



THE RELATIONSHIP BETWEEN MOBILE PHONE USE IN CLASSROOM, STUDENT'S FOCUS, ACADEMIC ACHIEVEMENT AND GENDER IN COLLEGE LIFE

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Abstract

The use of mobile phone has increased each year in most parts of the world as nowadays, a mobile phone is always on-hand and it connects to others using the internet. This study aims to reveal whether mobile phone use would distract student's focus or not and also examine the academic achievement categorized by gender. The frequent of mobile phone use and how excellence student's academic performance also will be analysed. A survey has been conducted with a large number of college students. A questionnaire was developed and delivered by online questionnaire to more than 1000 students of Universitas Pertamina, Jakarta, Indonesia. Around 400 students participated in this survey. Generally, the results should be interesting for decision maker in academic field how important to embrace mobile phone for learning style.

Keywords: Mobile Phone, Academic Achievement, University, Education.

1. Introduction and Purpose

The continuous and rapid development of technology has transformed the lifestyles of members of society. A Digital era makes people tend to be online everyday and leads to the world without border. Several facilities and services are offered to meet person's needs by using mobile phone such as food delivery, shuttle service, expert consultation as well as finance management. It leads to an increase of mobile phone users everyday. According to world-statistics.org, within one decade, from 2008 until 2018, mobile cellular subscriptions are roughly increased 5 times. For some cases, this phenomenon might affect the educational world.

The impact of digital transformation changes the way of education both inside and outside the classroom. The use of learning media and devices such as e-learning and MOOC (Massive Open Online Course) have been integrated in smart phone and utilized by learners (Yuan, Powell, 2013). Another research shows that the use of information technology in middle school may help students to increase their academic performances (Lei and Zhao, 2007). However, the use of smart phones also have negative issues and might lead to several conditions such as internet addiction disorder (Starcevic, 2013; Wallace, 2014), accidents for pedestrians (Nasar & Werner, 2013) as well as health and lifestyle (Wallace, 2014).

Internet addiction can change a person's lifestyle. One of the effects is the tendency to be less communicative and avoid public speaking, hence, they prefer texting to talking (Muduli, 2014). Moreover, the worse impact of problematic internet use is persons can suffer internet addiction disorder that leads to impairment or distress (Weinstein et al, 2014). On the other hand, the usage of social media is good and collaborative. It is assumed to improve the quality of education for college students (Irwin et al. 2012; Kirschner & Karpinski 2010; Junco, Elavsky & Heiberger

2013). Another existing technology, instant messaging, proved to grab student's attention from academic activities and brings negative impact for students' lifestyle (Yeboah and Ewur 2014).

From those studies above, the relationship between technology addiction and academic achievement of higher education students have not been directly explored. Therefore, further study is needed to understand the impact of smart phone use to their academic performances. Based on data collected from students in a university, the purpose of this research is to investigate the following questions: 1) Are GPAs of students in Universitas Pertamina affected by smart phone use? 2) Is there any relationship between mobile phone use, GPA and student's focus in Universitas Pertamina?

2. Literature Review

2.1 Factors Influencing GPA

Grade Point Average (GPA) is widely used to measure how learners achieve the learning outcomes. GPA is generally claimed as a benchmark of students' academic performance which determines students are being dropped out or not. Therefore, an increase of GPA each semester for students is very essential. According to several studies, there are several factors influencing academic performances, which are both internal and external factors. Internal factors include self efficacy (Robbins et al. 2004), clear academic goals and motivation (Al Shawwa et al, 2015). While external factors might be transition issues from high school to college (Stewart & Kim, 2015) and inappropriate use of social networking (Al Shawwa et al, 2015). In addition, demographic factors such as gender, race/ethnicity, income to be significant for academic performances of students aged more than 25 in undergraduate studies (Markle, 2015).

2.2 Information and Communication Technology for Learning

Currently, learning styles have adapted to the rapid growth of information technology development. The adoption of information and communication technology in learning style aims to increase the collaboration between a teacher and students at class and to enhance learning experiences (Kirkup and Kirkwood 2005; Buttar 2016).

According to several research, below are common tools, softwares or applications used in learning activities.

1) Smart Phone

Smart device technology, that allows learners to complete various problems, triggers the possibility of smart phone integration in the lecture. Studies on the restructuring of lecture-based learner gives a view about the possibility of shifting the use of the device as one of the technologies which are included in the lecture concept (Biddix, Chung, and Park 2015). Smart mobile gadget (smart mobile gadgets) plays roles as complementary learning resources, lecture material storage that can be accessed easily, and user friendly discussion platform by chatting applications like KakaoTalk.

2) E-learning

E-learning implementation for higher education, especially for blended learning (a learning method that accommodate students to study at classroom and online through e-learning), supports dropout rate reduction and exam pass rate improvement in certain subject subjects (López-Pérez et al, 2011). Despite having some limitations, shortcomings, and strength, e-learning is recommended for lecture planners to use in order to maximize collaborative and interesting learning (Kattoua et al, 2016).

3) Social media

Based on a research review on the role of social media at college (Tess, 2013), the use of social media in the lecture has emerged a possible integration of social media usage in lectures. However, the teachers have not been responsive in realizing the adoption of

social media as the educational facilities, though present, is still in the experimental stage.

4) Instant messaging or online chat applications

In lectures, the use of short messages can support learning effectively and more personally for each student (Bouhnikand Deshen 2014; Amry 2014; Yeboah and Ewur 2014). In future, messaging services such as Whatsapp provide opportunities as integration option inside or outside the classroom to enhance learning experience.

