



Saguru Application Development (Teacher Administration System) Based On An Independent Curriculum To Increase The Teachers Pedagogical Competence Of Early Childhood Education

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Abstract. Pedagogical competency is a teacher's ability to understand students, design and implement learning, develop students, and evaluate student learning outcomes to actualize their potential. The purpose of this research is to find solutions to improve the pedagogic competence of special teachers in their ability to administer learning by developing the application of SAGURU. Research uses a quantitative approach with a research and development (R&D) development model with the procedures of define, design, develop, and disseminate. The research subject is a teacher with a nonprobability sampling technique totaling 3 schools. In the initial development trials, there were 1 lecturer and 1 school, and then in the product trials, there were 2 lecturers and 2 RA institutions. Data collection techniques use needs analysis questionnaires, teacher response lifts, and teacher pedagogic competence observation sheets. Data analysis techniques use quantitative descriptive analysis techniques and paired sample t-tests. The results of the research show that: 1) research has successfully carried out the development of SAGURU applications based on independent curriculum to improve the pedagogic competence of teachers. 2) The development of independent SAGURU application-based educational competence in the improvement of teachers' teaching competence proved accurate based on validation of expert judgment and test results; and 3) the application of SGURU based on separate curricula with paired sample t-test significance test ($0,000 < 0,005$) was effective in enhancing teachers' pedagogical competence.

Keywords: SAGURU Application, Teacher Pedagogical Competence

1 Introduction

Teachers are educators and teachers in early childhood education, school or formal education, basic education, and secondary education. Teachers like this must have some sort of formal qualification and must have the four competencies of an educator.

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Ministerial Regulation No. 137 of 2013, Article 25, Paragraph 2, states that the competence of PAUD teachers is developed in its entirety, covering pedagogical, personal, social, and professional competences. [1] [2] expressed their opinion regarding the pedagogical competence of teachers as the cognitive ability in the implementation of learning processes and management of students who are at least teachers, have basic teaching skills, and are able to use or use learning technology. [3] [4] explained that pedagogical competence is the ability of teachers to manage the learning of pupils, including preparing learning devices, implementing learning, and evaluating learning.

In the process of teaching and learning (KBM), pedagogical competence plays a major role. If described in more detail, some of the things that are included in the core competence standards are as follows [5] Mastering the characteristics of pupils from the physical, moral, social, cultural, emotional, and intellectual aspects Mastering learning theory and principles of educational learning, Developing curricula related to the areas of development enabled Implementing educational development activities, Utilizing information and communication technologies for the maintenance of educational development, Facilitating the development of potential pupils to update the various potentials they possess, Communicate effectively, empathically, and in tune with the pupils. Evaluate the evaluation of learning processes and outcomes. Use the results of evaluations to determine the importance of learning. [6] [7]

The independent curriculum is currently very dissocialized across the educational level, and it is expected that educational institutions will be able to implement an independent curriculum this year. The general obstacle to the implementation of an independent curriculum is a lack of understanding and the emergence of different perceptions of the application of a free curriculum. Another obstacle faced by educational institutions or educational personnel is the administration. In addition to teaching, educators should also be able to implement a series of integrated educational plans that include teaching modules and the educator's difficulty assessment in implementing learning administration in the background of creating SAGURU applications.

This application is an Excel-based VBA macro application that is easy to understand and learn, even for users who do not understand Excel. Educators can focus more and more on designing learning, and administration can still be done more efficiently. SAGURU today has registered intellectual rights and is still growing dynamically, following the needs of the administration of educational institutions and educators. SAGURU is organized according to the costumes of one institution consisting of several classes and educators. SAGURU app loaded (List of all school students, List of Assessment Objectives, Assessment Flow and Assessment Achievements, Semester Program, Game Variety Design, Project Design, Print Teaching Modules, Print RPPH, Print RPPM, Print Assessment Checklist, Assessment Input, Anecdote Input, Work Results Input, Print Attendance, Print Daily Assessments, Report Forms, Student Data).

Research conducted by Saputra [8] stated that the pedagogical competence of teachers influences the development of religious moral values in early childhood. In addition, Ciptaningtyas et al. (2) stated that the pedagogical competence of teachers can be developed through methods of traitimulated using smartphone-based learning video creation. Based on this, it can be concluded that the tning and persistence. [9] Teachers' pedagogical competences are able to be seacher's pedagogical competence will be good

if the teacher uses the various strategies, methods, and media used during learning activities. Although research on this pedagogical competence has been done a lot, research on the improvement of the pedagogic competence of teachers given stimulus using the application SAGURU has not been carried out. Then, based on the background of the problems that occurred, the objective of this research is: 1) developing the application of SAGURU based on independent curriculum to improve the pedagogic competence of teachers; and 2) knowing the effectiveness of the application of SAGURA based on free curricula.

