

ICARE's Pedagogic Approach in Development of Educational Profession Textbooks Based on Problem Based Learning

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Abstract: The purpose of the study was to develop textbooks and to determine the feasibility and effectiveness of PBL-Based Textbooks with ICARE's Pedagogic Approach used in professional education courses. Methods This research is research and development (R&D) using the Borg and Gall model. This research was conducted at the Department of PGSD, FIP Unimed in the Education Profession course. The research subjects are students and lecturers with expert validation, namely: material experts, learning design experts, and graphic design experts. And by conducting individual trials, small group trials, and field trials. The results showed that the PBL-Based Educational Profession Textbook ICARE's Pedagogic Approach was declared suitable for use in learning with very good criteria, and the effectiveness of using the PBL-based PBL Educational Profession Textbook ICARE's Pedagogic Approach could improve student learning outcomes in educational profession courses.

Keywords: paedagogic ICARE; textbooks; educational professions; problem based learning

1. INTRODUCTION

Educational profession courses are urgent subjects, especially for Unimed students. Through these courses, students will be equipped with the basic concepts of professional ethics, the teaching profession, the teaching profession, the code of ethics for the teaching profession, the organization of the association of the teaching profession, and knowledge of the development of the teaching profession. The purpose of this course is targeted so that students can increase their knowledge, understanding, and insight into the concept of professional ethics through various aspects related to educational careers.

Given the learning needs and development of students' thinking skills, the learning model used is appropriate. The ICARE model is designed to help students learn online effectively. ICARE's principle is to provide the necessary materials for each topic. The ICARE method allows you to easily apply what students have learned in real life. The ICARE method has five elements, namely introduction, connection, application, reflection, and extension. This method can grow students' character [1].

Improving learning through application and practice can provide a person with a meaningful learning experience [2]. Therefore, the student learning process should not only prioritize the acquisition of material but also need to apply it in real life.

This lecture can be used as a provision for prospective teachers and students to be able to study professionally. The delivery of the material is based on the grammar of the ICARE learning model and students' specific examples. It is

hoped that through this direct example, students can feel how this learning model attracts interest and increases their activities and learning outcomes. When students practice teaching in schools and later become teachers, they can also apply this model.

1.2 Theoretical framework

Nurdin [3] asserts that the profession is a field of work that is based on the education of certain skills. Define the profession as follows: "A profession delivers esoteric service based on esoteric knowledge systematically formulated and applied to the needs of a client" (a profession that provides services based on knowledge understood by certain people systematically formulated and applied to meet client requirements).

According to Nurdin [3], teachers are professional educators because they secretly voluntarily accept and carry out some of the educational responsibilities borne by their parents. Professionalization of teachers includes formal qualifications and teaching permits and requires the cultivation of real qualifications that are only available in practice [4]. According to Nurdin [3] teachers are people who want to be involved in teaching. Teaching is the main responsibility of teachers to educate students.

Professional teachers have knowledge and skills that some ordinary people do not have. With this knowledge and skills, teachers can carry out certain functions, namely making and implementing decisions, so that they can teach students most effectively and efficiently.

ICARE stands for Introduction, Connect, Apply, Reflect, and Extend. According to Wahyudin & Susilana [8], the stages in ICARE learning follow the abbreviation.

Problem-based learning is a learning model that involves students in solving problems through various stages of the scientific method so that students can learn knowledge related to these problems as well as have problem-solving skills [5]. According to research by Indrawati and Wawan Setiawan [6], problem-based learning is a learning model that uses the background of real-world problems to enable students to learn critical thinking and problem-solving skills, as well as obtain the topic of must Little. knowledge and concepts. . Problem-based teaching is used to stimulate higher-order thinking, including learning how to learn. The teacher's role in problem-based learning is to ask questions, ask questions, and promote inquiry and dialogue.

