

## Conference Paper

# Analysis of Utilization of Gadgets as Effective Learning Media in Innovation Education to Improve Student Learning Achievement

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## Abstract

Innovation in the world of education requires that learning be more meaningful and quality. It also aims to direct according to the needs of the rolling and the beat of the times. Technological progress has become one of the main triggers that are innovations used in the world of education, one of which is using technology tools such as gadget. An educator using various technologies in the process of teaching and learning activities that are useful to enhance the effectiveness of teaching and learning in the classroom. Utilization of gadgets in learning at school plays an important role as a source of learning and support the process of learning to be comfortable, so that the creation of learning process that is effective and efficient to improve student learning outcomes. This study aims to examine the utilization of gadgets as effective learning media in innovation education to improve student learning achievements for students of Grade VIII students of Junior High Schools in Yogyakarta City.

**Keywords:** Education, Innovation, Android, Effective Learning.

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## 1. Introduction

Education is a learning process to develop the potential of each individual and create quality human resources. Therefore education is important to be carried out as well as possible, so that it is in accordance with the objectives. Educational goals have been stated in the opening of the 1945 Constitution which reads "educating the lives of the nation and participating in carrying out world order". The development of science and technology has an impact on rapid progress in the world of education.

Considering, the importance of education, the government strives to improve the education system by recovering of the existing curriculum. The curriculum that has been implemented is the curriculum in 2013, which is intended to improve and develop the existing education. The growth of education is expected to the implementation of the learning process to be more creative and innovative through learning strategies

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and employ the developments of technology in learning process in order to make the students to be active in the learning process. Thus, the role of teacher has shifted from the only source of knowledge in the classroom to be a facilitator for students in the classroom. The development of technology should be utilized as well as possible, in which the students can learn not only depend on the source of the book, but can use the internet services and electronic books that can be accessed freely without limit of time and space. It is supporting the effectiveness and efficiency of the learning process. The development of technology which is currently being global is a Smartphone technology.

The technology of education includes two forms; they are software and hardware technology. According to (Cahyadi, 2014: 12) Smartphone is a set of technological tools that have major applications required in the needs of life, the Smartphone has incredible capacity, using mobile phone. One of the capacities is able to operate like computer, and ease the users to bring it everywhere". Meanwhile, according to Backer (2010: 21) revealed that: smartphone is a phone that brings leading capabilities; as a form of the capacity of the Wireless Mobile Device (WMD) that can function as a computer by offering features such as personal digital assistants (PDAs), internet access, email, and Global Positioning System (GPS), so it makes the users easier to find the data or needs.

The use of Smartphone originate used by businessmen and young executives, but nowadays almost of societies have been using Smartphone, in accordance with the facts and the data are loaded in Antara news (August 4, 2014), that in 2013 Indonesia is as the largest Smartphone market in southeast Asia with total sales up to 14.8 million units or at 3.33 billion dollars or equivalent of 39.4 trillion. Meanwhile, according to the research international data corporation is an international research institute, that the growth of Smartphone sales in Indonesia grew 18% than the previous year, it happened because the price of the Smartphone is relatively achievable for everyone so it is not surprising that students also do not want to miss the Smartphone trend, for instance the students at SMPN in Yogyakarta City.

## 2. Literature Review

### 2.1. Educational innovation

To innovate is to look beyond what we are currently doing and develop a novel idea that helps us to do our job in a new way. The purpose of any invention, therefore, is to create something different from what we have been doing, be it in quality or quantity or both. To produce a considerable, transformative effect, the innovation must be put

to work, which requires prompt diffusion and large-scale implementation. Innovation is generally understood as "...the successful introduction of a new thing or method" (Brewer & Tierney, 2012: 15). In essence, "...innovation seems to have two subcomponents. First, there is the idea or item which is novel to a particular individual or group and, second, there is the change which results from the adoption of the object or idea" (Evans, 1970: 16).

