improve the competence of lecturers who are required to adapt to the development of science. Therefore, the existence of this research is able to meet the demands of the lecturer profession in developing action-based learning-based competencies in the tri dharma of Higher Education, such as education, research, and community service [22]; [23].

Action learning is one of the learning approaches that focuses on student learning activities rather than teacher teaching activities. In learning, teachers give students the opportunity to experience the application of the topics and content of the material learned or discussed in class in real life situations. Action learning is learning as well as acting, giving students the opportunity to experience the application of the topics and content of the material learned or discussed in class in real life situations. An out-of-class project exposes them to be creative in exchanging ideas about their inventions with fellow students.

One of the education activists, Antoni Hii from America, who intensely voiced the concept of the Action learning approach. According to him, this approach talks about a problem-solving process without making judgments, but by raising problems as much as possible and analyzing and solving problems. This Action learning approach is the best way to solve problems, namely by analyzing. Meanwhile, good analysis is to ask as many questions as possible

METHOD

The design of this study is a cross sectional survey. It was carried out in June to December 2022 at 23 private Islamic religious universities in Kopertais VI West Sumatra. The uta function of this design to measure the needs of lecturers is related to training materials on pedagogical competence. This study took a population of 23 young lecturers in 23 Islamic religious private universities in Kopertais Region VI, West Sumatra. This was done to disseminate the questionnaire and conduct the in-depth interviews needed in this study. There are several leaders of private universities in the cooperative region VI of West Sumatra with random sampling techniques. Questionnaires and interviews are used for data collection. The coil used refers to the needs analysis instrument put forward by Hutchinson and Water (1987). This includes 4 points including learning design, IT-based learning models, IT-based media with 29 items of needs analysis questions and 16 questions on the interview guidelines. In-depth interviews were conducted with 6 leaders of higher education and 23 lecturers from 23 private universities in the Islamic religion of Kopertais Region VI of West Sumatra using purposive sampling techniques. This technique was used to consider a sample of each lecturer representative in 23 private universities. The questionnaire and interview items are then examined by three expert validators to determine the relevance of the validity of the content before the questionnaire is distributed.

The analysis procedure is carried out through two procedures, namely disseminating to all respondents at the same time. Respondents used 30 minutes to answer questions. In-depth interviews were conducted for 30 minutes after the dissemination of the questionnaire and recorded in video recording to obtain valid data for analysis. These two procedures are not carried out at the same time because the time and place of universities are spread across West Sumatra Province. The data was analyzed using SPSS 20 software and then continued with qualitative data interpretation. Data from the questionnaire was used to calculate the numerical percentage at each pedagogic competency point, while the data from the interview results were interpreted qualitatively because it was explained based on the responses from the respondents.

RESULT AND DISCUSSION

The preliminary research data at this stage of analysis uses interviews and questionnaires. The researcher here sets a 60% rank for the assessment limit. If the results of the needs analysis exceed 60%, the indicator is presented in the training. The questionnaire was presented using a modified Likert scale according to Sugiyono (2017), namely strongly agree, agree, disagree, Lack of disagree, strongly disagree [24].

In accordance with the demands of Law 14 of 2005, it is stated that young lecturers fulfill the tri dharma of higher education. The tri dharma of this university contains three aspects, namely the education aspect, the research aspect, and the service aspect. The aspect that is included in the competency of young lecturers referred to in this study is the educational aspect. In this aspect of education, it discusses the learning design that is realized based on the RPS and syllabus. Modification of teaching skills through innovative IT-based learning models and media, and conduct learning evaluations of the training process and results after being followed by trainees

a. Learning Design based on RPS and Syllabus

Initial data on the competence of young lecturers in fulfilling learning tasks was obtained by distributing questionnaires and interviews. The questionnaire was distributed to 23 representatives at each Private Islamic Religious University (PTKIS) Kopertais Region VI West Sumatra. The respondents consisted of young lecturers who were still in the position of Expert Assistants and interviews were conducted with several leaders of PTKIS Kopertais Region VI West Sumatra. The distribution of questionnaires was carried out from September 2021 to February 2022

Data on the competence of young lecturers in fulfilling learning tasks in the learning design containing RPS and Syllabus can be seen in Table 7. Most of the respondents strongly approved of the training for young lecturers discussing the learning design of RPS and Syllabus because it is necessary to determine the competency standards of graduates in accordance with the Indonesian National Qualification Framework (2018). Most of the respondents mentioned that they really need training on learning design containing RPS and Syllabus with an average score of 3.9%, at an achievement level of 76.15%.

The importance of improving the competence of young lecturers in learning design realized with the RPS and Syllabus is also supported by interview data with several leaders of PTKIS Kopertais Region VI West Sumatra in October 2021, it was identified that there are still young lecturers who lack response to the demands of learning tasks fulfilled based on Government Regulation number 19 of 2005 concerning National

Education Standards. The competency in question is pedagogic competence in learning design containing RPS and Syllabus. Meanwhile, pedagogic competence (learning design containing RPS and Syllabus) is very much needed by young lecturers so that they can more easily meet the demands of Government Regulation number 19 of 2005 concerning National Standards for Education in Higher Education.

