Designing Mobile Learning Lesson Plan for English as a Foreign Language (EFL) Learners: ADDIE model

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ABSTRACT
Mobile learning is the continuation development of e-learning. In mobile learning, teaching and learning activities are facilitated by mobile, handheld, and wireless connectivity to promote constructive learning behaviour both for teachers and students. This study describes how EFL teachers design and promote mobile learning in their lesson plan. design-based research was conducted to make this exemplary plan by using ADDIE model with a prototype paradigm. In this lesson plan design, the formative evaluation was repeatedly conducted to firmly conclude the best design result. From this evaluation, it is suggested that the use of mobile learning with ADDIE model in language learning can promote students' attention, motivation, and learning engagement.

Keywords: ADDIE model, formative evaluation, language learning, mobile learning

1. INTRODUCTION

The potential of using mobile devices in education have attracted many scholars in developing and designing teaching learning materials, including in language learning both for EFL learners and EFL teachers [1],[2]. Several theories support the use of mobile devices in learning activities, such as constructivist theories [3] Constructivism is about students constructing their knowledge themselves instead of receiving it directly from a teacher or textbook. In mobile learning, students use their mobile devices to find the information they need for learning. Another approach that supports mobile learning is embodiment. Embodiment explains the working of mobile learning by the interactions and communication pathways that take place in mobile learning, when the physical, digital and social world are combined.

It is claimed that mobile devices can potentially promote, facilitate, and enhance student collaboration and interaction during learning activities [4]. This also includes the aspects of the social constructive learning theory that students can possibly interact with other students and their teachers, mentors, parents, external persons in the real-life environment and not only the physical environment itself. These interactions might increase possibilities for learning experiences. Sharples [5], [6] as cited by Pachler et al. [7] outlined three phases

of mobile learning: phase one with a focus on learning with mobile devices, phase two with a focus on learning outside the classroom, and phase three with a focus on the mobility of the learner. Likewise, [8] mobile learning is characterized by three fundamental views: mobility of learners[9], mobility of technology, and mobility of learning. Mobility of learning is regarded as a powerful learning which can facilitate individualized and situated learning and support lifelong learning[10].

Uzunboylu et al [4] showed that the students were comfortable with using mobile phones for educational purposes. Attewell [11] reported that mobile learning may benefit to raise both self-esteem and self-confidence. Accordingly, some evidences indicate that mobile learning truly raises motivation in learning. However, there are few studies discussing how to design mobile learning activities in EFL lesson plan combined with a good instructional design. For this reason, it is good opportunities to discuss the beneficial attribution of mobile learning and how to design it well on the basis of instructional design model. To achieve this goal, the research questions of this study were formulated as follows: What are design principles and how to make mobile learning lesson plan with ADDIE design model in EFL learners?

2. METHOD

Design-based research was employed for this study by implementing ADDIE model with Prototyping or Pragmatic Paradigm. In this ADDIE model, the design process involves the cycle phase of analysis-design-development-implementation-evaluation.

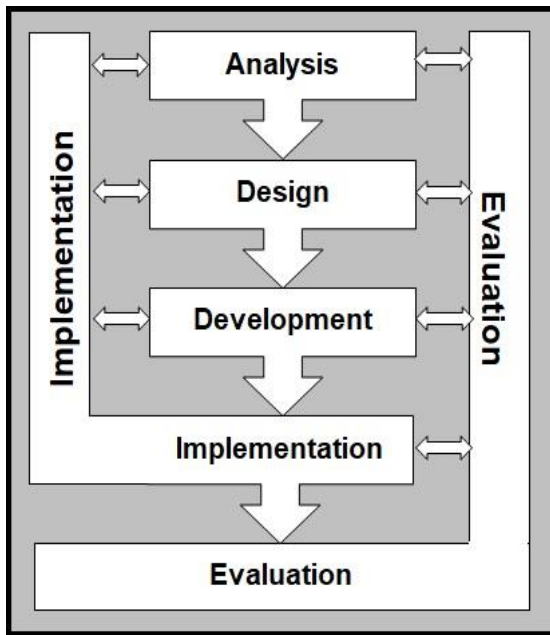The ADDIE model can be visualized in figure 1 as follows.

Figure 1 . ADDIE model

In this reiterative process, analysis, design, and evaluation would be the major and core phases in this intervention. Prior to design phase, learners and context analysis were conducted accompanied by literature review. This allowed researcher to know existing conditions which are necessary for design mobile learning activities. Therefore, some initial design guidelines were produced for development of the prototype of design interventions, that is mobile learning design. In the end, the prototype would be developed and improved on the basis of formative evaluation for final design. In addition, summative evaluation was also conducted to measure the effectiveness or the impact of the final design.

