

Development of claroline based training design for elementary school teachers in composing learning media

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Abstract

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Competence must be possessed by a teacher whose main task is to transfer knowledge to students. There are four competencies that every teacher must have, namely, pedagogic competence, personality competence, social competence, and professional competence. Focusing on the pedagogical competence of teachers has been considered less than optimal. The research conducted used the type of development research (R&D). Claroline-based training design instruments to improve teachers' pedagogic competence in developing learning media in the validity test by media experts obtained a score of 90.7%, which was included in the very high category. In comparison, material experts obtained a score of 79.9%, which was included in the high category, and finally, training design experts obtained a score of 61.3%, which was included in the high category. According to the validity results of the three experts, the Claroline-based training design instrument to improve teachers' pedagogical competence in developing learning media is suitable for use.

INTRODUCTION

Background of the Study

Technological improvements in the current age of globalization can be applied in education as a more sophisticated and complete means to improve the smooth delivery of learning materials. In this age of globalization, the continuity of following technological developments is crucial in supporting learning activities. Information and Communication Technology (ICT) is considered effective in increasing children's interest in learning through a more attractive display, thus preventing boredom during the learning process (Maulidiana et al., 2021). This is especially relevant in Indonesia, where most schools have yet to integrate technology in the

context of education (Afandi et al., [2020](#)). Learning technology means using modernly designed applications or media to apply theory to practice in teaching and learning activities, acting as a reference in learning. Currently, ICT that is commonly utilized in the context of education is Information Technology. Competence is a specification of a person's knowledge, skills, and attitudes and their application in work in accordance with the performance standards required by society and the world of work (Cahyaningtyas & Ismiyanti, [2022](#)). Cahyaningtyas further explained that teacher competence has a taxonomy of standards, including content, process, and appearance standards. Content standards include the content of knowledge, skills, and attitudes demonstrated in training; process standards include performance criteria in the required knowledge, skills and attitudes transformation activities, including facilitative carrying capacity; appearance standards are related to performance standards, namely how teachers display their mastery of knowledge, attitudes and skills in carrying out their functions as professional teachers.

According to the provisions of Law No. 14/2005 on Teachers and Lecturers, article 10 paragraph (1) explains that "Teacher qualifications as described in Article 8 include pedagogical competence, personality competence, social competence, and professional competence obtained through professional education" (Ismiyanti et al., [2019](#)). The task of a school manager is to develop teachers' competencies as curriculum designers, implementers and evaluators by applying management functions through training. To achieve the goal of having teachers who can design, implement and evaluate the curriculum, teacher training is a crucial factor (Indriana et al., 2021). Emphasized by Veithzal Rivai in Mulyani ([2017](#)), training is the most crucial element in education that relates to the learning process with the aim of acquiring and developing capabilities outside the scope of the education system, which focuses more on practical application than theory. In simpler words, Pramudyo ([2017](#)) explains that training is a learning process that is planned to change a person's performance in carrying out their duties. It is important to remember that in the training process, there are changes that are expected to occur in the trainees.

According to Priansa ([2017](#)), training is learning that is provided to improve performance in relation to the current job. There are two implications in this definition. First, current performance needs to be improved as there is a gap between the employee's current knowledge and skills and the knowledge and skills needed today. Second, learning is not to meet future needs, but to be utilized

immediately. Training is an effort planned by an educational institution to facilitate learning about job-related competencies, which include knowledge, skills, attitudes and behaviors. (Noe, [2014](#): 351). The researchers considered Caroline-based training design as the potential design to improve trainees' competence.

Problem of the Study

Training should be one of the steps to improve teachers' pedagogical competence. However, training is often implemented only as a routine task that must be carried out or solely to fulfil the requirements for promotion for civil servant teachers. The results of a preliminary study through interviews with the Regional Coordinator of the Argomulyo District Education Unit in December 2023 at the Salatiga City Education Office show that the design of existing training is mainly inappropriate for teachers' needs and is not maximized by teachers. Training activities are socialization, which has not optimally involved teachers in developing products that support learning, such as using the Learning Management System (LMS) to create learning materials. The impact of this type of training may lead to results that do not match the urgency of teachers in designing teaching and learning materials. Therefore, training can be less practical and unable to improve teacher competence according to actual demand.

