

ADAPTATION OF ADDIE INSTRUCTIONAL MODEL IN DEVELOPING EDUCATIONAL WEBSITE FOR LANGUAGE LEARNING

Mohammad Taufiq Abdul Ghani (Corresponding author)
Faculty of Languages and Communications, Universiti Pendidikan Sultan Idris, 35900
Tanjong Malim, Perak, Malaysia
Tel: +605-4506195 E-mail: taufiq@fbk.upsi.edu.com.my

Wan Ab Aziz Wan Daud
Centre for Language Studies & Generic Development, Universiti Malaysia Kelantan,
Kampus Jeli, 17600, Jeli, Kelantan, Malaysia
Tel: +609-9477245 E-mail: abaziz.wd@umk.edu.com.my

Abstract

In the 21st century, educators are utilizing emerging technologies to develop not only knowledge of graduates, but also their soft skills in order to enhance their competencies, in parallel with employers' requirements. Web-based learning has been widely used by many educators, especially in higher education institution due to its benefits for both students and teachers. A good understanding of educational theories and instructional design system is required in order to experience a meaningful learning. Appropriate instructional models are needed to produce effective learning materials. This study explores the adaptation of ADDIE instructional model in designing and developing a special website for learning Arabic for Tourism Purpose by using Grav® CMS as the platform. The aims of developing this learning prototype are to provide new learning experience to Arabic learners, provide references for them after class, and address the effectiveness of using web-based learning. This study can provide a guideline to develop instructional materials for language learning particularly language for specific purposes.

Keywords: Instructional Design, ADDIE Model, Arabic for Tourism, Web-based Learning, Instructional Technology.

Introduction

Nowadays, the internet has been extensively utilized in language teaching and learning due to its capabilities to provide information and opportunities for students, as well as for teachers to communicate either synchronously or asynchronously among themselves. There are numerous studies that address the benefits of using the internet, especially in language learning, and its use has become the main subject of interests among researchers, particularly in designing and developing new educational aids that cater to the learning needs of the 21th century learners. The use of computers in education process, therefore, is one of the latest educational methods that should not be ignored and must be fully utilized as a modern teaching technology.

The traditional teaching of Arabic language for specific purposes needs to be changed to the modern method, which uses Internet-based learning (Ali, 2008). The formula of learning formats and remote Internet technologies are strengthened to provide some learning materials which can facilitate the interaction of communications. Internet activities increase the strength of the motivation because the learners are involved in these attractive and fascinating activities. In addition, Internet-based technologies can provide content course and aid communication between parties (Ali, 2008).

According to Pahl (2008), the e-Learning concept is professed as the major contemporary education medium wherein it is not limited to conventional education medium practiced in schools, colleges or universities. E-Learning not only transcend time and space constraints, but also provide solutions that suit students' needs in different situations. Presently, e-Learning comes with electronic learning system commonly known as Learning Management System, Virtual Learning System or Content Management System and mobile learning. It also supports learning content and infrastructure resources. Infrastructure facilities in an e-learning system enable the learning content to be uploaded, stored, accessed and transmitted.

The Department of General Studies, MARA Poly-Tech College (KPTM), Kelantan Darul Naim offers a subject called 'Arabic for Tourism Purpose' to their students. The department believes that this crucial subject is beneficial for the students and will help them in their career. Meanwhile, in the field of teaching Arabic for Specific Purposes, particularly for tourism purpose, Samah (2007) suggested that the teaching process should be changed and transformed so that the students could be further equipped with Arabic communication skills so that they are able to cater the needs of Arab tourists. In this light, the teaching of Arabic language can no longer rely on traditional and outdated methods such as taking notes in class and lecturing, which are still practised by Arabic lecturers (Mohd Feham Ghalib & Isarji S, 2000).

Computer-based instructional aids in teaching and learning Arabic are highly impacted by various factors such as preference in using traditional and non-computer instructional aids among teachers, poor computer literacy (Ismail, 2008), poor computer skills (Ghalib, 2000) and the lack of computer training (Ashinida Aladdin, 2004). Numerous studies have attempted to explain the effectiveness of using websites as a tool in teaching and learning and found that majority of the students are satisfied with their web-based learning experience and they

could achieve comparable learning outcomes as to face-to-face instruction (Kian-Sam Hong, 2003). In addition, websites motivate students to learn Arabic language as it helps them to acquire vocabulary, improve language skills and gain information especially in a foreign environment (Mohammad Taufiq et al., 2016).

