

CHAPTER I

INTRODUCTION

1.1 Background of Study

Homework according to Cooper (1989:7) is any task assigned by schoolteachers that meant to be carried out during non-school hours. It is considered an important part of learning process since the involvement of students and teachers in homework assignments is viewed one of the most effective ways in affecting students' academic achievement (Zimmerman and Kitsantas, 2005:398). Cooper (2006:49) summarized that in US, homework in primary and secondary school is positively related to students' academic achievement, with stronger effect on secondary level.

Students' academic achievement rises significantly when they assigned regularly with homework (Paulu, 1996:5) as homework completion accustomed them to practice in course that put a great emphasis on ability to solve problem (Bonham, et al, 2003:1050, Larson, 2011:5), help them gain a deeper understanding of important concepts (Bornemeier, 2006:2) and integrate it (Paulu, 1996:10), apply their knowledge to novel situations (Darling-Hammond and Kim, 2003:190), and develop the skills needed to solve real-world problems they may encounter in future work place (Bornemeier, 2006:4, Tao, 2008:1). By assigning students with homework, it is expected that they could keeping up with the pace of classroom instruction (Bao and Stonbraker, 2008:878).

In like manner, students did acquaint with homework roles and importance in their academic life and better school achievement. A homework related questionnaire distributed on the preliminary study revealed that among 201 public senior high school students in Medan, 2.11% perceive homework completion teach them self-discipline, 6.84 % think it increases their level of school engagement, it helps them prepare important academic work independence which is required in college life later (4.74%), accustomed them with a good study habit (17.89%), help checks for understanding (25.56%), reinforce what they have learned (19.47%), and helps them in advance learning (23.16%), with 0.53% of

respondents feels that doing homework is important in preparing themselves for better performance on next meetings (See Appendix 14).

Correspondingly, the concept of homework provides both an avenue for achieving the three teaching focus outlined in Curriculum 2013; (1) competence, (2) process, and (3) attitudes (Kemdikbud, 2013:6) and strengthening the idea of learning by doing (Adebayo, 2010:84), the basic principal of constructivism.

Moreover, by individual homework activities, students could sharpening skills of information retrieval, planning, analysis, and time management, and achieving successful independent learning (BBS, 2013:2). The data revealed that 57.91% students do homework independently (see Appendix 14). Likewise, when homework is seen as device to help independent learning, it gives students the opportunity to practice beyond the classroom, beyond the tasks covered in class, helps them work towards improving important skills and also will help young people be more confident (Manchester Health Academy: 2014:2).

Though argued to help gained independence in learning, assistance is needed to ensure homework quality; otherwise it's just a series of copying others work, losing its meaningful purposes in learning. Result of observation showed that student did quite well on paper-based homework even though teacher did aware that good quality homework had never been constantly assessed and be the focus on understanding student's homework completion. Above all, teacher did not have any data explaining the trend of homework completion and students perception, when gender was used as variable to evaluate. Evaluating students' pattern of homework submission and completion along with homework perception using gender basis, toward certain type of learning, is important for successful development of homework in higher education.

Although deemed important for regularly practiced, homework assignment should also not be considered easy task. When homework assignments are less meaningful students may have less effort in completing it (Bao and Stonbraker, 2008:878), thus, decreasing its quality This less meaningful practice is quite common in classroom setting since teacher rarely design and develop homework

assignments and put their thorough understanding of student' needs and readiness. Also, the homework completion integral and vital aspect of the students' total educational experience and its effectiveness may be limited for example when learning resources are not utilized (Adebayo, 2010:85).

The claimed related to homework completion was made by students in which as many as 47.89% of them argued that problem in understanding instruction turned them from enjoying homework assignments, while 10.53% thought they have inaccessible extra learning sources, the latter is possibly because they only notice learning sources are said so when teacher clearly mention needed supplies and access to reference materials that students could employ in doing homework. Unmotivated feeling (1.05%), busy extracurricular activities (1.58%), and the absence of homework timetables (34.74%) were also among reasons students went through hardship in finishing it.

The previous claimed turn students self confidence in doing homework, as the number of students considering it should be better and easily done at school had shown to exceed (57.14%) those who still believe that because homework help learning outside classroom, it should be indeed finished at home (21.17%). As much as 34.74% of respondent said that they need tutor help in solving problem questioned with no one stated they have access to teacher's guidance when finishing homework. As much as 47.89% Students express the presence and assistance of teacher is still important for them to cope with problem during the completion (See Appendix 14). The presence of teacher when doing homework on the other hand could be an obstacle since teacher is unable to present physically anytime to assist learning without the help of proper non face-to-face communication device. By the presence of social technological resources, students' dreadful experience and feeling of isolation when completing homework can be minimize when technological resources, that are now available to change it, are adapted.

