The Development of Instructional Design Using Animation in the Elementary Teacher Education Program of Universitas Terbuka

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Abstract
Professional Ability Consolidation (PAC/microteaching), the centerpiece of Elementary Teacher Education at the Universitas Terbuka, is a specific concern for both lecturers and students. In addition to replacing the thesis, PAC involves students making a written report on their action research and participating in action research. A lack of student knowledge regarding implementing procedures has resulted in some students failing to compile quality reports due to the long practice stages. Using the R&D method with the ADDIE model, the study develops a prototype of the PAC course to solve the subsequent problems: (1) creating a course implementation animation video, (2) creating a method for conducting Action Research, (3) creating a method for documenting report writing procedures, and (4) creating a method for an instructional video of student supervisions. Students were informed about the FGD method after reviewing the videos produced by multimedia experts. Using the results of this preliminary research, students taking PAC courses in the current semester are considered suitable to test these videos. Research improvements can be based on expert validation and student focus groups in the previous stage before implementing follow-up trials.

Keywords: Microteaching, Action Research, Instructional Design, Animation Video, ADDIE Model

1 Introduction

Teachers play a significant and vital role in human development (Datnow, 2020; Maria João Carvalheiro, José Campos, Morais, & Rodrigues, 2022). They are behind the academic achievement and student behavior development at every learning stage. This attempts to match their pedagogical beliefs, including how they perceive themselves as teachers or the selection of pedagogical methods they consider most effective. Both tend to influence their interpretation and pedagogical practices applied in class (Brandt, Bürgener, Barth, & Redman, 2019; Marsh, 2022). Moreover, these beliefs influence the way teachers participate in their professional community, such as how teachers collaborate and take a position in curriculum development and how they draw on the expertise of other teachers in developing their jobs and schools (Lammert, Hand, Suh, & Fulmer, 2022; Mailool, Retnawati, Arifin, Kesuma, & Putranta, 2020). Therefore, teachers' professional beliefs guide their actions in dealing with pedagogical issues with students and other school community members.

Instilling pedagogical beliefs and teacher professionalism to produce educators who are dedicated and able to collaborate is a formulation in the Curriculum of the Elementary School Teacher Education Study Program at Universitas Terbuka (PGSD-UT). The curriculum formulation is then explained in more detail in several courses, one of which is Strengthening Professional Capability (PAC). This course prepares students to identify problems in the learning process and formulate solutions. In addition, this course aims to improve students' teaching skills that apply Classroom Action Research (CAR) principles. This structured and coherent research is carried out by teachers (educators/people in the learning environment) in their classes to solve problems they encounter in the learning process (Dadds, 2020; Palobo, Tembang, Pagiling, & Nur'aini, 2021). This research went through several improvement cycles aiming to improve the quality of learning and teaching (De Borja, 2018; Khalid Mohammed, Samson, Amanuel, & Demoz, 2022). Finally, the teacher makes the improvements through a series of reflections on the teaching methods they have been using. This stage allows teachers to assess their performance to arrive at the final goal, i.e., quality improvement of the interaction between teachers and students.

Previous studies show CAR's usefulness for teachers, one of which is research conducted by Aidinopoulou and Sampson (2017) discussing the implementation of flipped classrooms (FC) in social/history subjects for students in elementary schools. Researchers compared the experimental group that implemented FC and the control group that implemented traditional teaching. The findings show that the experimental group achieved better academic performance. This indicates that action research with the FC model finds potential benefits for students in elementary schools.

As a practical course carried out remotely, the implementation of PAC lectures should be easy for PGSD-UT students for some reasons. First, some of the students are in-service teachers with experience teaching for at least one year. Second, PAC implementation guidelines have been developed for students, containing the PAC practice stages. However, there are still obstacles in the technical understanding of lecture implementation, CAR implementation procedures, and preparation of reports (Suhartono & Darmayanti, 2015). This encourages researchers to develop alternative learning media to complement the technical methods for implementing PAC so that the competencies students are expected to achieve when taking this course.

2 Methodology

Research and development of this instructional design use the ADDIE model (Dick, Carey, & Carey, 2001). First, it consists of **Analysis** that researchers do with literature studies on previous articles describing similar research and interviews with media users. In addition, these PGSD-UT students have taken PAC courses in the previous semester. The second stage is D**esign** which relates to setting program goals, making storyboards and scripts used in the media, and choosing media (Video Animation and Teacher Model Videos).