In order to implement effective learning by using website, students need to become more active and critical in developing their own skills. Moreover, choosing the appropriate instructional model is a crucial factor in order to produce an effective e-learning prototype. Thus, this paper describes the adaptation of ADDIE instructional model in designing and developing a special website for learning Arabic for Tourism Purpose.

Instructional Design and Technology

Many instructional design models (ISD) have been developed and used over the last few decades. Models differ in terms of the number of steps, the names of the steps, and the recommended sequence of functions. Gustafson and Branch's (1997) Survey of Instructional Development Models includes 18 models. Their list is not intended to be exhaustive; rather it illustrates the various ways of implementing a system approach.

Instructional design technology refers to the process and procedure to systematically develop an educational program. According to Reiser and Dempsey (2007), instructional design is a system of procedures for developing education and training programmes in a consistent and reliable fashion, while Gagné et al.(2005) define it as the process of creating an instructional system. With both systematic and scientific processes, instructional system design is documentable, replicable in its general application and leads to predictable outcomes. It also requires creativity in identifying and solving instructional problems.

There are various kinds of instructional design model such as Dick and Carey Model, ASSURE Model, ARCS Model, Kemp Design Model and ADDIE Model. In this regard, for many years now, educators, researchers and instructional designers alike have used the ADDIE instructional model in developing an instructional program or system. Many researchers employed ADDIE model in developing instructional product, course, or training (Syazwan et al., 2011; Norshahila, 2011; Sahrir, M. S. & Ghani, M. T. A., 2016; Hasbullah, 2016).

ADDIE remains one of the most popular ISD models and continues to be updated and used in many large organisations. “ADDIE” which stands for Analyze, Design, Develop, Implement, and Evaluation is a popular term used to describe a systematic approach to instructional development, hence, ADDIE does not have a strict linear progression across its steps. Each phase of the model is made up of different procedural steps. For example, analysis typically includes needs analysis, learner analysis, context analysis, and content analysis. The output of the analysis phase is learning objectives, which serves as the input to the design phase. For an expansion of basic ADDIE phases into a more detailed procedural guide, see Gagné, Wager, Golas, and Keller (2005). Figure 1 below illustrates the whole process in the ADDIE instructional design model.

The figure illustrates the phases of ADDIE process starting from analysis to the evaluation; the initial analysis is the phase where the problem is identified, defined, and solution is recommended. This phase also determines the project goal before the instructional materials are designed; then, the design phase uses the information collected from the analysis and allows for a plan and strategy to take place. The purpose of this phase is to define the information from which the instruction is developed. In the meantime, the development phase extends the analysis and design phases. During this phase, lessons plan and materials are developed and uploaded into the instructional tool. The methods of instruction, including all media which will be used are also chosen at this phase.

The implementation phase is the phase where the instruction is actually delivered to the students. In this phase, effective and efficient delivery of material must support the learning outcomes and promotes knowledge transfer. The final phase is evaluation where the efficiency, effectiveness, value and worth of instruction will be measured. Evaluation occurs during the instructional design process and the implementation phase. Formative evaluation will take place between each phase, whereas the summative evaluation will explore the effectiveness of instruction.

