

Teacher's Reflection on the Development Procedure of Instructional Material Following the ADDIE Model

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Abstract: Development procedure is a systematic process that helps in creating and developing effective, appealing, and efficient instructional materials within a supportive environment using art, science, learning, and instructional theory. As a teacher, they have to understand the procedure in developing instructional material. The current study investigated teachers' reflection toward the development procedure of instructional material using the ADDIE model. The participant is a teacher in project model of senior high school in East Java Indonesia. Under qualitative case study, the current study using questionnaire and interview to gain the data. The data analyzed using content-theme analysis and presented in the form of table and description. The result revealed that there were 5 (five) steps in developing material that has to be done following the ADDIE model: analysis, design, development, implementation, and evaluation. All the steps has to be done accordingly to produce the best material development for the students.

Keywords: ADDIE model, development procedure, instructional material, teachers' reflection

1. Introduction

In the real setting, the teaching and learning process demands the teachers' creativity and improvement. Teachers use various instructional materials to support teaching and learning by using textbooks, charts, models, graphics, real objects as well as improvised materials [1]. The success of achieving what they are met to achieve in an instructional situation depend on the suitability of the instructional materials, adequacy and effective utilization of the materials [2].

The effectiveness of instructional materials in promoting students' academic performance in teaching and learning is indisputable. It provides the much needed sensory experiences needed by the learners for an effective and meaningful behavioral change. Instructional materials are meant to improve the quality of education for effective academic performance of students. The performance of the students on the learning outcomes intended to gain provide the validation – loop on the success of the interaction and instruction. [3] asserts that instructional materials are central in the teaching and learning of English language because they are used to compliment efficiency of a teacher, and effectiveness in lesson delivery. [4] affirmed that instructional materials facilitate learning of abstract concepts by helping to concretize ideas and stimulate learners' imagination.

Moreover, instructional materials help to increase participation in the learning process while saving teacher's energy, reducing the teacher centeredness in teaching. In the same vein, [5] states that the use of instructional materials make teaching effective as it enables learners to participate actively in classroom instruction. All these views suggest that the use of instructional materials can improve students' performance. Instructional materials in teaching are crucial to the success of student achievement. That is, the instructional components of lesson planning in teaching depend on the selection of teaching materials.

Instructional materials can support student learning and increase student success. Ideally, the teaching materials will be tailored to the content in which they're being used, to the students in whose class they are being used, and the teacher. Teaching materials come in many shapes and sizes, but they all have in common the ability to support student learning. Considering the important role of instructional material to deliver the teaching and learning intended the teachers' interest to guarantee the quality of instructional material used.

There are source of steps or procedure of materials development which is includes the design, implementation, and evaluation of language teaching materials. [6] suggest ten components of the systems approach model, that is, identify an instructional goal, conduct an instructional analysis, identify entry behaviors and characteristics, write performance objectives, develop criterion-referenced test items, develop an instructional strategy, develop and/or select instructional materials, design and conduct the formative evaluation, revise instruction, and conduct summative evaluation. Each of these components is closely related to each other in the systems approach model.

Furthermore, the teacher can develop their own instructional material that meets the students' need. Instructional material also has to be adjusted to accommodate students' level of thinking, ability, motivation and willingness. The effort that can be taken is developing instructional materials that meet the students' need and

level of thinking. One of the models that assist the teacher to develop instructional material is the ADDIE model. ADDIE model is one of the most common models used in the instructional design field a guide to producing an effective design. This model is an approach that helps instructional designers, any content’s developer, or even teachers to create an efficient, effective teaching design by applying the processes of the ADDIE model on any instructional product.

In fact, the elements made by following the ADDIE model can be used in any environment as online or face-to-face. In addition, this systematic process is represented in the acronym ADDIE, which stands for the important components in the process of creating the instructional design, which are Analysis, Design, Development, Implementation, and Evaluation. Each phase in ADDIE model is related to and interacts with each other. The current study investigated the teachers’ practices in developing instructional material to support the learning following the development procedure of the ADDIE mode.

2. Method

The current study was a qualitative case study research focused on the teachers’ reflection during the process of developing instructional material following the ADDIE model. The participant in this study is a senior high school teacher who was assigned to teach Sociology. She has been assigned to teach Sociology for about 10 (ten) years. She has enough experience in teaching Sociology. She was assigned (in a project) to develop instructional material in her school.

