

13<sup>th</sup> International Educational Technology Conference

## Integrating Project Based Learning Environment into the Design and Development of Mobile Apps for Learning 2D-Animation

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### Abstract

A widespread use of mobile devices such as smartphones, iPad, and Android tablet were known as rapidly growing trends among students in higher education. With thousands of applications or apps that are available via Apps Store and Google Play market, there are wide variety of applications or apps that meeting the vast needs among learners nowadays. Yet, it is quite a challenge for instructional designer to adapt with specific instructional learning setting in the design and development of mobile apps. This article focuses on integrating project-based learning environment into the design process and development of mobile apps for learning 2D-animation.

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Selection and peer-review under responsibility of The Association of Science, Education and Technology-TASET, Sakarya Universitesi, Turkey.

*Keywords:* Mobile learning; project based learning; instructional system design ; R2D2 model

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### 1. Background of Study

With the abundant of apps in the App stores and Google Play, the effectiveness of those apps towards students' learning is questionable since learning is closely related to the instructional design of learning materials. It marks the importance for instructional designer to begin with well-structured learning materials by incorporating the learning objectives and teaching strategies as suggested previously by Moore and Kearsley (1996). This paper focuses in integrating project based learning environment into the design and development of mobile apps for learning 2D animation. We believe that, mobile apps that promote learning in the current market are highly

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beneficial to the students. It support self-paced learning environment where students could learn anywhere and at anytime according to their own preferences. In this paper, the apps are mainly developed for masters' students who are enrolled in Educational Technology programme in one of the university in Southern Peninsular of Malaysia. Students in the programme are required to complete one subject that will be exposed them with knowledge and skills in developing 2D-animation or multimedia applications using Adobe Flash software.

On the other hand, we are also aware that integrating project based learning environment means to offer authentic learning experience among students in which it proposes students to learn by taking part on every project or tasks provided. Besides, as nature of most authoring-based subject, it highly requires students to participate and involved in 'hands-on' activities as this subject require them to establish their technical skills rather than on theory basis.

### *1.1. Project based learning environment*

Project based learning involved authentic learning environment (Eskrootchi & Oskrochi, 2010) that enables learners to construct knowledge in authentic context (Papanikolou & Boubouka, 2010). Such learning environment is highly believed to be the best approach that could facilitate learners to have full control throughout their learning process. It requires students to complete certain tasks and exposed them to investigate possible ways to complete the task (Kwok & Tan, 2004). From such experience, students are able to generate their own thinking skills and make them realize that there are few alternative ways to solve a problem. Present study incorporated project based learning environment in the design and development of mobile apps for students whereby the apps act as an educational tool that reflects task based on project. The apps consist of step-by-step video tutorial of practical and technical skills in developing 2D animation with Adobe Flash software. Project-based learning is actually reflects the Theory of Constructivism by John Dewey (1916). It explains how learners construct knowledge by getting involved in the process of learning and experience it at the first place.

### *1.2. Mobile apps for learning*

The use of mobile devices has transformed the way people communicate, access, and giving information (Bolorizadeh, Brannen, Gibbs & Mack, 2012). The rapid developments of apps have shifted the way information delivered especially in educational field to adapt with the current technology and to be used in teaching and learning. Interestingly, one study reported that student preferred to use mobile devices as technology supported educational tool because it is more accessible, more portable and newer technology (Sung & Mayer, 2012). Undoubtedly, there are numbers of apps that have been developed as a technology tool to support learning nowadays. Present report by NMC Horizon stated that mobile apps are the fastest growing trends in mobile technology in higher education (Johnson, Adams & Cummins, 2012).

## **2. Design and Development of Mobile Apps**

Mobile apps for learning 2D animation is a mobile tutoring apps that provide users with information, interactive examples and step-by-step self designed video tutorial that will assist students on creating and developing 2D animation tools and creating multimedia courseware applications with Adobe Flash software. In this study, we plan to develop four apps that assist students in learning. The apps are mainly developed for Master's students who were enroll in Educational Technology programme in which most of them are teachers and part-time students. They are expecting such mobile apps in which they can have access anywhere and at anytime.

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