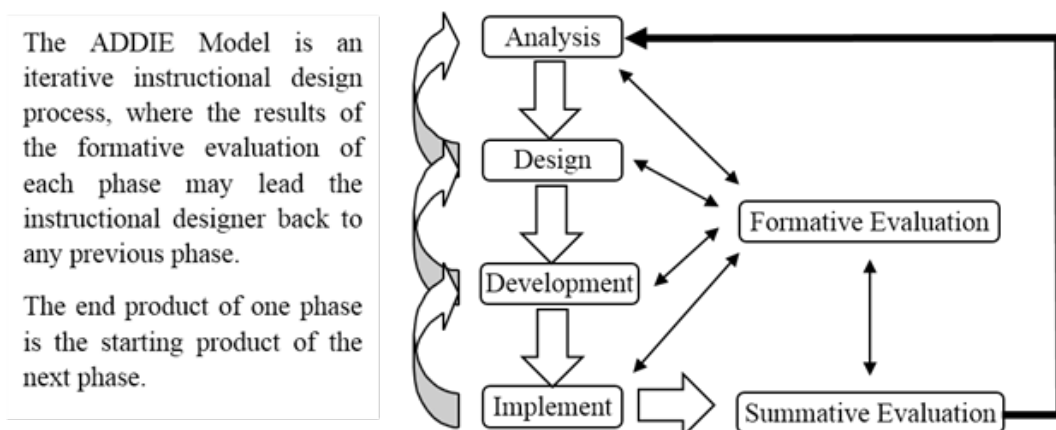


Figure 1: ADDIE Process

Formative evaluation allows the instruction to be improved and modified before the final version is implemented. A summary of tasks and outputs of each phase are tabulated in the table below.

Table 1: Stages of ADDIE Model

Stages	Sample Task	Sample Output
Analysis: The process of defining what is to be learned.	o Need assessment o Problem identification o Task analysis	o Learner profile o Description of constrain o Needs, Problem statement o Task analysis
Design: The process of specifying how it is to be learned.	o Write objectives o Develop test items o Plan instruction o Identify resources	o Measureable objective o Instructional strategy o Prototype specification
Development: The process of authoring and producing the materials.	o Work with producers	o Storyboard o Script o Exercises
Implementation: The process of installing the project in the real world context.	o Teacher training o Tryout	o Students comments, data
Evaluation: The process of determining the adequacy of the instruction.	o Record time data o Interpret test result o Survey o Revise activities	o Recommendation o Project report o Revised prototype

Web Development

Figure 2 illustrates the development process of a special website for learning Arabic language for tourism purpose which adopts Grav® CMS as a web development platform. The implementation of ADDIE instructional model consists of five phases; need analysis phase, design phase, development of the website, implementation of the sampling, and evaluation phase.

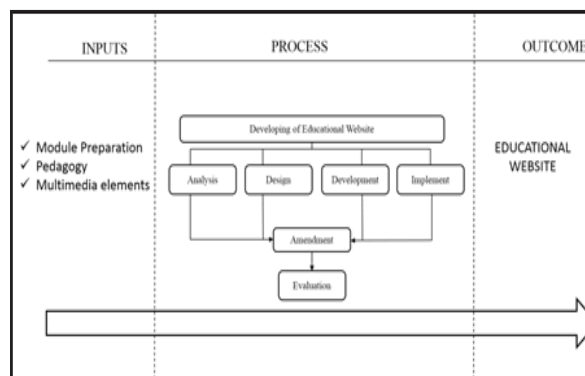


Figure 2: Design and development process

The researchers followed every phase in order to produce an effective instructional product and to achieve the desired goals. Every phase is explained in detail below:

Analysis Phase:

The designers' focuses of the design in this phase are the target users and project goals. Hence, the educators analysed four factors which are the learners, instructional goals, instructional analysis, and learning objectives.

Learners

The first factor for analysis is the learner. Here, there is a need for educators to explore students' existing knowledge about Arabic language and problem faced by students so that the educators can choose the areas that need to be focused on and the ways to overcome their problems in learning the language.

Instructional goals

Educators also need to identify the obvious goals for this product instruction. It is easier to develop a very effective instruction design when there is a clear goal. Thus, the main goal of this project is to facilitate students to learn Arabic language for tourism purpose via the website in order to motivate them to learn Arabic. In addition, this learning tool should provide them with the opportunities to practice self-learning outside classroom wall in an interesting way.

Instructional analysis.

Instructional analysis is a very hard and complicated process. After the educators have identified the goals, educators will start to plan the important steps that need to be taken to achieve the goals. Therefore, in order to transform the class environment, the educators will list down all the important things that need to be embedded in the website.

Learning objectives.