Research State of the Art

The results of Sukma's research entitled Training in Making Mobile-Based Learning Media Using PowerPoint for Junior High, Vocational and High School Teachers in Cilacap Regency, the results showed that the PowerPoint application, which is part of Microsoft Office is a tool that can be manipulated to design a learning application that is quite attractive (Sukma et al., [2022](#)). Grafting the tools Ispring and Saktibuilder on PowerPoint and making Android applications does not require coding, which is quite dull, especially for beginners. The learning model will be facilitated if each subject teacher can make learning by summarizing the module taught using an Android-based application model. Class students can access the application as a handbook that can be read at any time using smartphones and Android phones; of course, this will make it easier for students to learn, especially elementary, junior high and high school students.

The results of the study with the title of the design of Augmented Reality-based Traffic Sign Socialization Media Applications for Grade 3 Elementary School teachers, the results of this study are augmented reality-based traffic sign socialization media applications for grade 3 elementary school teachers successfully

made with Research and Development (R&D) methods and ADDIE models (Zumrotun et al., 2023). The feasibility of augmented reality-based traffic signs socialization media applications for grade 3 elementary school teachers is measured based on the results of validation tests of material hali, learning design experts, learning communication media experts, and users (teachers) who state socialization media applications are feasible to use as learning media. The post-test results stated that the augmented reality-based traffic signs socialization media application for grade 3 elementary school teachers was successfully used as a learning media with a high success predicate.

This research is similar to previous research because both aim to provide knowledge to teachers in developing learning media. The difference lies in the technique used. This research is Caroline-based, while previous research used powerpoint and augmented reality-based.

Novelty, Research Gab, & Objective

Claroline is a new method for elementary school teachers to prepare LMS-based learning media. In contrast, most elementary school teachers use PowerPoint and MS Word media to prepare digital learning media. There has yet to be research on Caroline-based research design for elementary school teachers, so this research can fill the gap. Observing the problems described and alternative solutions, the author is interested in researching and developing a Caroline-based training design to improve teacher competence in developing learning media. Claroline was chosen because it is considered to have characteristics that can meet the needs of teachers, students, and schools.

RESEARCH METHOD

Type and Design

This research uses the Research and Development (R&D) research type. Research and Development (R&D) is a process or a series of steps to improve an existing product and can be accounted for, which includes three stages, namely: (1) Preliminary Study; (2) Development; (3) Testing. In this research, the process follows the stages that lead to the final product, namely the training design (Ismiyanti, 2015). The researcher prepared this study by referring to Ismiyanti's research and development steps modified by Mawardi (2014), as illustrated in the following diagram:

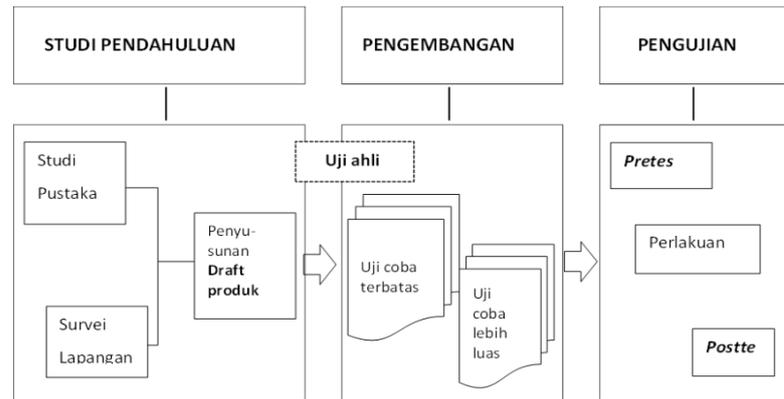


Figure 1. Stages of Research and Development according to Sukmadinata, modified by Mawardi (2014)

Data Source

The data source is all elementary school teachers in Salatiga City. While the sampling technique in this research is through purposive sampling, namely representatives of 1 teacher each in all elementary schools in Salatiga City.