The problems of this research are: (1) how to develop ICARE pedagogic textbooks based on problem-based learning in education profession courses; (2) whether the PBL-Based Textbook of ICARE's Pedagogic Approach is appropriate for use in teaching profession courses; and (3) whether the PBL-Based Textbook of ICARE's Pedagogic Approach is effective in teaching profession courses

2. METHOD

This research is a research and development (R&D) and developed PBL-Based Educational Profession Textbook ICARE's Pedagogic Approach using the Borg and Gall model [7].

This research was conducted by the Department of PGSD, FIP Unimed, Academic Year 2021/2022, in the 6th semester of the Educational Profession course. By designing a PBL-Based Educational Profession Textbook, ICARE's Pedagogic Approach. The research subjects for the development of PBL-Based Educational Professional Textbooks with ICARE's Pedagogic Approach are expert groups, namely: learning materials experts, learning media experts, instructional design experts, and graphic design experts. Students and lecturers as subjects of development research in validation groups and individual trials, small group trials, and field trials.

Data collection in research and development is grouped into three, namely preliminary studies, development, and validation tests. In each stage of the research, certain data collection techniques were selected according to their respective objectives. In the preliminary study, a questionnaire/ questionnaire, observation, and documentation techniques were chosen, in addition to a literature review. In general, the three techniques are used simultaneously and complement each other.

The method used is a quasi-experimental method using a non-equivalent control group design. The design was used because of the limited population of the research sample and in this design the experimental group was not chosen randomly, then a pretest was given to determine whether there was a difference between the experimental group and the control group in the initial state.

Table 1. Experimental diagram (nonequivalent control group design).

Group	Pretest	Treatment	Posttest
Experimental group	O1	X	O2
Control group	O3	-	O4

The arrangement of the scale used in this questionnaire or questionnaire is based on a Likert scale (interval 1 to 5) and the average score for each question item in the questionnaire and evaluation sheet will be calculated. After that, the average score is converted into scores on a scale of 5.

Table 2. Assessment Criteria for PBL-Based Educational Profession Textbooks ICARE's Pedagogic Approach

Score	Criteria	Scoring	
		Formula	Calculation
5	Very Worthy	$X > Mi + 1,8 SBi$	$X > 4,2$
4	Worthy	$Mi + 0,6 SBi < X < Mi + 1,8 SBi$	$3,4 < X < 4,2$
3	Decent enough	$Mi - 0,6 SBi < X < Mi + 0,6 SBi$	$2,6 < X < 3,4$
2	less worthy	$Mi - 1,8 SBi < X < Mi - 0,6 SBi$	$1,8 < X < 2,6$
1	Very less worthy	$X < Mi - 1,8 SBi$	$X < 1,8$

Data collection techniques in this study use tests. The test is used for Pretest and Posttest.

Analysis technique with t-test. This analysis is measured based on the effectiveness of learning by using a question instrument and hypothesis testing using the t-test. The significant level used is 5%. After the t-test, the two classes were compared with the number of students who experienced an increase in effectiveness between the two classes.

3. RESULTS AND DISCUSSION

3.1 Research Result

The PBL-Based Educational Profession Textbook Product ICARE's Pedagogic Approach shows a high level of validity and feasibility so that the model product can be used in the learning process of educational profession courses.

3.2 Feasibility of PBL-Based Educational Profession Textbooks ICARE's Pedagogic Approach

The next stage on the results of the PBL-Based PBL-Based Educational Profession Textbook Trial to students in the educational profession was conducted with 32 respondents with varying abilities (randomly). The purpose of the first trial was to find out how far the students' response to the PBL-Based Educational Profession Textbook with ICARE's Pedagogic Approach was. The results of student respondents from the trial I / small groups are as follows:

Table 3. Trial Data for PBL-Based Educational Profession Textbooks ICARE's Pedagogic Approach

No	Indicator	Score Rating	Total Score	%
1	Face/Layout Aspect	4,72	5	85,2
2	Design Aspect	4,65	5	86,4
3	Content Feasibility Aspects	4,44	5	87,1
4	Aspects of Feasibility of Presentation	4,89	5	88,1

No	Indicator	Score Rating	Total Score	%
5	Language Aspects	4,53	5	85,6
	Average	4,47		89,3

Based on the results of the I/small group trial, the mean value was 4.47. With Good criteria. Overall, the results of the student assessments for the first trial obtained an average value of 4.47, which means that the PBL-Based Educational Profession Textbook ICARE's Pedagogic Approach is feasible to be used as a learning resource in teaching the educational profession.