3. RESULTS AND DISCUSSIONS

ADDIE model is a well-promising instructional design which are used by many educational experts in designing learning courses and learning materials. ADDIE stands for Analysis, Design, Development, Implementation, and Evaluation. Therefore, analysis will be discussed as the starting arguments.

3.1 Analysis Phase

Analysis is mainly intended to gather as much as information for the relevance of the product design. In this study, need analysis and context analysis will be explained.

To perform the needs analysis, the 'Three Sides of Needs Assessment Model' from [12] was used as can be seen below.
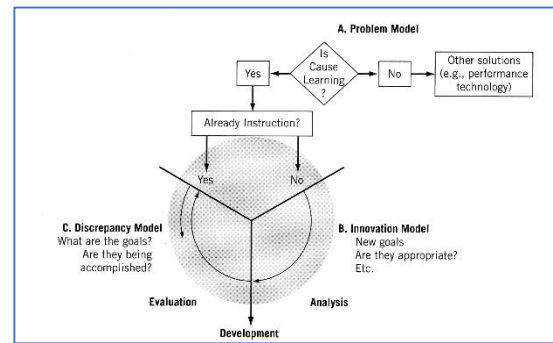
Figure 2. Three Sides of Needs Assesment Model [12]

The start was made with answering the question: Is X Cause Learning?' To answer that question the problem model is used. To find the answers to this question, the following methods were used: an interview with the teacher, an analysis of the subject matter in the students´ book and a systematic literature search. The interview with the teacher was held because the teachers´ opinion was considered to be of great importance. the interview with the teacher revealed the two main reasons why new design for this subject was needed. First, according to the teacher, even learning goals for the lesson matter are achieved; the teacher still indicates that the students lack of motivation when they study in classroom. This information was also confirmed by some students during interviews. This might be due to the lack of the link of the theoretical information with the real world outside, or probably because of challenge in learning.

From context analysis, it is advocated that the vocational school of SMK N 1 Bakauheni was equipped with some technological tools and communication devices, such as laptops in computer rooms, projectors, and other multimedia devices. Moreover, the school has either wireless broadband or ethernet LAN cable for internet connectivity. However, English teachers hardly use them as an instructional media. Although the teachers have positive acceptance in using mobile phones, they confess that they lack of knowledge in using mobile technology. This confirms what the research says about challenges of ICT use in education [13]. It happened a lot with the teacher aged 50 years old or more.

For the students, the use of mobile phone is not allowed in the classroom because normally the students use it for personal activities, not for any educational purposes. In

fact, there are abundant lesson materials available on mobile phones without any constraint of place and time to access. Likewise, [14] stated that mobile devices are essential for the design of mobile learning lessons in their routine teaching activities. It is hoped that the use of mobile phone in the lesson may motivate students to learn and increase their understanding in learning new vocabularies.

3.2 Design Phase

3.2.1 Design Guidelines

From need and context analysis which have been conducted, it is essential to set up some design guidelines for the prototype. They are:

a. Mobile learning should cover and meet learning goals which have been established in the school curriculum, especially for English subject with the implementation of genre-based approach.

b. The Spending time for mobile learning should fit and meet the allocated time, that is 2 times 45 minutes.

c. The use of Mobile learning should increase students' motivation in learning English.

d. Incorporating mobile learning should facilitate collaborative learning.

e. Mobile learning should use handheld devices to ease flexibility in learning with camera functioning and video playback.

f. The school should have technological tools and high-speed internet connection.

Afterwards, the designer creates a lesson plan for English subject by utilizing mobile phones as delivery modes of instructional media in their pedagogical contents by considering the design guidelines.

3.2.2 Design Lesson Plan

The lesson plan for this design was divided into several sessions starting from introduction of the lesson until the closing activities. All activities should embed the use of mobile devices as the characteristics of mobile learning

Table 1. Lesson Plan modified from [15]

Sessions	Activity	Time
Introduction	Preparation to Warming up the class. In this session, for example, we will focus on **Pronunciation**: The pupils are requested to download a digital English dictionary into their mobile phones via google play store for android	5 minutes (individual)
	phones or App store for ios. The students must look up some words and listen carefully how to pronounce those words correctly.	
Core Session	After being introduced with pronunciation, the students will have listening and reading activities by watching youtube videos. **Listening.** Beforehand, the pupils were distributed youtube link regarding video about how to make texting or short message.	10 minutes (whole class)
	While listening video, the teachers asked the students to answers the exercises which have been prepared by the teacher. They can play or watch the video again, if they do not understand.	10 minutes (individual)
	After watching and listening the video, the teacher instructed students to answer some questions to measure their recall and understanding about the text or video contents.	15 minutes (pair work)
	From the video, the teacher also gave more attention on the language features which are frequently used in the video. One of which is Reported or indirect Speech.	15 minutes (pair work)
	In this part, the teacher was explaining about reported speech and gave some examples from videos. In the end, students were instructed to change some indirect sentences into direct ones. They can work in pair for discussion.	20 minutes (pair work)
Closing	**Concluding remarks. Teachers were asked s**tudents to make a video which is talking about the rules of using Twitter. Then, they should upload it to their personal Twitter account so that others can view it and can respond each other from their Twitter account at home	15 minutes (group work)

From the lesson plan above, the session was opened with warm up activity to gain attention from students and

raise their motivation in learning English as a Foreign Language. The session was introduced with the use of a digital dictionary which the students have downloaded in their handheld devices.