Table 1: Competencies of Young Lecturers on Learning Design loading RPS and Syllabus

No	Indicator	Number of Items	Strongly Agree	Agree	Disagree	Lack of agree	Strongly Disagre	Average	Level of achievement (%)
1	Learning Design Includes RPS and Syllabus in the KKNI 2018	3	57,1%	42,9%	14,3%	0	0	4.25	85
2	Learning Design includes Learning Achievement	3	28,6%	57,1%	14,3%	0	0	4.15	83,45
3	Learning Design realized by RPS and Syllabus	3	42,9%	42,9%	0	0	0	3.55	60,00
	Average	12	128,6	142,9	28,6	0	0	3,9	76,15

Table 1 shows that most of the respondents expressed their strong agreement with the learning design of containing RPS and Syllabus in KKNI 2018, with an average score of 57.1%. Meanwhile, the learning design contains learning outcomes that agree with the score level of 57.1%. The Competence of Young Lecturers on Learning Design containing RPS and Syllabus was declared to agree with an average score of 3.9 with a score achievement rate of 76.15%. This is strengthened by the results of interviews with young lecturers at one of the universities, such as there are still lecturers who have not been able to make and distinguish between RPS and Syllabus so that they have not been able to overcome the learning design that contains RPS and Syllabus before learning begins.

Good planning is needed in keeping up with the times and times. Therefore, the role of young lecturers in fulfilling learning tasks is formulated through good planning judging from the learning design referring to the 2018 KKNI to adjust learning outcomes to graduate competency standards. Keeping up with the development of time and times and the demands of meeting Government Regulation number 19 of 2005 concerning National Education Standards and Law No. 14 of 2005 require training of young lecturers to meet the demands mentioned above. So that the competence of lecturers about learning tasks can be carried out properly [25].

Ubar & Wuttke (2000) and Gilhooly & Lynn (2015) meet the demands of learning tasks by implementing action learning in an educational environment using technology. This is assumed to be able to improve the competence of young lecturers in higher education. In addition, with the application of this action-based learning method, lecturers are trained to think critically about various problems faced in higher education [26]; [27].

Based on the data obtained on this indicator, it can be concluded that the respondents stated that the competence of lecturers in fulfilling learning tasks requires an action-based learning model for further action. These competencies are in the form of competence in terms of understanding the content of training materials, expressing opinions, discussing and interacting, technology, and problem solving in practice [28].

A professional lecturer must understand that to be able to transfer knowledge to students well. A lecturer must go through at least three stages, namely planning, implementation, and evaluation. Planning is planning learning activities, implementation is carrying out learning activities, and evaluation is conducting training evaluations. Planning learning activities is the initial stage of learning, the things that are done at the planning stage are learning design with syllabus development, preparation of semester learning plans (RPS), and preparation of teaching materials in accordance with KKNI 2018, graduate achievements, with graduate competency standards. The implementation of learning is the implementation of learning planning with the aim of achieving learning outcomes well. Evaluation is important in seeing whether the planned learning program has been achieved or not systematically. Model Innovative learning model-based IT. Data on the competence of young lecturers in teaching skills contains an innovative IT-based learning model as shown in Table 2 below.

Table 2: Teaching Skills through Innovative Learning Models based IT

No	Indicator	Number of Items	Strongly Agree	Agree	Disagree	Lack of Agree	Strongly Disagre	Average	Level of achievement (%)
1	Action-based learning model	3	64,3%	55,9%	15,5%	0	0	4.74	87
2	The Learning Model contains competency standards in in RPS and Syllabus	3	30,5%	59,2%	16,3%	0	0	4.66	84,6
3	Learning Model realized RPS and Syllabus Action-based learning	3	76,7%	85,9%	0	0	0	4.89	90
	Average	12	171,5	201	31,8	0	0	4,76	87,2

Table 2 shows that most of the respondents expressed their strong agreement with the learning model realized by RPS and the action-based learning-based syllabus, with a score of 76.7%. Meanwhile, the action-based learning model agreed with a score of 64.3%. Teaching skills refer to innovative learning models based IT were declared in agreement with an average score of 4.76 with a score achievement rate of 87.2%.

The results of interviews with young lecturers stated that through the action based learning model, problems were found in lecture materials assisted by technology. In addition, the integrated learning model of action-based learning makes students able to achieve the target of achieving lecture goals in accordance with the competency graduate standards. The action-based learning model is able to train students' independence in solving various problems about lecture materials.

The data obtained on the teaching skills component concluded that the respondents mentioned that the competence of young lecturers in terms of teaching skills based on innovative learning-based IT needs to be improved through training. This is due to the improvement of abilities in teaching skills indicators based through innovative learning capable of solving problems in the material and learning environment in the classroom.

b. Innovative Learning Media based IT

Data on the competence of young lecturers in terms of innovative learning media based IT is shown in table 3.

