

Smartphone as an Instructional Media in Teaching Soccer

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Keywords: Instructional Media, Smartphone, Soccer Skills.

Abstract: The purpose of this study was to find out the effectiveness of using smartphone-based instructional media in teaching soccer in the physical education classroom. Method: The participants involved in this study were 40 students, consisting of 20 male students and 20 female students. The soccer skills were measured using GPAI. The obtained data were analysed using a two-way ANOVA. Results: The smartphone-based instructional media significantly improved students' soccer skills. The influence of smartphone-based instructional media on both male and female students' soccer skills was significantly different from that of books. Discussion/Conclusion: The results of the study revealed that the smartphone-based instructional media influenced students' soccer skills. The influence was mostly seen with the female students.

1 INTRODUCTION

Smartphones are being massively worldwide adopted. The adoption in education is seen that there is a diversity of implementations with various outcomes. Specifically, unlimited learning is the key to a broad pedagogical approach in mobile learning design. (Koh et al., 2013). To help learning process such as finding the source of literacy in the library, and to learn, smartphone is considered very useful for their academic work. They use smartphones to access course material, search library catalogues, discuss tasks with peers, make notes' (Chiu and Lo, 2015).

The media of library catalogue usage is replaced by Google Book. (Grosch 2013). On the smartphone use to learn is revealed that smartphones are used extensively by all students. Kim et al. (2013) said that students have a broad definition of how they use their smartphones to learn (Kim et al., 2013) Juraman and Stefanus (2014). Most interestingly, heavy users of smartphones are not typically the ones that are the most intensive user applications that most students agree that the most useful of smartphone is for learning (Kim et al., 2013). M-learning can be one of the promising pedagogical technologies to be used in higher level of education (Al-emran et al., 2015).

The use of smartphones for the assessment process of learning is also considered that they will have more benefits, (Huang and Chiu, 2015). The declining in stationary computing is going on (ownership of desktop computers and stationary

internet connections), accompanied by increased mobile computing (ownership of mobile internet connections, smartphones, tablet computers, notebooks and netbooks). Online availability all over the place will be the scenario of the future (Grosch 2013)

There is a continuous shift from printed media to electronic text that first begins with scientific journals and then moves to all relevant areas (textbooks, classroom materials) (Grosch 2013). Previous research, indicating that mobile device ownership is high and continues to increase among students. However, the potential of mobile learning is not yet fully realized. our results show that students and instructors need technical, logistical, and pedagogical support to integrate mobile devices and applications (Chen et al., 2015).

At the senior high school level on Physical Education subjects, soccer is one of the compulsory subjects that belong to the big ball game. From the experience of the author as a teacher and information from fellow teachers of physical education in school, it seems that students still have low ability about soccer material that is the basic skills that impact on their playing skills. Another factor of grave concern for teachers is the motor development of gender differences in physical education learning, often a barrier to the learning process associated with students' assumptions for soccer learning materials, stereotypically that soccer is only for male students.

Furthermore, learning that has been done is still using the book media as a means of delivering learning materials so that the material presented is less interesting, so the understanding of the content of the material and the learning objectives is not achieved. While among students, many of them use smartphones, but only as a means of communication and as a social media. For that, researchers want to use the smartphone as media on learning soccer game, whether or not it improves the learning outcomes of soccer games on high school students?

2 MANUSCRIPT PREPARATION

2.1 Design and Participants

This is a 2 x 2 factorial design research, conducted with 40 participants from two study groups (one study group consists of 10 students and 10 female students in the study group with smartphone media, one group studying consist of 10 students and 10 female students studying with book media. this has been approved by headmaster of the study site.

2.2 Measurement

To measure the skills of playing soccer using The Game Performance Assessment Instrument (GPAI) (Oslin et al., 1998) that has been judged as a valid and reliable instrument for measuring the skills of playing soccer (Oslin et al., 1998). Measurements are conducted before and after treatment.

2.3 Treatment

The experimental group treatment is learning by smartphone media, while in the control class is given learning media book. This treatment was administered three times per week in the experimental and control groups. the learning was conducted by scientific approach as many as 12 times meeting. In the experimental class, there will be shared material and video by using WhatsApp application in a chat group. learning materials can be in format of pdf, power point, doc Ms-Word, images and video. Video is sent to the chat group at the beginning of each new material in MP4 340p format.

2.4 Physical Education Learning

A teacher who has been certified and experienced for 12 years as a teacher is hired in this research. Each lesson lasts 90 minutes, with a preliminary 15

minutes, 60 minutes' core and 15 minutes cover. The 60-minute lesson focus was a basic skill of playing soccer (accepting and controlling the ball, passing, driving, and kicking to the goal and playing soccer). With the scientific approach done with 5 stages as follows:

2.4.1 Observing

Read and observe the material (control class of the book) and videos from smartphones (experiment class) that teachers have shared with the chat group of each student smartphone.