After listening to some pronunciation of several words, they must identify the silent syllables. The next step is listening to David Cristal talks about texting(http://www.youtube.com/watch?v=v7WSzxQ0nX4) and its use followed by discussing some comprehension questions. Then, the next activity is discussing about linguistic features or grammar which are embedded in the video as the text of information, mainly about reported speech. The students were working individually at initial stage, but slowly move to practice and production activity.

Finally, the session ends with watching a video (http://www.youtube.com/watch?v=3o9FmlgfZXU) containing information regarding the rules of Twitter. In the end, students were asked to make 1-minute video explaining one of the rules of Twitter and uploaded via their Twitter account shared to their classmates.

3.3 Development phase

In this phase, the prototype of the design was developed and constructed to produce the end product or final design on the basis of formative evaluation. Formative evaluation is a core process in design-based research because it also involves participants as co-participants of the research. They are even involved in design and analysis process, not only as a subject of the research [16]. There are three important issues relating to the design quality in design-based approach: validity, practicality, and effectiveness [17].

To achieve a high-quality of the design, it is noteworthy to conduct contextual analysis and search relevant information through systematic literature review. Formative evaluation is deemed useful to reach usability and practicality. In this study, formative evaluation was conducted through micro-evaluation by observation, interviews, and giving questionnaires. Observation was done by the designer during try-out to observe how the prototype of mobile learning design worked. The designer took note if there were some constraints from students and teachers during try-out. The designer also ensured all procedures in implementing mobile learning could run well and meet all the prerequisites. An interview was then conducted. with three students to explain more in depth their view on the usability of the mobile learning experience and possible encountered problems with the learning material and mobile devices. Moreover, they could explain whether they had liked the mobile learning experience or not. Three students were randomly chosen as respondents. The attitude and acceptance responses from English

teacher was also evaluated. From data interview analysis, teacher and students' responses toward the use of mobile learning showed the same positive feelings as reflected from 3 respondents below.

R1: "The use of mobile phone in learning is new for us. I like to use mobile phone to search learning materials from internet and social media at home. If we can use it in classroom, it will give new experiences."

R2: "Learning by using technological tools as media of learning will be interesting. As I know that, everything is available on the internet. And mobile phone is key pass to enter the internet room."

R3: "I can learn better from mobile devices such as learning new vocabularies and how to pronounce it correctly. We just simply download a digital dictionary and we can learn it at home, at school, and anywhere. It is so practical because mobile phones are handy and portable."

Next, when the teacher was asked about her experiences in using designed lesson plan, she also responded enthusiastic. She agreed that the classroom became more active and engaged to learning material. However, she was afraid that the use of mobile phone can be also disadvantageous because not all students use it appropriately. She also added that low internet connection is sometimes problematic in implementing mobile learning. In this sense, the role of teachers to monitor their pupils using mobile phone is crucial to prevent them open harmful and negative contents.

Besides interviewing students and a teacher, the designer as researcher also asked one expert in the field of instruction field and vice principal for facilities and infrastructures. The expert was chosen to give suggestion regarding to the way of instruction of learning. From this interview, the expert suggested incorporating Gagne's nine events of instruction within the whole process of mobile learning, if possible. He also notified some effect of learning with multimedia [18]. Furthermore, the result of interview with the vice principle advocated that the school was ready in implementing mobile learning. He confirmed that the school gave full support to provide supporting facilities. Overall, the results of the interview indicated that mobile learning is promising.

In making instruments of the questionnaires, the four-point rating format of the answers to the questions was chosen because the use of an even number of rating points would encourage the participants to rate above or below the midpoint and the use of more than four rating points appears to present difficulties [19]. The middle point in an odd number of rating points is often over selected and reliability could be weakened when the majority of items raise an over selection of neutral responses [20]. The four points will correspond with the degree of agreement upon the statement given. In this case, answer ´1´ refers to ´totally disagree´ and answer ´4´ refers to ´totally agree´. Upon each statement the

frequencies were measured. When more than 75% of the students gave an answer that is answer ´3´ or ´4´ (agree or totally agree), the answer was expected to correspond with positive feelings towards the statement.

