

Digital Material Teaching: Learning Model and Learning Outcomes of Basketball

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Abstract : The purpose of the study was to investigate the difference between the influence of the digital learning material-based personalized system of instruction (PSI) model and the YouTube video-based scientific model. The study employed an experimental method with a pre-test post-test control group design. Samples were 160 students of Junior High School Cimahi divided into 2 groups, 80 students chosen into experimental class, and 80 others were included into the control group. The research instrument used in the study to measure the outcomes of learning about basketball was a test of basic movement skills in basketball (ITKGD BB). Data collected in the study were analyzed using independent T-test analysis to investigate the difference of the influences of the two different models on the learning results of basketball. The findings show that the average score of the PSI group was 30.25 while the average score of the group treated using the scientific model was 23.37, the t count =11.696, and the significance level was at $0.00 < 0.005$ (significant). Thus it can be concluded that there is a difference in the influence of the digital learning material-based personalized system of instruction (PSI) model and the YouTube video-based scientific model on the learning outcomes of basketball.

Keywords: Digital Learning material, learning mode, learning results, basketball, physical education

INTRODUCTION:

The shift of the traditional era to the modern era at the end demands big changes in all human aspects including economic and education as technology has become a primary need that cannot be separated from human lives (Nur, Suherman, & Subarjah, 2019). The presence of technology in education word proves that education nowadays is experiencing significant changes as various kinds of technology have been applied by teachers to support the learning process to implement the curriculum in the era of technology (Nancy Wentworth, 2008). One of the lessons experiences the impact of the application of technology as teaching media is the Physical Education, Sports, and

Health in many countries including Indonesia (Julia Sargent, 2017; Juniu, 2011; Casey, Goodyear, & Armour, 2017; Aji Setyawan, 2016; Daryanto Setiawan, 2017; Tearle & Golder, 2008; Scroll & For, 2012; Lambert, 2016; Juditya S, Suherman A, Ma'mun A, & Rusdiana A, 2019). Many media of technology can be utilized in the subject of Physical Education, Sports, and Health like digital video (Weir & Connor, 2009; Koekoek, Van Der Mars, Van Der Kamp, Walinga, & Van Hilvoorde, 2018); web (Neal, 2000); video games (Jenny, Schary, Noble, & Hamill, 2017); YouTube video (Berk, 2009; El-Moneim, 2014); and digital learning media (Juditya et al., 2019). The use of various media of technology in learning Physical Education, Sports, and Health principally aims to ease students in learning the subject so that they can be more motivated and care to learn and practice some movements anytime and anywhere (Bailey et al., 2009; Kirk, 2005; Suherman, 2015).

Optimizing the use of technology-based media in teaching Physical Education, Sports, and Health will not bring effective impact without the companionship from the learning model that can support the implementation (Juditya et al., 2019; Servilio, Hollingshead, & Hott, 2017). Many learning models can be used to support the implementation of technology-based media like the *personalized system of instruction (PSI)* (Hannon, Holt, & Hatten, 2008; zakaria D A; Septiana R A; Dedi K, 2018; Juditya S, 2018). The model has been recognized as an innovative learning model (Kalaivani, Sc, Ed, Phil, & Ph, 2014) as it can increase the students' motivation to learn (Ginanjar; a, 2018), and students' satisfaction in learning movement (Hannon et al., 2008) and it is far better than other learning models that also implement technology-based learning (Jumpeter j, 2014); (Drake, 1988).

Many technology-based learning media are implemented together with the *personalized system of instruction (psi)* learning model like web-based media (Rae & Samuels, 2011) ; computer (Brothen & Wambach, 2000). Besides that, technology-based psi model has been widely implemented in many learning materials taught at school like the materials of physical fitness (Colquitt, Pritchard, & Mccollum, 2011). However, so far, there have not been any implementation of the psi model at Physical Education, Sports, and Health especially in the material of basic movement in Basketball applying technology-based learning media in the form of (*digital teaching material*) "pojok" installed in the smartphone. Related to that, the purpose of the study is to implement the digital learning media-based psi model focusing on the improvement of learning outcomes of basketball.