2 Methodology

Research using research and development methods (R & D) using the design, production, and testing stages of the resulting development product [10]. The research subject is a teacher with a nonprobability sampling technique totaling 3 schools. In the initial development trials, there were 1 lecturer and 1 school, and then in the product trials, there were 2 lecturers and 2 RA institutions. Development research is a research method that will be used to look at the results of a particular product and test the effectiveness of that product [11]

The research and development phase is conducted through the research procedure through the phases 1) Define, often referred to as the phase of needs analysis; 2) Design, that is, prepare a conceptual framework of models and learning devices; 3) Develop, that is, the development stage involves testing of validation or evaluating the validity of media; and 4) Disseminate, which is to implement on the real target that is the subject of research. The development process can be a new product or a refinement of an existing product that can be held accountable [12].

These products are not necessarily objects or hardware, such as books, modules, and classroom and laboratory learning tools, but they can also be software. (software). The product that will be produced is an Excel-based VBA macro application that is easy to understand and learn even by users who do not understand Excel, especially early childhood education teachers.

In the initial test, there were 1 lecturer and 1 institute; in the product testing, there were 2 lecturers and 2 institutions, Raudatul Athfal. The research and development phase, according to [13], is as follows: 1) Defines in the context of the development of application SAGURU like exel VBA, at this stage the researchers use the study curriculum free coverage of material concerning the List of Students of the Whole School, List of Purposes of Assessment, Course of Appraisal and Achievement of Evaluation, Program of Semester, Plans of Play, Project Plans, Print of Teaching Module, Print RPPH, Print RPPM, Printing Screening, Input of Appreciation, Inputs of Anecdot, Output of Work, Print Absence, Print Daily Appraise, Form Report, Student Data, 2) The design is to prepare the framework, conceptual model, and learning device. At this stage, the SAGURU application contains the creation of a school administration that facilitates the teacher in its creation, both the Student List of the whole school, the Evaluation Purpose List, the Assessment Stream and Accessibility of Assessments, the Semester Program, the Planning of Varieties of Play, the Project Plan, the Printing of Teaching Modules, the RPPH Print, the RPPM Printing, the Printer Cycle of Appraisal, the Input of Approval, the Anecdotal Input, the Output of Works, the Absence Print,

the Printer of Daily Approaches, the Form Report, and the Student Data. 3) Develop, which is the development stage involving validation tests or appraisal of application eligibility. Developmental tests are conducted to test the SAGURU application designs that are stimulated by the research subject. When the response data test activity is used to obtain a picture of the reaction or understanding of SAGURU users, Based on this, the test results are used to improve the product; improvements from SAGURA are then re-tested so that effective results are obtained. Context determination for the use of SAGURU is done by testing the content and readability of SAGURU with experts relevant to the research. The validation process involved a learning technology expert (media expert) and a field of study expert (material expert). This phase will produce a revised SAGURU that has been correct and meets the needs of research and, 4) disseminate, that is, implementation on the real target that is the subject of research. At this stage, disseminate in three activities: validation testing, packaging, diffusion, and adoption [14]. The last stage of the improvement phase is packaging, diffusion, and adoption.

3 Result And Discussion

3.1 Result

Development of SAGURU applications based on independent curriculum to improve the pedagogical competence of teachers

Product design, regarding the development of applications SAGURA early childhood begins at the stage of setting up the initial plan using the material of the free childhood curricula. SAGURU application development is structured based on consideration of the research needs that have been carried out in the first stage, including identification of potential and problems. Through the next stage, in particular the collection of information through questionnaires and surveys with PAUD educators, the media will be made according to the potential and needs that exist in the field. Based on the information obtained, educator difficulties in implementing learning administration become the background for making the SAGURU application. Respondents are basically aware of the development of independent curricula on PAUD. However, implementation of RPPM, RPPH, and evaluation using the curriculum is still very much in need of application help. Media validation concerning the initial design of the SAGURU application has been made and then approved (validated) by the material expert and the media expert. It can be assumed from the material validation results that SAGURU is valid both in terms of the material content and the appearance of the content.