The questionnaires result showed a positive response of students. The mobile learning experience was rated as ´fun´ or ´totally fun´ by 97.6 % of the students. Most of the other questions relating to motivation for the mobile learning experience were rated positively or highly positive by the students. All students reported that they would like to have another mobile learning experience like this lesson. Overall, the result of the questionnaires was also ensured by the result of the interview indicating the usability of the design.

The next concern of the design-based research is the effectiveness of the design. To measure the effectiveness of the design, the designer checked the correct answer from students' answer when they were asked some questions or assignment during the pilot project. In this study, the designer did not measure the increased number of their understanding of the lesson and motivation. For further research, it is essential to measure such kind of effectiveness by involving control group to know whether this intervention of the design could improve students' achievement and motivation.

Finally, on the basis of the formative evaluation involving an expert in an instructional design, teacher, and students as co-participants, all critics and constructive comments or suggestion led to the revised versions of the design for the end-product to be implemented in a broader context. The revised version of the design should embed Gagne's nine events of instruction: *gaining attention, informing learning objectives, stimulating recall experiences, presenting stimulus materials, providing learning aids, eliciting performance, providing feedback, assessing performance, and enhancing retention and transfer.*

3.4. Implementation Phase

In this phase, the end product of the design has been finished and ready to use in broader contexts. It is hoped that all constraints which were revealed during pilot testing have been eliminated based on formative evaluation. However, the implementation can also be performed after analysis, design, and development process followed by (formative) evaluation.

3.5. Evaluation Phase

The evaluation process involved formative evaluation and summative evaluation. A good design would be achieved when evaluation process was conducted regularly and extensively[17]. She points out that

between design and evaluation are intertwined. Formative evaluation is a systematically performed activity integrated in the development process of an intervention, aiming at quality improvement of a (partially) developed prototype of an intervention by locating shortcomings and generating revision decisions. Summative evaluations are carried out to gain evidence for the effectiveness of the intervention and find arguments that support decision making with regard to the continuation of the intervention. They are carried out without the direct intention to reveal point of improvements. In short, formative evaluation was intended to improve the design while summative evaluation is to prove the design.

In formative evaluations, the participation of target users is crucial because it leads to more intensive discussions about the requirements of the products, provides better opportunities to negotiate and justify design ideas, increases user commitment and ownership of final deliverable, and prevents developers or designers from tendency to design for themselves[17].

In design-based research, a high quality of the design product can be achieved if the evaluation is done not only repeatedly, but also systematically in cyclic process as presented below in Figure 3.
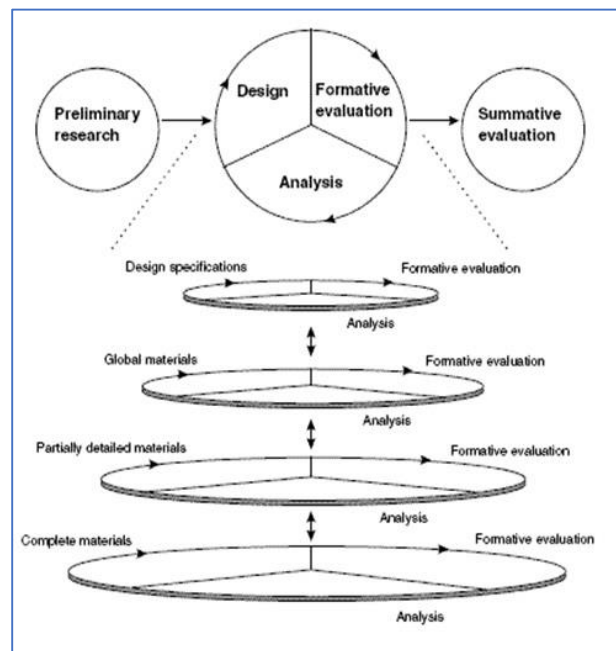

Figure 3. Formative evaluation and Summative evaluation process [17]

In this report of the study, summative evaluation has not been carried out yet. Further research to prove the effectiveness of the design intervention is highly recommended.

4. CONCLUSION

The rapid development of mobile devices with its ubiquitous availability provides a good opportunity for instructional designer to create lesson plan with the support of ICT integration, including in EFL. Although mobile learning is not new in education, it is currently gaining some importance. However, mobile learning experiences could lead to failure if it is not well designed. The use of ADDIE model for mobile learning design would be a promising assistance to overcome those failures because it requires all participants to actively involved in the cycled process from analysis to evaluation in reiterative ways. Further research in measuring and proving the effectiveness of the design is highly recommended.

AUTHORS' CONTRIBUTIONS

All authors: Mukhammad Isnaeni, Evi Maha Kastri, Ratih Rahayu, Achril Zalmansyah and Diah Meutia Harum contributed equally as the main contributors. All authors read and approved the final paper.

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