3.2 Effectiveness Before Using PBL-Based Educational Professional Textbooks ICARE's Pedagogic Approach

To determine the effectiveness of student learning between the experimental class and the control class before being given treatment, the t-test was carried out with pretest data. To find out t_{table} using: $DK = n1+n2 - 2$. Criteria for acceptance of H_0 and H_a are if $t_{count} > t_{table}$ then H_0 is rejected and H_a is accepted, and if $t_{count} < t_{table}$ then H_0 is accepted, and H_a is rejected. The results of the pretest t-test calculation can be seen in table 4 below:

Table 4. Uji t-tes Data Pretest

Class	Mean	Variant	t_{count}	t_{table}	Decision
Experiment	76,44	65,72	0,45	2,01	$t_{count} < t_{table}$
Control	71,30	66,71			

Based on Table 4 above, it can be seen that the magnitude of t_{count} is 0.45. Then the t_{count} score was consulted with the t_{table} value at a significant level of 5% and DK 51. The t_{table} score at a significant level of 5% and DK 51 was 2.01. This shows that the t_{table} score is smaller than the t_{table} score ($t_{count} = 0.45 < t_{table} = 2.01$). Based on the calculation results, it can be concluded that there is no difference in early learning ability between the experimental class and the control class. If the students' posttest results show differences, then the difference in learning outcomes is caused by the treatment process using the PBL-Based Educational Profession Textbook ICARE's Pedagogic Approach that has not been applied.

3.3 Effectiveness After Implementing PBL-Based Educational Profession Textbooks ICARE's Pedagogic Approach

To determine the effectiveness of student learning between the experimental class and the control class after being treated using the PBL-Based Educational Profession Textbook with ICARE's Pedagogic Approach, a t-test of posttest data was used. To find out t_{table} using: $DK = n1+n2 - 2$. Criteria for acceptance of H_0 and H_a are if $t_{count} > t_{table}$ then H_0 is rejected and H_a is accepted, and if $t_{count} < t_{table}$ then H_0 is accepted, and H_a is rejected. The results of the pretest t-test calculation can be seen in table 5 below.

Table 5. Uji t-tes Data Posttest

Class	Mean	Variant	t_{count}	t_{table}	Decision
Experiment	86,52	82,49	4,03	2,01	$t_{count} > t_{table}$
Control	74,31	61,02			

Based on Table 5. above, it can be seen that the amount of t_{count} is 4.03. Then the t_{count} score was consulted with the t_{table} value at a significant level of 5% and DK 51. The t_{table} score at a significant level of 5% and DK 51 was 2.01. This shows that the t_{count} score is greater than the t_{table} score ($t_{count} = 4.03 > t_{table} = 2.01$). Thus H_0 is rejected and H_a is accepted. So that there is a significant difference in the value of the effectiveness of student learning after being treated using the PBL-Based Teaching Profession Textbook with ICARE's Pedagogic Approach.

3.3 Discussion

The learning outcomes of the experimental class students are more active and have high motivation in learning after the application of the Contextual Teaching and Learning learning model with the ICARE approach. CTL is a learning strategy that emphasizes the process of full student involvement to be able to find the material being studied and relate it to real-life situations to encourage students to be able to apply it in their lives with an ICT learning model approach that emphasizes active characteristics, creative, and fun (joyful learning) is the ICARE model [8].

Research conducted by Faulina and Fitria [9] on the effect of the CTL learning model with the ICARA approach on ICT lessons shows the same thing that the Contextual Teaching and Learning learning model with the ICARE approach (Introduction, Connection, Apply, Reflect, Extend) turns out to be more influential on the results. learning Information and Communication Technology (ICT) significantly compared to using conventional learning models.