Table 3: Teaching Skills throgh Innovative Learning Media based IT

No	Indicator	Number of Items	Strongly Agree	Agree	Disagree	Lack of agree	Strongly Disagre	Average	Level of achievement (%)
1	Learning Media based Audio	2	75,3%	45,9%	12,5%	0	0	4.84	89
2	Learning Media based Visual	3	70,5%	63,5%	10,7%	0	0	4.76	87
3	Learning Media based Audio visual	3	79,7%	90,5%	0	0	0	4.93	94
	Average	8	225,5	199,9	23,2	0	0	4,84	90

Table 3 shows that most of the respondents expressed their strong agreement with the learning model realized audio visual, with a score of 79.7%. Meanwhile, audio-based Learning Media agreed with a score of 75.3%. Teaching skills through innovative learning media based IT were declared in agreement with an average score of 4.84 with a score achievement rate of 90%.

In addition, young lecturers need to develop the ability to identify material that is difficult for young lecturers to understand so that the ability to apply media is expected to be adjusted to the level of understanding of young lecturers in understanding the content of training materials. The results of interviews in the field with young lecturers were identified that there was still an unpreparedness of young lecturers in providing material that was in accordance with the needs of learning media, this had an impact on the understanding of other trainees to understand the material presented by other group discussion teams [29].

Based on the description above, it can be stated that teaching skills in terms of IT-based innovative learning media are needed and approved by respondents to take part in this training further.

c. Evaluation of Learning through Assessment of Learning Outcomes

The competence of young lecturers in terms of learning evaluation can be seen from the results obtained by young lecturers after obtaining the learning materials shown in table 4 below.

Table 4: Learning Evaluation through Learning Outcome Assessment

No	Indicator	Number of Items	Strongly Agree	Agree	Disagree	Lack of agree	Strongly Disagre	Average	Level of achievement (%)
1	Learning Evaluation through material understanding	4	82,4%	53,7%	11,8%	0	0	4.78	89
2	Learning evaluation through learning outcomes	4	80,9%	67,6%	9,8%	0	0	4.80	87
3	Evaluation of learning through results learn	4	80,4%	93,7%	0	0	0	4.95	94
	Average	12	243,7	215	21,6	0	0	4,84	90

Table 4 shows that most of the respondents expressed strong agreement on the Learning Evaluation through material understanding, with a score of 82.4%. Meanwhile, the evaluation of learning through learning outcomes stated that it agreed with a score level of 93.7%. Learning Evaluation through Learning Outcome Assessment was declared to agree with an average score of 4.84 with a score achievement rate of 90%. The level of student understanding of the material provided by the lecturer. Sometimes the material that has been provided has not shown significant things to the level of student understanding so that it becomes a determining factor for the success of lecturers in delivering the material given in class.

Before the evaluation, lecturers are expected to be able to determine feedback from the level of understanding of the material provided. Feedback can run as long as lecturers and students interact with material that is not understood by lecturers. An explanation of this competency is needed to determine the level of understanding of the material provided by lecturers to students so that they can achieve learning outcomes.

d. Recapitulation of Pedagogic Competencies

Data on the competence of young lecturers in carrying out action-based learning tasks in higher education is obtained from the average scores in tables 1, 2, 3, and 4 can be seen in table 5 below.

Tabel 5: Recapitulation of Young Lecturers' Competencies

No	Indicator	Score Average	Level of achievement	Interpretation
1	Learning Design contains RPS and Syllabus	3,9	76,15%	Strongly Agree to do training
2	Innovative learning model based on IT	4,76	87,2%	Strongly Agree to do training
3	Innovative learning media based on IT	4,84	90%	Strongly Agree to do training
4	Evaluation of learning through learning outcomes assessment	4,84	90%	Strongly Agree to do training
	Total Average	4,50	85,86%	

Table 5 shows that there is an increase in the competence of young lecturers who strongly agree to carry out the next training, as evidenced by the average score obtained from the results of the respondents' questionnaires, namely an average score of 4.5 and an achievement rate of 85.86%. Therefore, all the competencies in question are learning design containing RPS and Syllabus, Innovative Learning Models based IT, Innovative learning media based IT, learning evaluation through learning outcome assessments need to be given a training.

CONCLUSION

This study examines the need analysis of the development of lecturer training materials to improve action-based learning-based pedagogic competence. First, the results of the learning design show that the learning design contains RPS and syllabus referring to KKNI and learning outcomes; Second, an innovative learning model based IT contains competency standards in RPS and syllabus which is realized with an action-based learning approach about the courses taught; Third, innovative learning based IT media realized by audio visual; and Fourth, learning evaluation through assessment of learning outcomes based on material understanding, learning outcomes, and learning outcomes. Based on the results of the needs analysis in this study, it can be seen that this research needs to be carried out further because there are four points that need to be developed in the training material for improving action learning-based pedagogic competence, namely learning design, innovative learning media based IT, learning models based IT, and learning evaluation through learning outcome assessment.

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