The next stage is **Develop**, i.e., producing every media that has been planned in the design stage, including 1) Animated Videos for Introduction to PAC Courses, 2) Animated Videos for Introduction to CAR, 3) Videos of CAR Pre-cycle, Cycle 1, 2, and 3, and 4) Writing Training Video. Then the next stage is **Implement**, where the researcher tries to use the media developed in the learning process (Online Tutorial or Webinar Tutorial). The final stage is **Evaluate**, where the researcher makes improvements in the media use after getting input from the previous stage. Therefore, this study will only describe the three stages of the ADDIE model three stages: analysis, design, and development. As support for these three stages, the researcher invited instructional design experts, material experts, and learning multimedia experts, as well as several students who use media, to provide input on the learning products that have been developed. The inputs are described in the discussion section.

3 Results

In this section, the researcher presents the research and development results with the ADDIE model in three stages: **Analysis**, **Design**, and **Develop**.

3.1 Analysis

The analysis of articles discussing similar themes shows that implementing PAC courses every semester has always been a scourge for PGSD students. Even though they are in-service teachers with experience in carrying out the learning process in class, they can still complete this course well. Several reasons could be the cause, including the students' lack of knowledge regarding the procedures for carrying out CAR (Suhartono & Darmayanti, 2015) and the students' incompetence in preparing practice reports. Thus, they affect students' grades that do not meet the minimum criteria and student failures in these courses (Budiastra, Hanafi, & Mardiana, 2019; Fatmasari, 2018; Kadarko, Novita, & Delfi, 2010). Furthermore, during the pandemic, the government implemented a home learning policy so that CAR usually carried out face-to-face switches online. This situation affects the implementation of practical courses, which are typically carried out independently, face-to-face or online tutorials, but are accompanied by supervisors (including Bw courses/demanding mandatory guidance) in person; now, all are based on webinars or online. As a result, the learning process is increasingly complex for students who are in island areas. In addition to learning facilities and infrastructure that are less supportive (inadequate type/capacity of cell phones, network instability), students find it challenging to understand the materials during online learning, as well as the lack of consultation time with supervising lecturers/tutors (supervisor I) and tutors/colleagues (supervisor II) due to the Imposition of Restrictions on Community Activities (PPKM) by the Government.

3.2 Design of Learning Media

At the design stage, the researcher tries to compile some of the problems recorded in the analysis stage. After that, it is continued by concocting solutions to develop alternative learning media. In the next step, the researcher writes a script to show the flow and content of the learning media to be made. The compiled script includes a description of each scene in the form of supporting text and pictures.

Table 1. Preparation of PAC Course Learning Designs

No	Issues	Solution	Learning Media	Supporting Document	Involved Parties
1	Student's lack of understanding of PAC lecture techniques	Make a guide regarding technical PAC lectures	Animation Videos	Script	Animator
2	Student's lack of understanding regarding the technical implementation of PAC	Make guidelines regarding the technical implementation of PAC	Animated video of PAC implementation in general	Script	Animator
			Videos of Pre-cycle, Cycle I, II, and III	Script and Storyboard	Videographer, Teacher Model, and Supervisor
3	Student's incompetence in compiling PAC reports	Make technical guidelines for preparing PAC reports	Videos of Writing Training	The script, PPT Slides about writing training	Videographer, Researcher

After the researcher compiled the design for learning media development, the researcher performed a leveling of perceptions with the parties involved, including animators, videographers, and models (teachers and instructors). This is done to discuss the contents of the script and storyboard and their relation to the video development schedule.

3.3 Development of Learning Media

The development of alternative learning media consists of 1) animated videos, 2) Classroom Action Research (CAR) videos, and 3) writing training videos. Three different parties developed the three videos with the following details:

3.3.1 Animated Video (Introduction to PAC and CAR Courses)

Researchers and animators held online meetings to equate perceptions about the script's contents and its relation to video development. After the animators finished the video at stage 1, the researcher conducted a review and saw the suitability of each scene with voice-over (sound production in the video). If the researcher sees any discrepancies, the video will be returned to the animator for stage 2 revision. The results of the animator's revisions were

reviewed again, and so on, until the videos developed followed the script referring to the RPS, PAC guidelines, and online master tutorials.

3.3.2 CAR Videos (Pre-cycle, Cycle I, II, and III)

The video that was developed as a reference in the implementation of Classroom Action Research (CAR) consists of 4 videos, including (1) Videos of Preparation for PAC Course and Student Assistance, (2) Videos of Cycle 1, (3) Videos of Cycle 2, (4) Video of Cycle 3. These four videos no longer use the services of an animator in developing every symbol, image, and artificial sound into a scene but utilize the videographer, model teachers, students, colleagues (supervisor 2), and Universitas Terbuka staff directly. Before taking the videos, the researcher develops a storyboard and script to guide each recorded scene. Manuscripts compiled sourced from PAC guidebooks, fully described as a Lesson Plan. The model teacher discussed the script and lesson plan in advance. Researchers asked for input and adjustments based on the model teacher's experience in the teaching and learning process so far. Researchers adjusted the script and lesson plans in response to questions and input from the model teacher. Making a storyboard based on the script that has been prepared, the content is the stages of each scene and a brief description. Like scripts and lesson plans, the final storyboard results can be used in taking videos after several corrections and additions have been made.