Thus, innovation requires three major steps: an idea, its implementation, and the outcome that results from the execution of the idea and produces a change. In education, innovation can appear as a new pedagogic theory, methodological approach, teaching technique, instructional tool, learning process, or institutional structure that, when implemented, produces a significant change in teaching and learning, which leads to better student learning. So, innovations in education are intended to raise productivity and efficiency of learning and/or improve learning quality.

## 2.2. Efektif learning

Learning is a process of interaction between students and educators and learning resources in a learning environment. In the learning process, students are seen as individuals who are unique and different from one another to have different abilities such as academic abilities, interests, and background (Palennari, 2011). While the notion of learning according to James O. Wittaker, learning can be defined as a process where behavior is generated or changed through practice or experience and according to Kingsley (1957) learning is a process by which behavior (in the broad sense) is generated or changed through practice and practice. Whereas according to Cronbach (1996) effective learning is through experience.

Effective means that it reaches the target set in the plan. So effective learning can also be seen in terms of processes and results. In terms of the process, learning is considered effective if students are actively involved in carrying out the stages of the learning procedure. In terms of results, it is considered effective if the learning objectives are mastered by students thoroughly.

## 2.3. Utilization of Gadgets as learning resources

Globalization has changed our lives from the era of communicating with pen and paper which takes days before information could get to the destination and one of the ways in which it changed our lives, is how we communicate effectively through advancements

in Information and Communication Technologies (ICT). According to Ling (2004), mobile phones have become an almost essential part of daily life since their rapid growth in popularity in the late 1990's. According to Haruna et al., (2016), mobile phones are the most necessary medium of communication for adolescents. It has virtually affected the society's accessibility, security, safety and coordination of business and social activities and has hence become a part of a culture of the whole world. Ling (2004), states that traditional agents of socialization are families and schools.

There are various educational benefits of mobile phone technologies that are most often cited as; easily accessing content, integrating a broad range of educational activities, supporting independent study and student organization, encouraging student enthusiasm, supporting classroom-based collaboration and interaction as well as supporting inquiry-based instruction and learning (Roschelle, 2003). More sophisticated mobile phones, also known as smartphones, can be used to assist students in accessing information from the web, transforming it, transferring it, collaborating with students and also creating a more media-rich approach to instruction (Ferry, 2009).

Recent advances in ICT have significantly increased the possibilities of mobile phones being used as instructional tools, because of their increasing processing power, memory and connectivity which have made these technologies drastically more interactive (Pea & Maldonado, 2006). Additionally, Vavolua (2005) suggests that these technologies can be used in science during field trips, where students gather scientific data for future analysis in the laboratory.

### **3. Material & Methodology**

#### **3.1. Types of research**

This study uses quantitative descriptive research.

#### **3.2. Time and place of research**

This research was conducted in March 2018 at all state junior high schools in the city of Yogyakarta. The research target was the eighth grade students of SMPN in Yogyakarta City, consisting of 16 schools spread over ten sub-districts.

### 3.3. Research subject

The population in this study were all eighth grade students of State Junior High Schools in Yogyakarta City with a total of 3,438 students. The sample in this study was determined using the formula Simple random sampling and auxiliary tables from *Isaac* and *Michael* with a 5% error rate. Based on the auxiliary table, 346 of the total population were 3,438. So this study uses a sample of 346 students.

### 3.4. Data collection techniques and research instruments

Data collection techniques used in this study consisted of instruments and document studies. The main technique used is questionnaire, while document study is a supporting technique. Documents are used to find out the number of students, the achievement of learning achievement in the form of grades for each school report card.