The application of the ICARE learning model is by several other researchers who are used as references, who first conducted research on the development of the ICARE learning model in class expansion according to the culture and character of students, and found that the learning outcomes (knowledge) of students were higher by using the model. ICARE, Kuntum a Nisa, et al [10] who researched that the ICARE approach can improve the General Life Skills of autistic children, and Siti Syahidatufalah [11] who researched that there was an increase in creative thinking using ICARE-based problem-solving learning models and Scientific Approaches, and Desi Wulandari, et al [12] who examined the development of ICARE-K learning with character. Based on the results of the study, it was concluded that the ICARE learning model affected student learning outcomes. This is because the ICARE learning model can create interesting learning for students so that they are active in the learning process. Learning becomes more meaningful for students so student learning outcomes increase.

The results of research conducted by Triani, Wahyuni, Purwanti, et al. [12], the practical-assisted I-CARE learning show the same thing that the implications of the application of this practicum-assisted I-CARE model are that (1) the practicum-assisted I-CARE model is a learning model that prioritizes contextual aspects based on students' daily experiences and strengthening problem-solving skills in a

holistic, systemic, integrated, and meaningful way, starting from the introduction of concepts and problems to implementation; (2) the application of the I-CARE model assisted by practicum must be carried out flexibly, adjusting to class/environment conditions and student characteristics, although the syntax includes the stages of introduction, connect, apply, reflect, and extend); (3) the I-CARE model is flexible, universal, and open to continuous development according to the characteristics of the material and subjects.

The results of Wahyudin's research [8], show that the ICT learning model through the ICARE model has a positive effect and can be developed into more meaningful and fun learning. Referring to the statistical test of 0.05 (95% significance level) and comparing the results of the pre-test and post-test, this study proves that the ICARE model affects mastery of the material. Validation tests at the same level of significance show that in rural schools, border schools between cities, and schools in urban areas, the ICT learning model through ICARE is more effective than other models that have been practiced by teachers.

Research conducted by Suendarti & Liberna [13], shows that the ICARE model can also help students' metacognition so that students' construction in learning will be better. With the use of manipulative learning media, there is a reciprocal relationship between students and teachers or vice versa. This is supported by the research of Suweken [14] which states that the application of mathlete (GeoGebra) during the learning process makes the level of student involvement in learning improve and the learning achievement of students who are taught by GeoGebra is higher than the achievement of students who are not taught by GeoGebra. Similar results were also found in several studies [15] [16] [17], where from the results of his research it was found that the GeoGebra media-assisted learning device was able to improve student learning activities and students' mathematical communication skills. Each learning activity is based on the ICARE model in the student book.

4. CONCLUSION

Eligibility of PBL-Based Educational Profession Textbooks ICARE's Pedagogic Approach was declared suitable for use in learning, based on the assessment of material experts, learning design experts, and graphic design experts getting good marks. The results of trial I and trial II got a very good average value. So, based on the results of the data obtained from the assessment of material experts, media experts, lecturers, trial I, and trial II, it was stated that the PBL-Based Educational Profession Textbook of ICARE's Pedagogic Approach was with Good criteria.

The effectiveness of learning has increased in the experimental class using the PBL-Based Educational Profession Textbook with the ICARE Pedagogic Approach than in the control class where the learning process does not use the ICARE Pedagogic Approach. The use of PBL-Based Educational Profession Textbooks ICARE's Pedagogic Approach is highly expected by students in learning, so as to improve learning outcomes for the educational profession.

5. ACKNOWLEDGMENTS

This applied product research was carried out with the assistance and cooperation provided by LPPM Unimed through BOPTN funding. Thank you to the leadership of LPPM and staff, as well as lecturers in the FIP environment who have helped the research being developed. With the help

and good cooperation, this research can be completed and can be presented in an international seminar

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