2.4.2 Asking

Alternately ask each other about learning materials.

2.4.3 Exploration

Students perform skills that become material in accordance with the pattern of activities that have been made by teachers.

2.4.4 Associating

Compare the observations (control class) of soccer videos (from the smartphone in the experimental class) with the basic gestures performed.

2.4.5 Communicate

Students perform the game according to the material learned at the meeting.

2.5 Data analysis

The average score of each participant's soccer skills is calculated using two-way ANOVA (learning media and gender). If the main effect is significant there is an interaction, then proceed with the Tukey Test.

3 RESULTS AND DISCUSSION

Two-way ANOVA results indicate that there was an interaction. The value of F table at $\alpha = 0.05$ is obtained by 4.11. Value $F_h = 7.53 > 4.11 (F_t)$, or There is a difference in the influence between the learning media smartphone and media learning books on the skills of playing soccer. The Q value of the table at $\alpha = 0.05$ is obtained at 3.15. $Q_h = 1.25 < 3.15 (Q_t)$, or there is no difference in the influence between the learning media of the smartphone and the learning media of the book on the skills of playing soccer in

terms of male students. The Q value of the table at $\alpha = 0.05$ is obtained at 3.15. $Q_h = 18.59 > 3.15 (Q_t)$, or there is a difference of influence between the learning media of the smartphone and the learning media of the book on the skills of playing soccer in terms of female students. The value of F table at $\alpha = 0.05$ is obtained by 4.11. Value $F_h = 9.91 > 2.87 (F_t)$, or there is an interaction between learning media and gender to soccer playing skills: Description of soccer skills play data can see in table 1.

Table 1: Description of Soccer Skills Play Data.

Respondents	Learning Media		Total
	Smartphone	Book	
Male	N = 10	10	20
	M = 2.65	2.74	2.69
	$\Sigma X = 26.53$	27.35	53.89
Female	N = 10	10	20
	M = 2.38	1.18	1.78
	$\Sigma X = 23.76$	11.84	35.6
Total	N = 20	20	40
	M = 2.51	1.96	2.24
	$\Sigma X = 50.3$	39.19	89.49

Smartphones are an exciting technology for classroom use and sourcing for services, and smartphones to motivate students to learn, as well as smartphones as a tool for collaborative learning, (Odom, 2016).

In male students there is no difference of influence between learning media of smartphone and media of learning book to skill of playing soccer. Male group tends to spend less time to use a smartphone. Male group can only spend 43 minutes per day, while women spend 140 minutes a day (Nielsen On Device Meter 2014 in Gifany and Kurnia, 2017). Further research results show that female groups are more dependent on smartphones than men (Chóliz, 2012). The frequency and duration of smartphone usage is lower than female (Son, 2014). male students have smartphone addiction on low category (Bernard, 2016). There are some obstacles in using a smartphone as a medium of learning such as a small screen (El-Hussein and Cronje, 2010). Hashemi et al. (2011) also stated that the software limits the type and amount of information displayed, and this triggers the redesign of old text presentations (El-Hussein and Cronje, 2010). Another obstacle is cost, which Wilson and Bollinger (2013) point out that although mobile device costs have declined in recent years, data service plans may still be too expensive for some students. There are other limitations in the use of mobile devices in teaching, including short battery life (Hashemi et al., 2011; Wang et al., 2009; Wilson

and Bollinger, 2013), discrepancies for graphics (Hashemi et al., 2011), dependence weight on bandwidth (Hashemi et al., 2011), possible transaction error (Wang et al., 2009), limited input capabilities (Wang et al., 2009), etc. In addition, the user's psychological perspective is also a factor, as some people prefer using mobile devices for casual activities such as texting friends and accessing social networking services rather than using them for academic work (Park, 2011; Wang et al., 2009)

Furthermore, between learning media and gender on soccer playing skills also proved significant, as both treatments showed different improvements in learning outcomes. In the group of male students, the book approach showed better results, while the female student group who used smartphones as a learning media showed higher results than the book media learning. There is a picture of the interaction between instructional media (learning media of smartphones and books) with gender (male and female).

4 LIMITATION

The main limitations of this study include small sample sizes and some male students doing soccer exercises beyond treatment activities for this study.

5 CONCLUSIONS

This study provides evidence that there is a difference in the effect of learning on smartphone media and instructional media at high school level that determines effective ways to maximize the use of smartphone learning media in female students. The focus of further research is on the barriers of learning media smartphone to male students.

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