This analysis tries to ensure what students should be able to do after the instruction completes. In order to analyse the learning objective and learning outcomes, the educators refer to the course outline for Arabic subject at KPTM and follow them religiously.

In order to collect the required data above, a set of questionnaire was adopted as the research tool. Students' need analysis was carried out by distributing need analysis questionnaires among tourism students. In this light, the prior need analysis for development of the educational website involved 70 tourism students at MARA Poly-Tech College (KPTM). The need analysis questionnaire has 4 sections- Section A probes on the students' demographic information; gender, year of study, mother tongue, and Arabic language background. Topical areas were included in the questionnaire in order to generate the similarities and differences among students. Section B is related to students' needs in learning Arabic for tourism purpose, while Section C tries to collect data about the obstacles faced by students in learning Arabic. Lastly, section D probes students' suggestions and opinions on features of an effective educational website.

The table below shows the sample questions included in the need analysis questionnaires.

Table 2: Need Analysis Sample Question

Section	Question
A (Demographic background)	1) Gender 2) Year of study 3) Mother tongue 4) Arabic background
B (Students' Need)	1) Students' need 2) Language skill
C (Obstacle)	1) Learning obstacle 2) Teaching methodology
D (Opinion & suggestion)	1) Multimedia elements 2) Games activities 3) Web-based element

Design Phase:

The second phase of ADDIE model is the design phase. In this phase, the designers focused on the conceptual construction of the website particularly the website environment, what it can do and how to use it in order to fulfill the students' needs. This stage used the data collected from the analysis phase to acquire the related theories and instructional design models which explain how learning could be acquired. Three elements of design that educators should focus on are learning contents, assessments and instructional strategy including teaching methods and website design.

Learning content design.

This phase ensures that the contents are well designed to achieve the learning outcome. Based on the data collected in the analysis phase, the educators had designed learning content based on students' need as well as their opinions and suggestions. In this light, the learning content must be related to tourism field and fulfill the students' needs.

Assessment's design.

The data collected from the previous phase were used to design an effective assessment. Hence, educators must ensure that the assessment designed is strongly related to the field, content, and context. Furthermore, the assessment must be clear and easy to understand to avoid students' misunderstanding.

Designing the instructional strategy.

After determining the learning content and assessment, the educators start to design the instructional strategy by combining various methods to help students understand the topic. First, the educators determine the teaching method and class period. After that, the educators design the website by preparing flowcharts and storyboards. These two elements provide a clear picture on how the website will look like and how the website will work. The designed website has four tabs including "Home", "Lessons", "Others", and "Contact Us".

The "Home" page provides a clear picture of what the website is about by illustrating welcome picture/greeting, learning objectives, and several tourism pictures in Malaysia. Meanwhile, the "Lesson" pages provide learning materials and exercises to students. The educators also need to design learning materials that suit the students' need and ensure the materials are aligned to the tourism field before being uploaded into the website. The "Others" page provides several services in order to assist students in learning Arabic by providing electronic dictionaries, online translator services, educational games related to tourism and links to social media such as Twitter, Facebook and Instagram that provide additional information on Arabic language. The last page, "Contact Us" provides a platform for students to communicate with the teachers even after class sessions.

Development Phase:

The development phase involves producing and testing the methodology used in the project. This stage is conducted based on the data collected from two previous phases. The developers will start the development of the website by considering the hardware and software requirement required for development. Here, the Grav® CMS as a website platform development will be chosen due to its incredible and mature system which allows faster and easy website building and it allows non-tech savvy people to run its great platform without needing any technical support. The table below presents the software needed in developing this educational website.

Table 3: Software Required in Website Development

Software	Purpose
Grav® CMS	Platform for website development.
Adobe Photoshop	Image editing software.
Pdf Converter	Converting text.
Audacity	Record audio/ sound.
Window Movie Maker	Video editing.

After the completion of website development, experts in Computer Assisted Instruction and Arabic as a Second Language will be asked to conduct a full review of the website. They will test the website and provide their opinions and suggestions in order to improve the website before it is used on tourism students. Prior to the implementation phase, the website might be upgraded, modified and improved in terms of learning contents and web instructions.