Professor Walker of the University of Sydney suggests homework completion should be more of a social experience, pointing the role of technological sources. He explains when homework is seen as being social and

cultural in nature, a type of homework is needed to be set differently, as a teacher, he says, may look into the fact that students need some assistance with their homework, rather than just the idea of sitting and isolating them at home (Carbonell, 2012:1). Thus, Professor Horsley from Central Queensland suggest to carried out a new approach, in a more sophisticated way, to develop a more structured and organized homework, as stated by University (Carbonell, 2012:1).

Students' experience in doing homework for example can be improved sophisticatedly by utilizing textbooks and teaching using electronic resources (Adebayo, 2010:85). Just like Computers and web services have changed the way young people learn, mobile phones are set to do the same, providing all tools necessary to boost learning. Mobile learning referred to learning and teaching practices which is done with or via different mobile devices (Tuomi and Multisilta, 2011:165). Its assistance in learning is not new since it is considered to be one of the 21st century skills children should adapt early in schools stages.

Mobile phone technologies have embraced young people with a rapid growth. Mobile phone ownership in Indonesia grew considerably from just over 130 million in 2011 to well over 170 million in 2013 and the number is projected to grow to more than 195 million by 2017 (Statista, 2014:1). Statista (2014:1) also mentioned that there are at least 30 million Indonesian teenagers accessing internet on regular basis, which account for almost half of the total users in Indonesia.

Furthermore, a study funded by UNICEF and implemented by Indonesia Ministry of Communications, measuring online activity and the use of digital media among children and adolescents ages 10-19 (400 respondents), showed that more than half of respondents (52 %) access the Internet via mobile phones, less than a quarter (21 %) using smartphones and 4 % use tablets for internet access (Statista, 2014:1). This study, carried out across the country and representing both urban and rural areas, also showed that the number of respondent, accounting for more than 80 % are prominent internet user, mainly in big city of Indonesia and

indicates that young users in big city are more acquaint with internet and possibly nearly 30% of them accessing it from their smartphone (Statista, 2014:1).

Mobile phones that offer more general computing capabilities and variety of services, such as text messaging, MMS, email, Internet access, short-range wireless communications, tons of applications, gaming, and photography, are referred to as smartphones (Nusca, 2009:1).

The preliminary study revealed that students mostly utilizes smartphone with operating system by Android based smartphone developer (54%), Blackberry (20%), and Apple Inc.(20.5%), with most of them already owned it since more than two years ago (80%) which means that in general they were exposed to mobile phone prior to the adoption of m-learning. When asked what services and functions they frequently use, among the functions of smartphone, communications/social media functions have the highest counts (32.19%) (See Appendix 15). This is in accordance to Young and Heim study (2008:52), in which students mostly saw their phones as mainly for social means or normally only using the camera to take pictures of parents or friends when socializing.

In formal education, however, mobile devices, especially mobile phones, are criticized by teachers in view of the problems they bring, distraction from school works, and use of only for entertainment purposes of it (Robledo, 2012:2). This raises set of issues to do with ownership, use, and societal perceptions of device usage. The same attitudes are expressed by students in this study; sending message with smartphone application is done more frequently in communication compare with other activities, using Blackberry Messenger (BBM) and LINE were among dominantly operate messaging application (See Appendix 15).

In the view of problem of smartphone ownership in school education, a cultural anthropologist studying new media use, particularly among young people in Japan and the US, Mizuko Ito, said that adults tend to see mobile device as a learning distractors because they aren't participating in formalizing the process. They're not participating in shaping the kind of influence these devices could trigger on students' learning (Robledo, 2012:4). A good example is a story from

Singapore's Ministry of Education, who encouraging schools to prepare Singaporean students in developing 21st century skills, e.g., self-directed learning and collaborative learning (Saavendra and Opfer, 2012:5), by using tools that are needed to truly teach 21st century skills, the smartphone mobile device.

Likewise, the self-directed learning support by mobile technologies in mobile learning is in accordance to independent learning stimulate by homework, as technology now enables students to complete homework assignments or independently study with ease at home, using various internet learning source (Manchester Health Academy: 2014:3). Thus, utilizing smartphone in finishing homework can offer opportunities to provide sophisticated learning resources to improve students' experience in doing homework.

A teacher problem in direct assistance with homework can also no longer be a barrier when technological resources is utilized, which also promote a more collaborative learning skills that need to be prepared for 21th century life and work. Through socializing application in smartphone, a teacher can expect reinforcing skill and understanding with a more access in monitoring students' devoting their time to particular demands (Manchester Health Academy: 2014:3). Look deeply also into the problem of biology learning, teachers need to develop homework to help coping with enrichment problems and curricula overload (Cimer, 2012: 67) while at the same time enhancing students' afterschool activities and independence.

Learning with mobile devices is still a new research area and more work is needed to understand the benefits and effects of using technology to support learning (Mwanza, 2007). Although mobile phones, in general, as the instructional tools in Indonesia are yet to be developed, projects in mobile learning could be highlighted and examined through a study to explore its application in teaching and learning.