To gain the data of her reflection in developing instructional material, the researcher used observation and interview to collect the data. Observation was used to capture the developmental procedure during the project. What steps were done and what product is. Meanwhile the interview was used to confirm the data gained from the observation (supporting data). The data then analyzed descriptively through content-theme analysis to be presented descriptively.

3. Findings and Discussion

3.1 Findings

Based on the result of observation conducted during the project, the teacher did some steps in developing instructional material following the ADDIE Model. The data as presented in the following table:

Table 1. Teachers’ activities in developing instructional material (ADDIE Model)

Development phase	Activities	Output
Analysis	Analyzing the competence that must be mastered by the students	The determination of Standard Competencies, Basic Competencies, and Learning Purpose
	Analyzing the students characteristics relate to their knowledge, attitudes, and skills	The resume of students level of thinking
	Analyzing the relevant materials to the competency achievements	The target of what students have to be mastered
	Analysis result of this step is self evaluated and continued evaluation with colleagues for	The improvement of analysis results
1. Design	Selecting material that relevant to the students characteristics	The embryo of textbook structure
	The competence to be achieved	The design of content framework
	Learning strategy	The improvement of design results
	Assessment form and method and also evaluation	The result of self evaluation and the planning of improvement
Development	Create factual sample for the instruction design	The framework of the module
	Collecting relevant data resources	The enrichment of the module
	Develop the materials of the course: 1) making illustration; 2) scheming; 3) creating graph needed;	The prototype of the module

	4) typing; 5) editing and also 6) laying out the text book	
	Run through the conduction of the design	The design of the draft
	Validating the draft of development product	Draft validation from the expert
	Revision after expert input will be performed	The revised version of the draft
Implementa tion	Applying the development result in learning processes	The quality of learning covers the effectiveness, attractiveness, and efficiency of the prototype to be used in learning process
Evaluation	Formative evaluation is performed	The data on every step used to the improvement
	Summative evaluation is	The data of its influence on students learning outcome and the quality of learning extensively
	Small group discussion (SGD)	Input for the revision of product draft

The result of observation as it was presented in table 1 was confirmed with the result of interview. In the interview session, the teacher described it in detail the steps in developing instructional material following the ADDIE model. *First*, the teacher asserted that in analysis stage is the most important phase in the process of development.

When the designers analyzing before creating the plan, developing, or even implementing, they really save huge amount of courses, efforts, and times. It was very important step to be done in the early steps.

(Interview: 23 January 2020)

Moreover in analysis steps, there were four things that have to be done in this phase, such as analyze the students' present understanding, skills, needs, and willingness. We also have to develop an instructional analysis to provide the necessary and present opportunities to learn and use new information in an instruction. Create instructional objectives to specifying the end desired result, and analysis learning objectives to measure the attainment of goals.

We have four things to be done: analyzing students present condition, develop instructional analysis, create instructional objectives and analyzing learning objectives that means we have to be clear about the goals and where we want your students to be.

(Interview: 23 January 2020)

Developing instructional analysis is very hard and complicated. When we identify specific goals we will start to write all the important steps and all the details that we need to achieve the goals.

(Interview: 23 January 2020)

Second, phase of design is the next step in ADDIE model. This phase is really about applying the instruction. In fact, the designer (teacher) in this step thinks about how design instruction can really be effective in ways that facilitate students' learning and interaction with the materials you create and provide. Furthermore, in design phase the instructional designer evolves and focuses on designing assessment for the topic, select a form of the course, and creating their own instructional strategy. As it was asserted by the teacher that:

Assessing the students in the subject is important to know how we will assess these outcomes when we are working on our instructional design. To do the assessment effectively, we must use the data that we already gained from the former stage, which is Analysis phase.

(Interview: 23 January 2020)

Third, the phase of development, this phase depends on the first two phases, which are the analysis and the design phase. That mean, these phases correctly the development will be easier. In this third phase, the

instructional designers integrate the technology with the educational setting and process. Also, keep in mind the backup plan in case that the technology that we choose does not work. Moreover, the instructional designer starts to develop and create a good quality factual sample for the instruction design, the materials of the course, and run through of the conduction of the course.

In this step we are going to create samples of our materials in order to show our work to your head teacher and make sure that we are in the right command. For example, if we were writing a blueprint about any topic it is very helpful to show our learner the blueprint with our instruction strategy that we created in the previous phase (the design phase).

(Interview: 23 January 2020)

Fourth, implementation phase, this is very crucial phase in material development to be conducted where in this phase we are transforming our plan into action. In order to go through this phase, we have to consider three major steps, which are training the instructors, preparing the learners, and organizing the learning environment. With these three steps we can display our course in very active and authentic ways to achieve the implementation phase.