## 4. Results and Discussion

### 4.1. Level of use of Gadgets in the learning process

Based on the acquisition of research data collected through the level of use of Gadgets in the learning process of the eighth grade students of SMPN in Yogyakarta City is relatively moderate with a moderate percentage of 72% or 249 students from 346 students. Data analysis was performed using SPSS 21, which is presented in table 1 and graph 1 below:

TABLE 1: Categorization Distribution of Variables Using Gadgets.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low ( $X < 63$ )	1	,3	,3	,3
	Moderate ( $63 \leq X < 99$ )	249	72,0	72,0	72,3
	High ( $X \geq 99$ )	96	27,7	27,7	100,0
	Total	346	100,0	100,0	

From the categorization score table of the HP usage variables mentioned above, it can be seen that the answers of 27.7% respondents were categorized as high with scores  $X \geq 99$ , 72% categorized as moderate with scores  $63 \leq X < 99$  and 0.3% categorized low with scores  $X < 63$ . more clearly presented a visual description of the situation in the form of the following histogram:

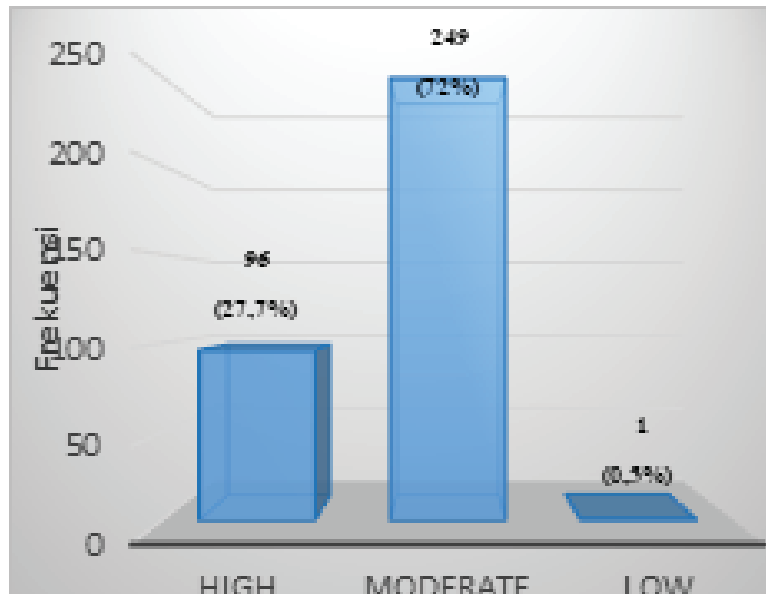


Figure 1: Frequency of variables using Gadgets in the learning process.

#### 4.2. Level of learning achievement

Based on the acquisition of research data collected through questionnaires of learning achievement levels in eighth grade students of SMP in the city of Yogyakarta is relatively moderate with a moderate percentage of 77.45% or 268 students from 346 students. Data analysis was performed using SPSS 21, which is presented in table 2 and graph 2 below:

TABLE 2: Distribution of Student learning achievement categorization.

Value interval	Qualitative (predicate)	Total	Percentage
$\geq 86,00 - 100$	Very good	64	18,50%
$\geq 71,00 - <86,00$	Well	268	77,45%
$\geq 56,00 - < 71,00$	Enough	12	3,47%
$0 - < 56,00$	Less	2	0,58%

From the categorization table, the variable score of the learning achievement above can be seen that the respondents' answers 18.50% are very well categorized with scores of  $\geq 86.00 - 100$ ; 77.45% categorized well with scores of  $\geq 71.00 - < 86.00$ ; 3.47% categorized enough with scores of  $\geq 56.00 - < 71.00$  and 0.58% categorized as poor with a score of  $0 - < 56$ . For more details, a visual description of the situation in the form of the following histogram is presented:

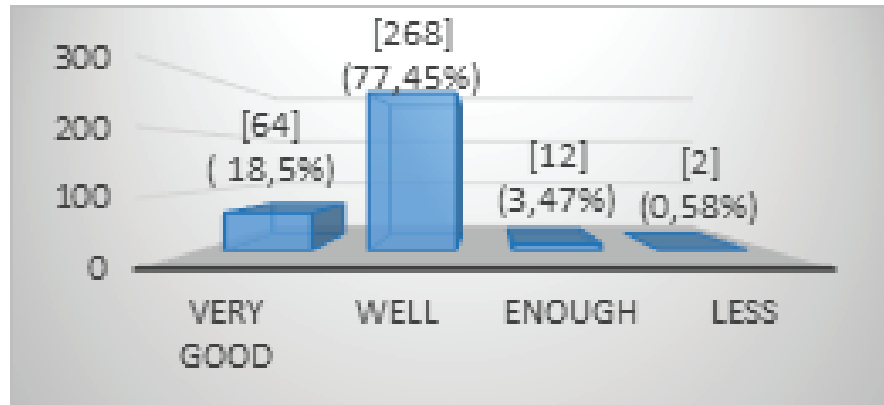


Figure 2: Frequency of student learning performance variables.

## 5. Conclusion

Based on the results of the study it can be concluded that the use of gadgets in learning as a positive learning media for student learning achievement. Gadgets are a staple for students today. Gadgets can be an effective and innovative learning media if they are truly used. Students are very competent in using gadget phones. Students consider these devices as a pleasant, individual possession in which no other device is observed. students use gadget far more often than desktop computers and even laptops. This implies that mobile gadgets can be an even more significant learning tool and a typically raised area in the near future. Therefore, mobile phone technologies can support students in their learning by exploring their world through these technologies. Curriculum planners and policy makers would be aware of the numerous possibilities of using mobile phone technologies in learning, so as to assist in implementing and designing activities to support the various learning styles.

## References

- [1] Arifin. (2010). *Evaluasi pembelajaran*. Bandung: Remaja Rosdakarya.
- [2] Brewer, D., & Tierney, W. (2012). "Barriers to innovation in the US education", in Wildavsky, B., Kelly, A. and Carey, K. (Eds), *Reinventing Higher Education: The Promise of Innovation*, Harvard Education Press, Cambridge, MA, pp. 11-40.
- [3] Cronbach, J. (1996). *Essentials of Psychological Testing*, New York: Harper & Row Publisher.
- [4] Evans, R., & Leppmann, P. (1970). *Resistance to innovation in higher education*, Jossey-Bass Publishers Inc., San Francisco, CA.

- [5] Osolind, K. (2012). "Revolutionary vs evolutionary innovation", Reinvention Consulting, available at: [www.reinventioninc.com/revolutionvsevolution](http://www.reinventioninc.com/revolutionvsevolution) (accessed October 16, 2016).
- [6] Kingsley, H. (1957). *The Nature and conditions of learning*. New Jersey: Prentice Hall Englewood Cliffs.
- [7] Ling, R., & Helmersen, P. (2000). "It must be necessary, it has to cover a need": The adoption of mobile telephony among pre-adolescents and adolescents." *Presented at the conference on the social consequences of mobile telephony*, 16 June 2000, Oslo Norway. DOI: 10.13140/RG.2.1.2827.8244.
- [8] Palennari, M. (2011). Potensi strategi integrasi PBL dengan pembelajaran kooperatif jigsaw dalam meningkatkan pemahaman konsep mahasiswa didik. *Jurnal Ilmiah Pendidikan Biologi, Biologi Edukasi*, 3(2), 26-33.
- [9] Pea, R., & Maldonado, H. (2006). WILD for learning: Interacting through new computing devices anytime anywhere. In Sawyer, K. (Ed.). *Cambridge handbook of the learning sciences*. New York: Cambridge University Press.
- [10] Roschelle, J. (2003). Unlocking the learning value of wireless mobile devices. *Journal of Computer Assisted Learning*, 19(3), 260-72.
- [11] Vavoula, et al., (2007). Learning Bridges: A role for mobile technologies in education. *Educational Technology*, 47, 33-36.