Implementation Phase:

The implementation phase will then put into action among the target students. This phase involves delivering and distributing the materials to the target students who are KTPM tourism students who registered for the Arabic for Tourism Purpose subject (HFA1023). The total of students who will participate in the implementation phase is 40 students. A computer

laboratory with the facilities of computers and internet connection will be used to implement the educational website in language learning. This phase allows all materials to be tested to identify if they are well-functioning and appropriate for the intended audience (Reiser & Dempsey, 2007).

Evaluation Phase:

The last phase of the ADDIE method is evaluation. This phase ensures that the website designed could achieve the desired goals. Evaluation will be done throughout the implementation phase with the aid of the teachers who will administer the evaluation survey among 40 tourism students. This process is carried out to measure the effectiveness of the website in helping the students to learn the language, as well as for instructional improvement. The evaluation items are tabulated in the table below.

Table 4:

Evaluation Items Section	Evaluation item
A (Demographic background)	1) Gender 2) Year of study 3) Mother tongue 4) Arabic background
B (Features and performance)	1) Multimedia elements 2) Usability 3) Main interface
C (Content delivery)	1) Relevancy 2) Supporting materials 3) Language used

Prototype Outcome

The prototype used Grav® CMS as a platform for web development. This prototype is complemented by several components to facilitate students in Arabic language learning process. The materials presented in the prototype are from the text book used by students at KPTM and open sources such as dictionaries, YouTube, websites and others. There are several main components in the prototype and the details

Home Page

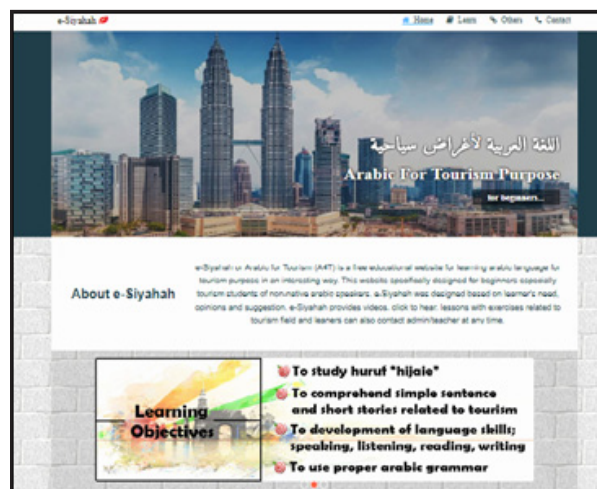


Figure 3: Home Page

The home page gives a clear overall picture of the website. There are four tabs on the top and a header written “Arabic for tourism purpose for beginners” on the homepage. Learning objectives are presented on the home page to inform the students of what they are going to learn in the website. Besides, several tourism pictures are added on the home page in order to attract students’ interest in learning Arabic for Tourism Purpose.

Lessons

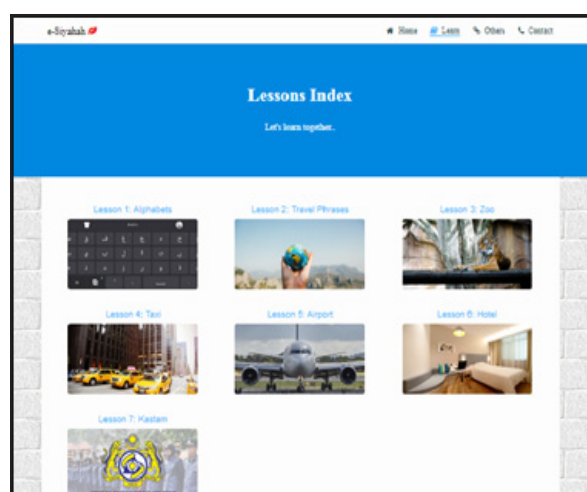


Figure 4: Lessons

The second component is “Lesson”. This is the most crucial component where the learning materials are placed. The website prototype has seven lessons which contains video, learning aid and grammar. Every lesson begins with a short video which acts as an induction before the learning process. The purpose of the video is to attract student attention and give a clear picture what they are going to learn. Some videos were created by researchers while some are downloaded from YouTube. The learning aid comes in the form of conversation and passage. The list of words is provided in each lesson for the purpose of vocabulary acquisition. At the end of the lesson, student will have some interactive exercises in the form of multiple choice questions. Immediate respond are provided for each question. Rewards and penalties are also given for every question.