Data Collection Technique

The data collection technique in this research is through a validation questionnaire for media experts, material experts, and training design experts

Data Analysis

The data analysis technique used in this study is qualitative data. This qualitative data is in the form of input or suggestions for product improvements developed by expert validators, which are described as guidelines for product improvement. According to Hendriyadi (2017: 71), content validity is the validity estimated through testing the feasibility/relevance of the test content through rational analysis by a competent panel or through expert judgment. The Expert Validation Test in this study is an expert who acts as a tester to determine whether the training design is declared feasible, namely from 3 experts: media experts, material experts, and training design experts.

Researchers apply descriptive percentage techniques to analyze data (Ismiyanti et al., 2023). This technique is used to determine the percentage of problems related to the preparation of learning media for elementary school teachers in Salatiga City, which will later be used as the basis for the needs in Claroline-based training. Based on the results of the problem analysis, there is a need for a Claroline-based training design that is considered adequate to be applied by teachers in preparing learning media.

RESULT

Below is an explanation of the research on the development of Claroline-based training design assessment instruments to improve teacher competence in developing learning media:

1. Preliminary Study

Preliminary study is the initial stage in conducting development research. This stage has several stages, namely literature study, service, and preparation of initial product drafts. The result of the literature study is that the research examines concepts or theories about the Claroline-based training design that will be developed. The needs assessment was conducted in the Ahmad Yani Cluster, Argomulyo Subdistrict, Salatiga City elementary schools. The needs assessment was conducted through interviews and observations. Based on the information obtained from the needs survey and referring to the theoretical foundations or concepts identified from the literature study, researchers began to design the initial product to be developed.

A demand analysis is conducted as preliminary research to identify the needs and problems in developing learning media. The availability of learning media sources and learning media still needs to be improved, such as using manual learning media and not developing existing LMS. Teachers have not utilized technology to develop existing teaching materials; 70% of students stated that learning only uses textbooks, and students stated that teachers have not used computer-based or digital media. As a result of the preliminary study, it is necessary to design Claroline-based training in developing learning media. It must be validated before students use the media to determine its feasibility.

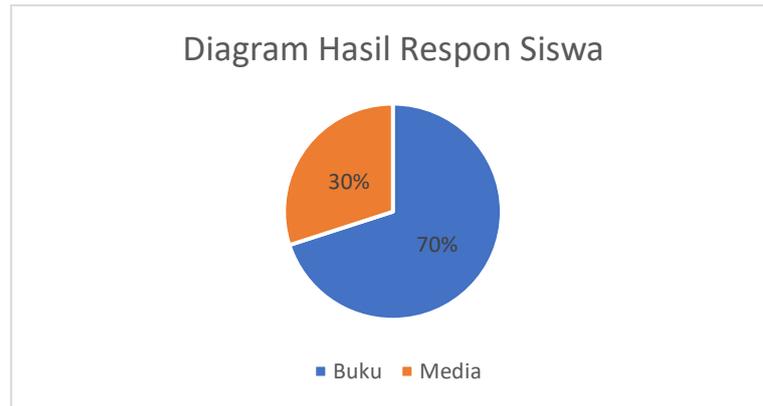


Figure 2. Diagram of Student Response Result

2. Development

At the training design and product development stage, activities were carried out to develop a draft design, validate the draft design, and conduct a limited trial. The draft design was developed with a draft syllabus, training implementation plan (RPP), participant guide, instructor guide, manager guide, and training materials. Design validation was carried out using expert test techniques, including training design experts, media experts and material experts. The instrument used in the expert test used an assessment rubric and data analysis techniques using categorical descriptive techniques. Expert validation was carried out by three validators, namely Expert Validation by Dr. Marinus Waruwu, M.Pd as a media expert validator, Dr. Sophia Tri Satyawati, M.Pd as a material expert validator, and Dr. Yari Dwikurnaningsih, M.Pd as a training design expert validator. The following are the results of the validation test from the three aspects:

1) Media Expert Validation Test

The results of the media expert validation received a score of 90.7% of the score included in the interval 81 - 100% so that it was categorized into the "Very High" category.

