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## Personalized Learning Environment: Alpha Testing, Beta Testing & User Acceptance Test

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### Abstract

With the evolution of computer technology, learning science can be improved with the help of multimedia tools in order to attract their attention and interest. Personalized Learning Environment for Nutrition (PLENut) is a multimedia prototype which is to increase student performance in learning Science subject using Personalized Learning Environment (PLE) approach. Unlike other form of conventional application which is using traditional methods, PLENut applied high quality, effective teaching and learning process. This paper reports the findings of Alpha, Beta Testing and User Acceptance Test. The results revealed the feedback from users about the development of prototype. In this study, the development process of the environment is examined according to the Analyze, Design, Development, Implementation, Evaluation (ADDIE) model. In order to evaluate the application, it goes through a series of testing which are Alpha Testing, Beta Testing and User Acceptance Test. The study also can provide useful information for improving the quality of the teaching and learning experiences using PLE approach.

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*Keywords:* ADDIE; e-Learning; multimedia; personalized; learning environment

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### 1. Introduction

Nowadays students prefer more customizable and interactive systems for their learning. According to McLoughlin and Lee (2010), digital-age students want an active learning experience that is social, participatory and

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supported by rich media. In today's highly technologically-advanced society, students are expected to acquire, if they don't already possess, the skills and abilities to effectively use software. Today's younger generation, they are being called, have been taught how to use computers and various computer programs both at home and in their elementary and secondary institutions. Unfortunately, this is not the case for older adults who are now coming back to higher education, either to pursue their first degree or to return for continuing education opportunities. The use of information and communications technology (ICT) is one of the ways to encourage the process of learning, to support communication in learning settings, assess learning activities, manage resources and to create educational materials (Che Ku Nuraini et al., 2014). During the process of learning, students communicate, negotiate and talk each other to share their achievements (Jianhui Shi & Lihua Liu, 2013).

## **2. Literature Review**

Personalized Learning Environment (PLE) is being created as a means for individuals to control their own learning.

The teacher, the school, and textbook companies can individualize instruction for the different types of learners (Che Ku Nuraini et al., 2014). PLEs appeared as a new construct in the e-learning literature which finds its support on social media and steadily gains ground in the e-learning field as an effective platform for student learning (Dabbagh & Kitsantas, 2012). PLEs need on the one hand to focus on technical issues, regarding information exchange between services and user interface problems (Ullrich et al., 2010). The online environment is one application that has been important for the development of connectivism. According to Baxi (2010), the learning process or pedagogy used in PLEs, with its emphasis on network formation, reflection, openness, connectedness and other ideas, reflect the principles of connectivism. As a result of these ideas, PLE is based on a connectivism and design with connectivist principles. In opposition to obsolete learning theories and concepts, modern and learner centered concepts and approaches such as Personalized Learning Environments (PLE) and connectivism have emerged (Mehmet & Hakkan, 2013).

By integrating the principles of personalized learning with the tools of technology, some educators argue that they can create the kind of customized learning environment that has the potential for breaking schools out of the industrial-age model of education and bring about true 21st century school reform (Demski, 2012). One of the powerful concepts of a PLE is the ability to aggregate resources. PLEs helps bring resources to a learner; these resources may be people, documents, or other learning tools (van Harmelen, 2008).

Indeed, traditional learning based on "one size fits all" approach, tends to support only one educational model, because in a typical classroom situation, a teacher often has to deal with several students at the same time (Bachari E et al., 2011). According to Chieu (2007) and Meccawy M et al., (2007), learning environments must be flexible enough to support platform dependencies, which can lead to different institutions to use learning materials from other on-line sources.

## **3. Methodology**

### *3.1. Prototype Development*

The methodology used to develop a prototype is ADDIE model. Its name is an acronym of the capital letters of the words: Analyze, Design, Develop, Implement, and Evaluate which comprise the five steps as follows (McGriff, 2000; Kaminski, 2007). ADDIE model has five phases systematic model used to create sound instructional products for a variety setting. In each phase, the instructional designer makes the decisions that are critical for ensuring the effectiveness of the instructional experience (Che Ku Nuraini et al., 2014). Completing each phase satisfactorily increases the chance for the information to be presented timely which remains relevant to the needs of the audience. Each phase of the model has an important element of constructing the instructional design process. In each phase, the instructional designer makes the decisions that are critical for ensuring the effectiveness of the instructional

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