The Paradox on IT Literacy and Science's Learning

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Paradox on IT Literacy and Science's Learning Achievement in Secondary School Dwi Sulisworo 4
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Physics Education, Universitas Ahmad Dahlan Article Info ABSTRACT Article history: Higher education is currently in the rapid change process. These changes are Received Jun 12, 2013 driven by many factors, both internal and external. Some trends in higher Revised Aug 20, 2013 education development occur on a wider social context. People feel more comfortable with using the internet as a tool in the day-to-day teaching and Accepted Sep 6, 2013 learning activities. Information and communication technologies have an important role to help improve teaching and learning process.

The aim of this Keyword: research is to determine whether the student IT literacy medium 1
influence the learning achievement of

sciences subject. This research is a quantitative Science research using multivariate statistical analysis techniques. The result shows Education that IT literacy has no effect on learning achievement. This phenomenon Literacy indicates the paradox on learning and ICT issues. ICT

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idw 1. INTRODUCTION Higher education is currently in the rapid change process. These changes are driven by many factors, both internal and external factors. Higher education is facing the situation to use the new ways to organize teaching and learning to be better. This is to make it more possible to organize lectures for students with a variety of different characteristics and wider coverage area of learning. Nowadays, flexibility is the key concept of learning and technology is a key tool to support learning interaction [1]. One of some trends in higher education development is the wider social context in their activities. The first of the social contexts is virtualization. People feel more comfortable with using the internet as a tool in the day-to-day activities and interactions. Various social activities have been growing rapidly through the network, and this also includes education. The second one is life-long learning. New findings adopted by the services industry are the need to constantly update and increase knowledge. Students learning activities in the whole context are influenced by the changes in the industry. The third is learning flexibility. In the service industry, the paradigm shift from mass production which in the previous era had not given opportunity to differences users to mass customization. By the changing of technology and the delivery technique, the paradigm turned into mass customization. Thus, flexibility is important for customer oriented (individualized). Brown and Duguid [2] view that learning is now a synthesis of demand-driven, a social act, and as identity information. In one perspective, demand-driven in the context of the problems faced in the workplace. This creates a need for learners who are able to solve problems through the power and performance based on the success of the solution. While the learning perspective as social action, the literature currently leads the cognitive emphasis, how people socially construct meaning, social adequacy and cultural norms. In the process of learning student will not acquire only the skills and laws but also

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confidence, and

the other norms. Through learning, they use a new lens to look at the phenomenon differently. Learning becomes the information identity [3]. Information and communication technologies has important role to help improve teaching and learning process [4]. Learning in science today relatively has not used IT effectively at school. On the other hand, it is common that high school students use a sophisticated gadget in their activities; but not for learning.

The aim of this research is to determine whether the student IT literacy influence the learning achievement in learning 1

science subject. 2. RESEARCH METHOD This research was a quantitative research using multivariate statistical analysis techniques, i.e. linear regression analysis. The subjects of this research were high school students who were in their grade 11. The confidence level was 95% or 5% significance level. The sampling technique used purposive cluster sampling. The numbers of respondents were 72 students from two classes, each consisting of 36 students. The instrument of IT literacy includes understanding aspects of the virtual world and computer skills. Learning achievement is measured by giving 20 questions about science and IT literacy is measured by giving 10 questions related to IT literacy. Both instruments have been validated previously on their construct and statistical validities. 3. RESULTS AND ANALYSIS The results show that using descriptive analysis the average achievement in science learning is 73.96 out of 100 with a standard deviation of 11.26. The average of IT literacy is 25.8 out of 40 with a standard deviation 5.07. Pearson Correlation between Learning Achievement and IT Literacy is 0.059 with a significance value is 0.625 that greater than 0.05. These results indicate that IT literacy does not have a significant correlation with academic achievement. It is a paradox in this situation. On one side is expected to be an increase in achievement when facilitated by IT. Apparently this does not happen among the subjects. Table 1. Correlations Learning achievement Computer & IT Literacy Learning achievement Pearson Correlation Sig. (2-tailed) N 1 . 72 .059 .625 72 Computer & IT Literacy Pearson Correlation Sig. (2-tailed) N .059 .625 72 1 . 72 The same results can also be seen when the statistical analysis used is linear regression, as in Table 2. Table 2.

Linear Regression Coefficients **Model Unstandardized Coefficients Standardized Coefficients B Std.** 6 **Error Beta 1 (Constant)**

70.591 6.978 Computer & IT Literacy .130 .265 .059 aDependent Variable: Learning achievement t 10.116 .492 Sig. .000 .625 From the Table 2 it can be seen that IT literacy has no effect on learning achievement. The value of the significance is 0.625. Advanced research is needed to find an explanation of this paradox phenomenon and provide solutions in the learning process. 3.1. IT Literacy The survey

results revealed that the students' IT literacy apparently **did not have a significant effect on learning** 1 outcomes. **There are several possibilities**

that can be used to explain this.

Theoretically, students who have well **IT skills will be** better **able to** find more **information** 1

and complete relevant learning material [3][5][6]. The possible influenced factor is the lack of interaction between students learning physics obtained

IJERE Vol. 2, No. 4, December 2013 : 149 – 152 IJERE ISSN: 2252-8822 ? 151 by the students in the 7

use of IT activities. That is, students take advantage of IT for outside activities to enhance the understanding of physics. Search more likely students are reluctant to make use of IT for learning resources tend to be a bit of physics expected in cyberspace.

Second, teachers may not yet see the importance of IT, especially information on the internet as an alternative source of learning 1

physics. Teachers tend to not encourage the use of learning IT. 3.2. Portrait Internet Users in Indonesia Based on a survey conducted by Markplus, it can be figured out that the landscape of the internet is very promising for many investors in the world. The increasing number of Internet users is very significant from year to year. The following table shows the Internet user penetration in Indonesia for year from 2010 to 2012. Table 3. Internet User Penetration in Million [7] 2010 2011 2012

Urban Population 121.16 123.24 123.57 Urban Family 30.29 30.81 31.61 Urban Netizen Population 37.56 50.53 56.38 Netizen Population 42.16 55.23 61.08 Total Internet User Penetration 17% 22.4% 23.5% 2

From Table 3, the netizen populations are increasing significantly and reach 61 million people in 2012. The more the data show that the young people (15-35 age netizens) dominate as the user of the internet. The characteristic of these people are more openness to the new thing. They become the digital native. The gadget is something that can not be separated from netizens. Based on Markplus Insight research, there are around 58 million of internet users in Indonesia through mobile internet access such as smart phones, personal notebooks, net books, and tablet PCs. Three of ten netizens also replace their gadget in last year. It can be predicted that the increase of mobile netizens will for the next year. The netizen activities include not only searching and browsing, emailing, finding news, and chat but also social network interaction, downloading, uploading, and file sharing to each others. These activities is shown by Table 3. Social Networking 94 Browsing/ Searching 64.5 Emailing 60.2 Finding current news 56.9 Download/ Upload 39.1 Online Chat 26.2 Game Online 18.3 Blogging 6.1 Video call 8.3 File sharing 1.9 Figure 1. Netizen activities [7] From all of previous data, there is an increase of use of wireless technologies especially mobile gadget roommates support learning. Mobile devices have higher penetration rate than other devices among the youth. This advantage gives possibility to serve mobile learning [8]. 4. CONCLUSION In this case, the higher IT literacy does not directly affect to the higher learning achievement. The possible reason is students do not use the internet to study or search the relevant learning material especially science.

Implementation of the learning strategy that engage student to use computer and to search the material from the internet can be used.

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