Table 1. Results of material validation by expert judgment

Number	Assesment Aspect	Average Score	Categori
1	Conten Material	3.56	Very Good
2	Content Appearance	3.46	Very Good
	Validity	3.51	Very Valid

The results of the calculation show that the media validation test of the expert judgment can be concluded to be valid. Assessments of the material content and the evaluation of the appearance of the content are the basis of the research test to perform media verification test actions. Media validation testing can be seen in the aspects of content quality, technique of use, and instructional quality. The media validation results can be seen in Table 2 below:

Table 2. Results of media validation by expert judgment

Number	Assesment Aspect	Average Score	Categori
1	Content	3.56	Very Good
2	Appearance Content	3.47	Very Good
3	Quality Technical Usage	3.49	Very Good
	Validity	3.5067	Very valid

In the initial trial the use involved 1 lecturer and one Raudatul Athfal Institute. Initial testing, conducted to measure the response of lecturers and institutions to SAGURU early design development. This application is an excel-based VBA Macro application that is easy to understand and learn even by users who do not understand excel. It can be interpreted that the results of the initial test use against the response of the lecturer that SAGURU falls into the category "very good". The results on the response test of lecturer can be observed from the following table 3:

Table 3. Recapitulation of lecturers' responses to the SAGURU application in initial trials of use

Number	Assesment Aspect	Average Score	Categori
1	Content compatibility with independent curriculum	3.56	Very Good
2	Appearance of SAGURU application	3.47	Very Good
3	The ease of use of the SAGURU application	3.49	Very Good
	Validity	3.5067	Very valid

The initial test results of the SAGURU application indicate that the agency's response test against SAGURU falls into the category of "very good." As for the response test results observed in Table 4 below:

Table 4. Recapitulation of Institutional responses to the SAGURU application in initial trials of use

Assessment Aspects	Response	
	Agree	Don't agree
SAGURU application is easy to understand teacher	90%	10%
The SAGURU application makes it easy for teachers to administer classrooms such as School-wide Student List, Evaluation Purpose List, Assessment and Achievement Streams, Semester Programs, Plans for Play, Project Plans, Teaching Module Print, RPPH Print, RPPM Print, Cycle Printers of Assessments, Inputs	80%	20%

Assessment Aspects	Response	
	Agree	Don't agree
of Appraisals, Anecdotal Inputtes, Output of Works, Absence Print, Daily Appraisal Print, Report Forms, Student Data SAGURU application filling steps that are easy to understand by teachers	80%	20%
SAGURU application usage timeframe	85%	15%
The lightweight SAGURU application size doesn't burden the laptop	100%	0%
Easy to use Saguru's offline application access link	95%	5%
Average percentage	88.34%	11.67%

In the revision phase of the product, the responsive test results of the lecturer and institute were obtained at the beginning of the use of SAGURU, so there are some that need revision on this SAGURU. The revision is the completion of the teaching module, determining access to development, game design, project design, and raport. The product test phase, carried out involving 2 lecturers and 2 institutes (Raudatul Atfal), through the whole product test, can be concluded that the responses of the lecturer to the use of the application SAGURU fall into the category "very good." As for the results of the response test of lecturers to the product testing, they can be seen in the following table:

Table 5. Recapitulation of lecturers' responses to the SAGUR application during product trials

Assessment Aspects	Skor Response Lecture		Average Score	Categori
	Lecture 1	Lecture 2		
Content compatibility with child development	3.60	3.57	3.585	Very Good
Appearance of SAGURU Application	3.49	3.50	3.495	Very Good
Ease of use SAGURA Application	3.51	3.50	3.505	Very Good
Validity	3.533	3.523	3.528	Very Valid

The results of the student respondent test against the use of the early childhood social study e-module can be concluded to indicate that the student response test to the e-module falls into the category of "useful." As for the student response test results observed in the following table:

Table 6. A summary of the teacher's response to the application of SAGURU in product testing

Assessment Aspects	Response	
	Agree	Don't agree
SAGURU application is easy to understand teacher	90%	10%
The SAGURU application makes it easy for teachers to administer classrooms such as School-wide Student List, Evaluation Purpose List, Assessment and Achievement Streams, Semester Programs, Plans for Play, Project Plans, Teaching Module Print, RPPH Print, RPPM Print, Cycle Printers of Assessments, Inputs of Appraisals, Anecdotal	85%	15%

Assessment Aspects	Response	
	Agree	Don't agree
Inputtes, Output of Works, Absence Print, Daily Appraisal Print, Report Forms, Student Data		
SAGURU application filling steps that are easy to understand by teachers	80%	20%
SAGURU application usage timeframe	90%	10%
The lightweight SAGURU application size doesn't burden the laptop	100%	0%
Easy to use Saguru's offline application access link	95%	5%
Average percentage	90%	10%