Working to train the instructors is a very important process in the implementation phase because sometime the person who is training is not the one who creates the instructional materials. The last process in the implementation phase is coordinating the learner's space. In fact, this is not just to be sure that there are classes available to teach this class or be able to provide chairs, tables and white board.

(Interview: 23 January 2020)

Fifth, the final process in developing instructional material following the ADDIE model is evaluation phase. It is very important to evaluate each step in order to make sure that we achieve our goals using the instructional design and materials to meet the learner needs. Additionally, when we talk about evaluation, we talk about two types of evaluation, which are formative evaluation and summative evaluation and followed by small evaluation group.

There are three basic processes of formative evaluation, which are one to one, small evaluation group, and trial in the field. When we evaluate, we want to choose learners that have similar features to our real students. This process of evaluation is based on evaluating each material we used in order to see if this material was effective and identifying the strength and the weaknesses of our materials and working to improve it. When we are done from making changes based on what we discovered during one to one stage of evaluation, the next stage will be making a small group evaluation. This stage is evaluating the effectiveness and achievement of the changes that we made in the previous one to one stage.

(Interview: 23 January 2020)

3.2 Discussion

Learning/teaching materials, in practice, can be developed/produced by evaluating learning material, adapting, supplementing and creating own materials [7]. Teachers usually use any textbook available to teach their students. What they can do is usually trying to evaluate the textbook they have to use to teach their students. In evaluating the textbook, teachers observe what works and what does not work and they add their own style/preference and interpretation to the textbook. If they think that the textbook is in line with the curriculum/syllabus, the textbook can be used to teach their students.

Teachers will evaluate and select textbooks according to how appropriate they seem for the given context. Well-designed textbooks can support inexperienced teachers a lot because they act as training materials. Textbooks can also be evaluated by exploring teachers and learners experiences and opinions about the textbooks as used in the classroom. This evaluation can result in the most effective textbooks which can be used in the classroom. This result, however, cannot be valid for different students and teachers and in different time.

After evaluating the textbook, each teacher has his/her own decision, that is, using the textbooks without having any change at all, adapting it according to the needs, supplementing it if necessary, or if the textbook does not fulfill the teachers criteria, they can create their own materials based on their students' needs or other criteria of developing materials [8]. Adapting a text can be based on different criteria. One possible adaptation is associated with the linguistic demands. A difficult text can be adapted by teachers to suit the competence level of the class.

To develop accurate teaching materials, each component in the systems has to be considered. In other words, suitable teaching/learning materials should be able to fulfill each of the other components in the system approach. The teaching/learning materials already developed for specific target learners have to be implemented in the real learning/teaching situation. The implementation of the learning/teaching materials in the real situation in this step is meant to try out the teaching/learning materials whether they are suitable for the target learners. If not, then the learning/teaching materials have to be revised based on the data obtained from the try out to the target learners. This is called the evaluation step.

Supplementing the existing textbooks used to teach is another effort to cover the weakness of the available textbooks that does not match with the syllabus/curriculum or objectives of the teaching/learning. The supplementary teaching/learning materials can vary according to the availability of the materials or the creativity of the teachers. Creating own materials is the teachers last effort to develop learning materials instead of adapting or supplementing the existing textbooks or authentic texts. There should be fundamental bases in order to create own materials, among others, teaching objectives or instructional goals [9] students needs, and topic-based planning [7].

[9] suggest a long procedure to develop instructional materials after identifying instructional goals. There are five steps between identifying instructional goal up to the instructional materials development: conducting instructional analysis, identifying entry behaviors and characteristics, writing performance objectives, developing criterion-referenced test items, and developing instructional strategy. The next step is developing and selecting instructional materials. With these steps Dick and Carey want to emphasize on the accuracy of all the components in the system approach of instructional design, including the accuracy of developing and selecting instructional materials.

A teacher can also develop learning materials on the basis of the students' needs [7]. This situation would happen when a teacher is facing new students. In order to meet the students' needs of English, an English teacher has to find out what English competence the students want to achieve. After knowing the English competence that the students want to achieve, the teacher develops the learning materials to help the learners achieve the English competence they want. Creating own materials based on Topic-based planning means that the materials developed for the learning materials should be based on the topic already chosen and, therefore, all the activities in all areas of the curriculum should be related to that one broad topic.

4. References

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