The storyboard is based on the script that has been prepared, while the content includes the stages of each scene and a brief description. Like scripts and lesson plans, the final storyboard results can be used in the shooting process after several corrections and additions have been made. The following is a storyboard from the PAC Course Preparation and Student Assistance videos, Cycle 1, 2, and 3.

3.3.3 Writing Training Video

Writing training videos were developed by researchers using PowerPoint to present material. With the help of animators, the researchers combined PowerPoint and material explanation videos so that each PPT slide was discussed in more detail. The exposure in the video is divided into four sections according to the chapters in the PAC report, including Background/introduction, literature review, methodology, findings and discussion, conclusions, and bibliography. In each section, the researcher provides examples and writing tips to make it easier for students to understand each chapter in the report.

3.4 Pre-evaluation from Media Experts and Users

After developing alternative learning media, the researcher conducted a pre-evaluation by inviting media users and students. The following are some of the results of the pre-evaluation:

3.4.1 Paying Attention to Supporting Scenes and Equipment in the Video

The expert analysis results show that the quality of video development is good. However, in terms of dialogue, it needs some changes to be more natural. Then, the expert directed the researcher to try to make the video content consisting of images and writing or captions on essential points. This is intended so that the information conveyed is more precise (for example, what will be discussed, and in which part). In addition, several small things escaped the attention of researchers, namely the need for more prepared properties, such as the pre-

cycle video when the model teacher was at the UT regional office in Ternate, then met with the administration section. The researcher needed to complete the administrative table and consulting room with the writing/name table. It is better if several places are given information. This is to be able to reach fellow students with disabilities. Those who cannot hear can read the writings.

3.4.2 Introductory Sentence as a Video Opener

The expert said that most of the videos that had been developed were able to convey messages well. However, the researcher needs to pay attention to the synchronization between what is discussed in the scene and the texts in writing; they must appear together and complement each other. In addition, it needs additional information/introduction at the beginning of the video about the people who appear and their respective roles. This aims to clarify the message conveyed. It would be even better if there were an opening sentence/introduction from the host (appointed) regarding a brief description related to the general description of the video. This is to provide an overview to the audience of what the video is about to tell and to emphasize the purpose of developing the video.

3.4.3 Paying Attention to the Current Curriculum

According to the expert, the developed storyboard needs to follow the currently implemented curriculum, i.e., the independent curriculum (Kurikulum Merdeka). The storyboard shows students' activeness (a student-centered system) but still needs to show diversity among them. This gives the impression that all students are the same. In addition, the independent curriculum also emphasizes assessment at the beginning of learning, and the storyboard only shows the teacher giving greetings to students. The evaluation shows that the teacher knows how prepared the children are for learning; for example, there are 20 children in a class, whether all or only a few are ready. Thus, it needs to add the teacher's scene where they provide an assessment to determine the child's readiness to start the learning process.

3.4.4 Writing Training Videos

The expert explained that the writing training videos were generally excellent, and it took the effort to find flaws. However, if this video is used as a reference for students to make reports, it can be said that the material is still very general. Students need a video that describes how to write each chapter in the report step by step, so it is better if the researcher completes it with various examples of writing sentences, paragraphs, chapters, even the introductory chapter, literature review, methodology, analysis and discussion, and conclusions. Experts also directed them to make additional videos regarding writing bibliography, paraphrasing, or directions not to plagiarize other people's work.

4 Conclusions

Based on the results of reflection on the opinions of experts, students, and PAC tutors, the following are some inputs for further video development: (1) It needs to provide greeting sentences from the host/researcher accompanied by moving pictures/animations to describe the video in general. So that video users get an initial picture before understanding the next video scene. (2) The evaluation carried out by supervisor two should be given at the end of each cycle. So that video users can find out the shortcomings of implementing learning methods in each cycle. Input from the supervisor at the end of the video explaining input/alternative solutions can also be a common thread for videos in the next cycle. (3) The

Writing Training Video is made more detailed. Since the PAC report consists of 5 chapters, it needs to develop videos for some chapters in the report accompanied by technical examples in each chapter.

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