2.3 Technology Use Factor on Academic Performance

Current digital technology application for education is very well known for both inside and outside the classroom. A lot of assignments have integrated hardware and software for completion, such as paper writing, data processing, data sources, and video creation. Application of Information Technology and Communication (ICT) to support learning process has been applied even from the level elementary school (Warsihna, 2015). On one hand, the application of ICTs is useful in the classroom to support learning. On the other hand, the study analyzes the effects of technology use by learners in middle schools in Ohio, USA, (Lei and Zhao 2007), proves that the use of ICT in the middle school environment have a mixed relationship with the outcome of academic performance. The integration of information technology in the classroom support learning effectively. However, its use outside the classroom is not very helpful for the learners in middle school.

According to Lei (2007), in his research, the use of computers by learners can improve the learning outcomes with sufficient time span. However, if too much, the use of such computers can be detrimental and not significantly improve academic performance (Jacobson and Forste, 2011). On the other hand, there is still less visible correlation between the quantity of computer use and academic improvement. Generally, the use of technology still has a positive impact on related subjects with the application of such technology.

3. Methodology

Data Collection

Participants of this research were first year and second year students from Universitas Pertamina in Jakarta, Indonesia. The total number of participants are 513 students with roughly equal proportion of men and women: 262 male participants (51.1%) and 251 female participants (48.9 %). Most of the participants come from Jakarta (25.1%) followed by West Java (18.5%), Central Java (12.3%), Banten (9.4%) and East Java (8.2%). Others are distributed from all over provinces in Indonesia, such as Aceh, Bali, Bengkulu, West Kalimantan, North Sumatera, South Sulawesi.

Data were collected over one semester within semester 2017/2018 using an online questionnaire. There are several questions that were asked to students, such as name, student's id number, department, gender, place of origin, most common applications that has been accessed using mobile phone, has the participant used mobile phone for study, the frequency of checking their mobile phone at classroom, and whether their mobile phone distract their focus or not while attending lectures.

Model and Method

In our model, the dependent variable is measured by GPA based on scale from 0 to 4. Valid responses are being checked using name and student's identification number from questionnaire with the legacy data from Academic Services Directorate, Universitas Pertamina.

The explanatory variables capture some of suggested theory that affect the students' academic performance (GPA). Three independent variables were constructed—gender, frequency of accessing mobile phone at class, and study program. First, gender is coded as 0 (male) and 1 (female). Secondly, frequency number is measured on how many times for each student check their mobile phones while in class. It only includes for the following mobile phone activities at class: never check, 1 to 2 times, and more than three times. Students who answer 'never' are removed from the data set. Third, the variable of study program is divided into two major programs—engineering science and social sciences.

Data were analysed using Jupyter Notebook with Python and Pandas. Other statistics software, Stata and Excel, are also used for the data analysis. We estimate our model using Ordinary Least Square (OLS) regression techniques.

4. Findings and Discussion

After processing the data using OLS regression, we found several interesting insights (Table 1). The variables separate into two common themes: demography (gender and study program), and mobile phone usage (frequency of checking mobile phone at classroom, the effect of mobile phone use at classroom whether distracting their focus or not). In general, those three variables that related to mobile phone usage are not significant to student's GPA. On the contrary, study programs and gender have significant impact to GPA. Students of social science have better GPA than students of engineering and science. Furthermore, a significant information regarding the correlation between gender, study program, and the times of checking their phones is also revealed. It informs us that females have higher GPA than males (0,227) in the group of the same study program and mobile phone checking frequency. Another appealing finding also emerges within the frequency of mobile phone checking. Students who check their mobile phone only 1-2 within 2 hours at classroom have higher GPA than students who never check their mobile phone while attending lectures.

Table 1. Regression Result of Students Academic Performances (GPA) on Gender, Frequency of Using Mobile Phone in Class, Focus and Study Program

| Variables | Coefficients |
|---------------|--------------|
| Gender | 0.2273927*** |
| Frequency | |
| 1-2 times | 0.0067214 |
| ≥ 3 times | -0.0362187 |
| Study Program | 0.2059726*** |
| Focus | 0.00826 |
| Constant | 0.374406*** |

Note: ***significant at 1% alpha; **significant at 5% alpha; *significant at 10% alpha

Arising several analysis and assumption because of the result should be confirmed in the theme of environment of learning and the usage of the smart phone itself. First, regarding the results of study program and GPA, the difficulty of social science subjects might be lower than science and engineering subjects. Secondly, the behaviour of mobile phone use at class should be further explored. Students who check only once until twice tend to have higher GPA than students who never access their mobile phone, probably because they try to search materials related to the course that they attend. Thus, motivation for the students to open their smart phone at class should be questioned. For example, they might open several kinds of non-academic applications in their phone at class, or maybe they access their mobile phone because their own initiative or

based on lecturer's demand. Furthermore, students who access their mobile phone more than three times within 2 hours at classroom, their GPA seems lower than students who never access their mobile phone. However, other factors are not involved in this research, such whether a student has part time job or not, their parents' total income, how they travel to university and other factors that should be analysed as additional factor to improve the experience of the learning environment itself.

Conclusions and Future Work

It can be concluded that gender and study program are absolutely significant to GPA, while mobile phone use and its effect are doubtfully significant. Interestingly, students who access their phone only once or twice within two hours at classroom tends to have higher GPA than students who never access their phone at classroom. Students who access their phone more than three times have lower GPA than students who never use their mobile phone. This research might help decision maker in higher education institutions gain a better understanding of the phenomenon of social media usage and the habit of mobile phone usage in classroom. Perhaps, there should be some activities to embrace mobile phone within lecture.

In future, to have better insights of the research, there should be other factors included in this analysis, for example how many times at classroom they use mobile phone for supporting lecture, what kind of applications they access at classroom and other factors that might affect GPA.



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