Table 1. Result of Media Expert Validation Test

Aspects	Ideal Score	Actual Score	Percentage of Eligibility	Category
Visual Communication	30	27	90%	Very High
Indicators	25	23	92%	Very High
Software Engineering	10	9	90%	Very High
Average of Validation Test Result			90,7%	Very High

In this validation test, the validator also mentioned one type of error, namely the limitation of media tools such as attendance, material evaluation, and speakers, so the validator also provided suggestions for adding other components or platforms when training on the Claroline LMS system. Validators also provide comments or suggestions in this training design, which is good because there is a breakthrough in conducting digital-based training. However, adding several components to the LMS during the training steps is necessary. In this validation test, the conclusion was "Worth using for research and revision". Improvements have been made by researchers so that the product can be used.

2) Material Expert Validation Test

The results of the material expert validation received a score of 79.9% of the score included in the interval 61 - 80% so that it was categorized into the "High" category.

Tabel 2. Result of Material Expert Validation Test

Aspects	Ideal Score	Actual Score	Percentage of Eligibility	Category
Relevance	15	11	73%	High
Organization	25	19	76%	High
Language	10	9	90%	Sangat Tinggi
Average of Validation Test Result			79,7%	High

This validation test validators provide additional suggestions: 1) Add evaluation components, resources, and attachments to the lesson plan, 2) Add pretest and posttest to the lesson plan, and 3) Add LMS user guides for teachers and students. In this validation test, the conclusion was "Worth using for research and revision". Improvements have been made by researchers so that the product can be used.

3) Training Design Expert Validation Test

The results of the material expert validation received a score of 61.3% of the score included in the interval 61 - 80% so that it was categorized into the "High" category.

Tabel 3. Result of Training Design Expert Validation Test

Aspects	Ideal Score	Actual Score	Percentage of Eligibility	Category
Claroline-based Training Design	10	6	60 %	Fairly Good
Claroline-based Training Syllabus	25	16	64 %	High
RPP	35	21	60 %	Fairly Good
Average of Validation Test Result			61,3 %	High

From the results of this validation test, the validator provided several suggestions for improvement, such as deepening the material because it was too short. Then, the validator also gave input so that it was better to be given a cover, introduction, and table of contents, and the material was well packaged. In this validation test, the conclusion was "Worth using for research and revision". Improvements have been made by researchers so that the product can be used. The results of the three expert validations are Claroline-Based Training Design for feasible use. In this study, only the validation stage was carried out because of the limitations of the researchers.

RESULT

The results of the Claroline-based training design development are used in validation tests to determine whether this design is feasible. This validation test was conducted by three validators: media experts and training design experts. The analysis stage in developing this training design is carried out to determine what teachers and students need to overcome the problems encountered in learning activities. This needs analysis stage is vital to ensure that the planned training meets the school's needs rather than just being an activity that does not provide maximum benefits. This approach aligns with (Ulia, et al., 2019). Before conducting training, it is vital to recognise the training needs within the organisation to achieve the desired goals. The process of identifying needs is considered a crucial step in the whole series of training, where analysing training needs in the organisation is the initial stage in designing a training program (Ismiyanti & Afandi, 2022). The needs analysis

was conducted using observations and interviews with several classroom teachers in the Ahmad Yani Cluster and with the regional coordinator of the Argomulyo Sub-district Education sector, including analysing teachers' needs and learning media.

Claroline is a learning management system (LMS) that supports online teaching and learning. It was created to provide a platform where educators can create, manage and disseminate learning materials to students or trainees. Claroline offers a range of features that enable interaction between instructors and participants and facilitate the evaluation and reporting process. Thus, Claroline-Based Training Design is a solution to meet the needs of teachers in developing learning media. This aligns with research conducted by (2016) related to the development of Claroline e-learning for PTIK learning. In this study, several advantages were described, such as not being charged like a general LMS, a simple interface, supporting several languages, and providing complete menu options for implementing online learning (e-learning), where menus that are not needed can be disabled.

This research is supported by Indah Purnamasari (2017), who also examines the utilization of the Claroline LMS, specifically the implementation of e-learning-based Learning using Claroline. This study concluded that the use of e-learning in learning allows the development of human resources who have understanding and interaction skills and can utilize information and communication technology (internet) in preparation for the era of free trade.