Others

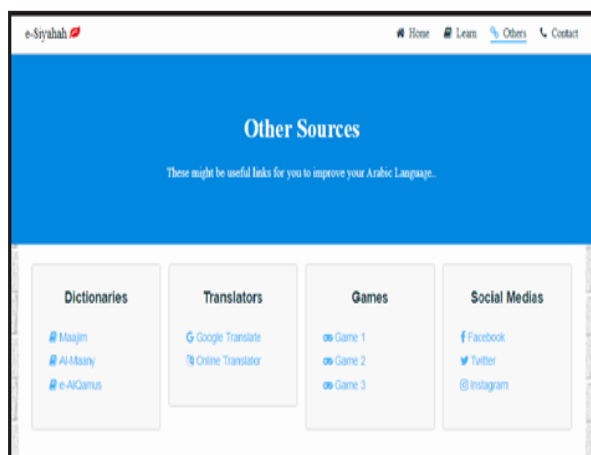


Figure 5: Other Sources

The third component is “Others”. This component provides extra activities to assist student in the learning process. The link of online Arabic dictionaries such as “Maajim” and “Al Maani” are provided to ease student in getting the meaning. Besides, links of online translator are such as “Google Translate” and “Free Translation” to help students with their Arabic pronunciation. Vocabulary games are also included to enhance students’ vocabulary acquisition. Links for social media such as Facebook, Instagram and Twitter can also be

found on the website as they can help students to look for additional information regarding Arabic language. The purpose of these educational games is to develop fun and interactive environment in language learning.

Contact

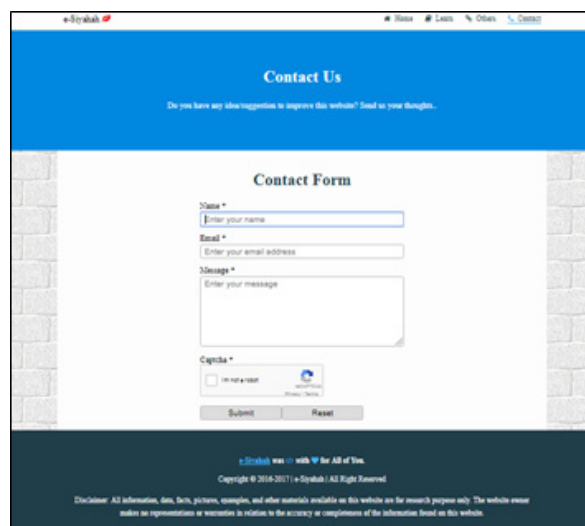


Figure 6: Contact

The last component is “Contact Us”. This component provides opportunities for students and other users to give comments, suggestions and feedbacks on the website for improvement. Besides, this component also enables students to communicate and receive responds from the teachers. The contact form is complemented with Completely Automated Public Turing test to tell Computers and Humans Apart (CAPTCHA) to make sure the user is human.

Conclusion

An effective instruction must be well structured, filled with appropriate and innovative learning materials. The use of ADDIE instructional model presented in this paper is one of the ways to achieve an effective instruction. The website development follows every phase of the ADDIE model in order to produce an effective and efficient instructional tool for language learning which can give positive impact to students’ academic achievement. Therefore, adopting an appropriate instructional model

is a must because it is a systematic process in developing proper instructional materials for an effective education and training program.

ADDIE is a non-linear instructional process where the result of the formative evaluation of each phase may lead the instructional designer back to any previous phase. In other words, the instructional designer can come back to previous phases to validate the work. It provides a great flexibility and instructional designer can do any possible activities in every phase.

The theoretical contribution of this study can be concluded in the adaptation of ADDIE instructional design model in developing e-learning courses. Every stage and process are explained in detail and can be adapted by future researchers. Therefore, the researchers suggest to implement ADDIE model as a tool or framework in designing and developing e-learning courses as well as educational program.

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