Fig. 1. SAGURU Application

Effectiveness of independent curriculum-based SAGURU Applications

Effectiveness test determination is used to find out whether the application of Saguru-based independent curriculum can be implemented effectively in improving teacher pedagogic competence. At this stage, it is being carried out during the testing of SAGURU products with the involvement of three Raudatul Atfal Institutions. Effectiveness testing is carried out through the pretest and posttest stages. When the pretest is done before the teacher is given material treatment, the SAGURU application is based on a free curriculum. At the posttest stage, it is done after teachers are given material treatments. SAGURU applications based on an independent curriculum can be described as follows:

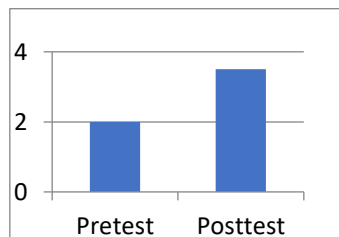


Fig. 2. Results of pretest and posttest of SAGURU application based on Merdeka Curriculum

The pretest and posttest results depicted in Figure 4 inform you that there is a graphic difference between mean scores when performing pretests and posttests. The mean value at the time of the pretest is ($M = 2$), and the mean value when implementing the posttest is ($M = 3.5$). The results of the study in Table 7 below are paired sample t-test results when before and after treatment are significant ($0,000 < 0,005$). It explains that there are

significant differences in the pedagogic competence of teachers in understanding the use of SAGURU applications both before and after using Saguru applications based on Kurikulum Merdeka. It can be concluded that the development of Saguru applications based on independent curriculum is effective in improving the pedagogical competence of PAUD teachers.

Table 7. Results of paired sample t-test analysis at the pretest and posttest

Paired sample t-test	t	df	Sig.(2-tailed)
	-9.224	78	.00

3.2 Discussion

This research has successfully developed an independent curriculum-based SAGURU application. The focus of the material developed in the SAGURU application is the teacher's ability to administer the classroom, such as the Student List of the whole school, the Evaluation Purpose List, the Assessment and Achievement of Assessments, the Semester Program, the Planning of Plans of Play, the Project Plan, the Printing of Teaching Modules, the RPPH Printing, the RPPM Print, the Cyclical Printers of Appraisal, the Input of Approval, the Anecdotal Input, the Outcome of Works, the Absence Print, the Daily Approach, the Report Form, and the Student Data. Based on the results of the implementation of the SAGURU application, the teachers' pedagogical competence has grown very well. It is in accordance with the opinion [15] [16][17] that “the media will make it easier for anyone to understand various materials or information.” Based on this, it can be concluded that the application of SAGURU has a positive impact on the pedagogical competence of teachers. After knowing the application of SAGURU, teachers have begun to become accustomed to obedience to administration, for example, always making RPPM and RPPH for forced learning activities. The material specified in the application is from the findings in the field related to administration that are commonly made by teachers at the time before the learning activities took place until after the learning. Such as the List of School-wide Students, List of Assessment Purposes, Evaluation Streams and Availability of Evaluations, Programme of Semesters, Plans of Plans, Projects, Printing of Teaching Modules, RPPH Printing, RPPM Printing, Printer Cycle Printers, Input of Appraisal, Anecdotal Input, Output of Works, Absence Printer, Daily Appraisals Printing, Form Reporting, and Student Data.[18][19][20]. “In addition to understanding the characteristics of learners, important teachers have the ability to develop curricula and are able to perform good evaluations.” According to the results achieved, after using the SAGURU application, teachers are already able to start making routine learning administration. SAGURU today is still growing dynamically, following the needs of the administration of the Institute of Education and Pedagogy. SAGURU is structured based on the costumes of one institution consisting of several classes and educators. Each educator has its own SAGURU file based on the class allowed.

4 Conclusion

Research and development of SAGURU applications based on independent curriculum successfully and effectively to improve the competence of PAUD teachers. No more teachers who have difficulty planning learning; teachers have more time to carry out other exercises on Sundays because, usually every day of the week, teachers have to draw up a learning plan for the week ahead, but with the SAGURU application, teachers only take 5 minutes to make a plan of learning. Thus, the results of the research show that: 1) Research successfully conducted the development of SAGURU applications based on independent curriculum to improve the pedagogic competence of teachers. 2) The development of the application SAGURA based on autonomous curricula in teacher pedagogical competence proved accurate based on the validation of expert judgment and test results, and 3) the SAGURU application-based independent curriculum was effective in enhancing teacher pedagogic competition

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