Tubagus, M., Muslim, S., and Suriani, S. (2020) have researched developing a Blended Learning Model using the Claroline Learning Management System (LMS) in Higher Education. The results of this study have the potential to provide recommendations regarding effective ways in the learning and teaching process using e-learning, which can improve student academic achievement in higher education. The implication of this research is to encourage teachers to utilize e-learning technology and support students in improving their academic learning outcomes. They were then continued with research conducted by Aidah in 2019, also covering E-Learning Utilization as Learning Media at STIA Al Gazali Barru, a study of the use of Claroline Software-based E-Learning Model. This research shows that the Claroline e-learning application at STIA Al Gazali Barru is easy to use and has a simple interface. Therefore, administrators and students who use this e-learning application are comfortable using it.

Then, Gitakarma and Tjahyanti 2012 modified Claroline by applying the constructivism-based Computer-Supported Collaborative Learning (CSCL) method. Based on this research, the following conclusions can be drawn: 1) SCK has been modified from Claroline, an open-source e-learning tool, by adding a Pretest feature, making changes to document management, changing group rules, and changing group task collection rules. 2) A pilot test involving 30 students achieved an average Pretest score of 4.68 and a Posttest score of 8.12. This shows that SCK makes a significant contribution to improving learning outcomes. 3) The system evaluation using the Usage Questionnaire showed that most SCK users agreed with the system, with an average agreement of 84.42%. This indicates that SCK meets the criteria expected by users. 4) The reliability test of the Usage Questionnaire showed a reliability coefficient (Cronbach) of 0.57, indicating that the questionnaire instrument used has a good level of confidence.

Lebrun, Docq, and Smidts (2013) researched Claroline, "an Internet Teaching and Learning Platform to Foster Teachers' Professional Development and Improve Teaching Quality: First Approaches". The article shows that most students experienced pedagogical changes, in particular, improvements in interactions between students, in learning being perceived as a research process, and in students' active involvement in their learning. After the presentation of the pedagogical principles underlying the development of the Claroline platform, the article describes the most exciting findings of the study. It presents some differences in perceptions between teachers and students.

Ismiyanti, Prajanti, et al., (2021) conducted R&D on developing PowerPoint learning media training design. Based on the results of the study show that the results of the design expert validation obtained an average value of 4.57 in the "very feasible" category, a media expert value of 3.2 in the "feasible" category, and an expert value evaluation of 3.1 in the "feasible" category. Moreover, the results of product trials conducted on teachers in small groups obtained an average value of 3.46 in the excellent category, and in large groups, the average value was 4.01 in the excellent category. The average score in the field research class was 4.55 in the excellent category. Thus, the PowerPoint learning media design is feasible and effective as a learning guide.

Furthermore, Tuginem and Muhyadi (2014) researched the effectiveness of training in compiling teaching materials using Lectora. This study shows that through training activities for preparing teaching materials, the pedagogical

competency standards of teachers are met in a very effective category (> 22.75). This research supports R&D conducted by researchers, namely that training activities can improve teacher pedagogical competence effectively and efficiently.

This training design is also supported by Arghuby dan Sumbawati's (2017) research on developing e-learning media using Claroline for programming subjects. The result is a Claroline-based e-learning media application that has gone through a validation process with a rating reaching an average score percentage of 92.94%, with an assessment categorized as very good. Student responses to Claroline-based e-learning media get an average score of 88.25% and are rated very well. The average student score reached 7.92 on a scale of 1-10, and the pass rate of students using e-learning media reached 84.375%. This shows that Claroline-based e-learning media is feasible to use as a learning tool in the classroom.

CONCLUSION

The result of this development research or R&D research is the creation of an assessment instrument that has passed the validation stage conducted by experts. The development of this training design can be used to improve the pedagogical competence of elementary school teachers in developing learning media. This conclusion is based on the scores of 90.7% from media expert validators, 79.9% from material validators, and 61.3% from training design validators. It can be concluded that the results of the three expert validations are Claroline-Based Training Design for proper use.

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