METHOD

The study employed an experimental method because principally, the study aimed to investigate the influence of the implementation of a learning model on the learning outcomes of basketball. The research design was the pretest posttest control group. The study involved 160 students as research samples. The research instrument was the test of basic movements in

Basketball (ITKG PBB). While the data were analyzed using an independent t-test

RESULTS AND DISCUSSION

Results

Table 1. Means Score and Standard Deviation

Descriptive statistics				
	N	Mean	Std. Deviation	Variance
Psi	80	30.2500	2.88492	8.323
Scientific	80	23.3750	4.39541	19.320
Valid n (listwise)	80			

Based on the table above, the average score obtained by the experimental group (psi model) was 30.25 and the variance was 8,32. While the control class (scientific model) got the means score of 23,37, standard deviation of 4,39, and variance = 19,32.

Table 2. Test of Hypothesis

Variables	t-count	Asymp.(sign. 2-tailed)	Annotation
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Influence of digital learning media-based psi learning model and YouTube video-based scientific model on the learning outcomes of basketball material.	11.69	0.00	Significant
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As per the table, the t count = 11.69 with the sig. of $0,00 < 0,05$ meaning that both models influence the learning outcomes of basketball. Based on the average score group applying the psi model (30.25) which was bigger than the average score of the group applying the scientific model (23.37), the former group is more influential on the learning outcomes of basketball than the group employing the scientific model.

Research finding The research results are presented in full and in accordance with the scope of the study. The results of the research can be completed with tables, graphs (images), and/or charts. Tables and figures are numbered and titled. The results of the data analysis were interpreted correctly

The purpose of the Results and Discussion is to state your findings and make a interpretations and/or opinions, explain the implications of your findings, and make suggestions for future research. Its main function is to answer the questions posed in the Introduction, explain how the results support the answers and, how the answers fit in with existing knowledge on the topic. The Discussion is considered the heart of the paper and usually requires several writing attempts.

Discussion

The findings of the study indicate that the digital learning material-based psi model has more significant influence than the YouTube video-based scientific model. It is in line with some earlier studies (Juditya, 2018; Ginanjar; A, 2018; Sobarna, 2016; Zakaria Dhani A; Septiana Rama A; Dedi K, 2018; Prewitt et al., 2015; Hannon et al., 2008; Praja, 2017). Also, this study confirms (Joseph Jumpeter, 2014) stating that the psi model is regarded as more effective compared to other learning models which can also increase the learning outcomes. (Colquitt et al., 2011) argued that the psi model is one of the innovations of learning model that can be applied and can improve students' ability in

learning movement, besides that (Kalaivani et al., 2014) stated that psi learning model is effective to be applied in the learning activities and it is believed as one of the learning innovations and can facilitate each of students' characteristic (Roberts, Meier, Santogrossi, & Moore, 1978), Besides that, the model with the individual approach is a learning model that can be considered as the basic paradigm for long-distance learning (Trilling & Fadel, 2009).

In applying psi mode, many technology-based media can be used to support it like a computer (Springer & Pear, 2008; Pear & Novak, 1996); web (Sciamanna, Harrold, Manocchia, Walker, & Mui, 2005; Rae & Samuels, 2011); and digital module (zakaria dhani a; septiana rama a; dedi k, 2018). Psi model has been also used in many subjects like writing (Allen, 1984); fitness (Hannon et al., 2008; Colquitt et al., 2011); and movements in archery (Davis, Hersh, & Nevitt, 1976). The current study focused on the implementation of an application based psi model installed in a smartphone, considering that many smartphone users in Indonesia are students (titting, fellyson, hidayah, taufik, pramono, 2016) and smartphone is believed effective and efficient used for learning media (marvin, 2018).

The implementation of the application-based psi model on junior high school students can contribute to the improvement of students' learning outcomes especially in learning movements in the technology era compared to learning implementing the scientific model. However the implementation of the model still had some limitations like it was only trialed at one school and one region, because the policy of many schools does not allow the use of smartphones during learning.

CONCLUSIONS AND SUGGESTIONS

Based on the analysis and discussion above, it is concluded that there is a difference in the influence of the digital learning

material-based personalized system of instruction (PSI) model and the YouTube video-based scientific model on the learning outcomes of basketball.

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