1.2 Problem Identification

Based on the elaboration of the background of the study, the problems are identified as follows:

- a. Traditional paper based homework tend to be an individualized activity, in which students often express frustration when finishing it.
- b. Students are unable to receive immediate assistance or feedback on a difficult problem or exercise.
- c. Students' frustration and inability to receive immediate assistance or feedback on a difficult problem turned them from enjoying homework assignments.
- d. Homework assignments is usually not explicitly informed to students as learning tools, rather it is viewed merely as an assessment instrument, making homework less meaningful.
- e. Teachers are rarely develop homework to help coping with matters related enrichment problems and curricula overload while at the same time enhancing students' activities and independence outside the classroom.
- f. There was no particular data explaining the trend of homework completion and students' perception, when gender was taken into consideration, even though evaluating students' homework submission and perception using gender basis could be one important aspect for successful development of homework in higher education.
- g. A custom cognitive based homework question were rarely discussed outside classroom and homework usually meant only to be finished with less attention in process of knowledge gain and retention during the homework completion.
- h. Students are not encouraged to finish homework with higher quality.
- i. The integral and vital aspect of the students' total educational experience and effectiveness when doing homework may be limited when learning resources are not utilized, and a more sophisticated, structured, and organized homework is not planned.
- j. Mobile phone technology serves to a more efficient and effective learning, in which it helps improving learning since these tools serves as sustainable, cost-

wise devise, and were more in concert with the emergence of mobile technologies as a dominant technology in this century, even though the utilization in aiding learning was still limited.

- k. Though smartphones allow users to do various things they have been more usually seen as disruptive, rather than useful, in school education.
- l. Teacher believed that students usually use their smartphone only for entertainment purposes
- m. Students often saw their phones as mainly for online social uses.
- n. Mobile phone is believed to distract students' schoolwork

1.3 Research Scope

The scopes of this study were limited to the effect of mobile homework limited on students' homework learning outcome. The effect of assigning students with mobile homework (homework was received, possibly finished, discussed, and submitted digitally via mobile social messaging application on smartphone, which serves to improved experience in finishing homework) was also be examined trough the analysis of homework quality. This study was also being attempted to analyze correlation limited to the relation between homework average scores and learning outcome along with the relation between homework qualities and learning outcomes. Because the power of mobile learning was also being introduced here, the analysis limited to students' attitude toward mobile learning was being performed. The rate of homework submission between genders was also being examined to understand its pattern on the experimental and control groups. Other details were mentioned as follows:

- a. Research was done at SMA Negeri 1, SMA Negeri 2, and SMA Negeri 4 Medan.
- b. Research was conducted for Grade Eleven (XI) Science Program at SMA Negeri 1 Medan, SMA Negeri 2 Medan, and SMA Negeri 4 Medan Academic Year 2014/2015

1.4 Research Questions

This study was attempted to answer nine research questions as follows:

- a. Do assigning students with mobile homework significantly affect their learning outcome?
- b. Do assigning students' with mobile homework significantly affect their ability in answering questions based on Bloom's taxonomy of cognitive domain?
- c. Do students homework score significantly affect by assigning them with mobile homework?
- d. Do students homework quality significantly affect by assigning them with mobile homework?
- e. Do students' weekly average homework score correlate with leaning outcomes?
- f. Do students' homework quality correlate with leaning outcomes?
- g. How are students' perceptions toward mobile learning?
- h. Do students assigned with mobile homework have higher rate of homework submission than those who were given with paper-based homework?
- i. How is the rate of homework submission differing among male and female students?

1.5 Objectives of The Study

The objectives of the research were to:

- a) examine the effect of assigning students with mobile digital homework on learning achievement.
- b) examine the effect of assigning students with mobile digital homework on students' ability in answering questions based on category of Bloom's taxonomy cognitive domain
- c) examine the effect of assigning students with mobile homework on students' homework score
- d) examine the effect of assigning students with mobile digital homework on students' homework quality.

- e) examine the correlation between students' homework score and leaning achievement
- f) examine the correlation between students' homework quality and leaning achievement
- g) analyze student perception toward mobile learning.
- h) analyze the rate of homework submission between the treatments.
- i) analyze the rate of homework submission among male and female students.

1.6 Significance of The Study

The research findings were important for researcher, to provide significant information about students' experience when homework was received, possibly finished, and submitted digitally via mobile social messaging application in smartphone. For teachers, this study was important to: (1) to provide information about the utilization of learning resources and new approach that need to be carried out to improve homework assignment, (2) to provide information about a better understanding in how social application on smartphone help students improve their homework experience and better achievement, (3) to provide new information about mobile learning and its possible powerful impact to help students learning, (4) to provide some feedback for teachers and educators in term of enlarging knowledge and improvement on homework assignment and student's achievement in Biological topics. The study was also important to for students to help students with a more effective way of learning with the aid of technological sources.