

CHAPTER I

INTRODUCTION

1.1. Background

International Networking (Internet) users are forecast to exceed 100 million in Indonesia (Desnet, 2015). These are very fantastic numbers. Most user are among students, employees, businessmen, even housewives with at the level of the age that is accessed through gadgets such as mobile phones and notebook (Antaraneews, 2014). Most internet users are dominated by teens aged 15-19 expressed by the research of Taylor (Kompas, 2015). Internet was accessed in anywhere, anytime, and any way. Those were facilitated in educational institutions, offices, recreation, shopping, and even cafe which are free. This phenomenon is the effect of the technological developments that make it as lifestyle, business, interact, socialize, learn, and get information.

Internet is often described as the basis of the “information super highway”, which is being discussed at different levels in nearly all the media (Redl *et all*, 1996). Internet has also become a major reference for accessing news and information that is massive in various sectors of life. Even pens and paper for students has turned into Facebook, Twitter, Line, Whats Up, Instagram, YouTube, Google, Wikipedia, and others. Internet users are most teenagers are still at the age of junior high and high school that so ambitious in seeking information and accessing information through the Internet. Djoko Agung Harijadi as a commissioner technology information said that there are three main motivations

Internet use by children and adolescents, seeking information, friendship and entertainment (Kominfo, 2015). Based Survey that most teenagers use internet as e-mail (59%), instant messaging (59%) and social networking (58%). In addition, they also frequently use a search engine (56%), access online news (47%), blogging (36%) and play online games (35%). It gives a serious influence. This influence is evidenced in a study conducted by Aryn Karpinski of researchers from Ohio State University, showed that students' learning time taken by immersion in a social media site that is particularly popular among FB (Facebook). They said that their study time has been consumed. The average student FB users lose time between 1-5 hours to 11-15 hours of study time per week to play FB (Ridhota, 2013).

The development of information technology and system-based online can be effective and efficient ways to use as a learning for students. These are gives most benefits for learning. A variety of diverse emerging computer-based learning, include computer based learning (CBL), online learning or Web Based Learning, E-learning, Distance learning, and etc. So, most of educator discuss about "online education". Steve Mccarty explain that : "Online education" also refers to learning methods that at least partly utilize the information and communication technologies (ICTs) available through the internet. Given the explosive growth of specialized knowledge and paradigm shifts in educational approaches, lifelong education is needed above all by educators themselves. For online educators not to replicate the classroom but to take advantage of new media, new ways to communicate, and to design educational experiences,

renewed professional development for educators in virtually all fields of enquiry is also necessary. Educators are thus utilizing the internet for professional networking regionally and globally to learn from one another about the new media and their applications to education (McCarty, 2006).

As an important pedagogical component in teaching and learning dynamics, classroom assessment in web-based learning environment can be practiced to reflect the shift. Technology has provided opportunities for online assessment to be more Student Centered Learning (CTL) to promote self-directed learning, and to increase learner autonomy. Practicing “assessment for learning” can cultivate student ownership, and will impact effort and achievement eventually (Xin and Kim, 2004).

In government regulation, number 13 in 2015 on the Standard Assessment of education in primary and secondary education consist of: 1) assessment of learning outcomes by educators; 2) assessment of learning outcomes by educational units; and 3) assessment of learning outcomes by the Government (Kemendikbud, 2015). Assessment of learning outcomes by educators is the important and continuous with the final round of assessment by the education unit and the government. Therefore, the accuracy of methods in assessment of learning outcomes, indicators used, and the type or the tool has a major role in determining the success of the assessment.

Programme for International Student Assessment (PISA) ranked Indonesia as one of the countries with the lowest ranking in the achievement of quality education in 2012 especially in science (Tempo, 2013). There are some factors

that is suspected to be the cause of the lack of science. Among of the science is chemistry. There are many reasons for students finding chemistry difficult to learn. The number one reason why students fail chemistry is that they do not work enough problems. Teacher-related factors and school environment such as attitude, time, remuneration, laboratory adequacy and others, exert remarkable influence on students' positive achievement in chemistry (Silberman, 1981).

Formative assessment can play a powerful role in the learning experience, moving an average student, for instance, to the top third of the class – but only if certain conditions are satisfied. Student tasks needed to be aligned, or on target, with learning goals, and students need to receive meaningful and timely feedback on their performance, as well as targeted follow-up work (Wilson and Kathleen, 2006). Outcome of any formative assessment should be one that ultimately helps improve learning, it has been suggested that there should be focus on three specific drivers when designing any formative assessment: using a method to inform students of gaps in their learning; familiarizing students with the expectations of summative assessments; and providing feedback that guides the direction of student. Such lower-stakes formative assessments establish a more comfortable learning environment and increase students' potential for success on the summative final (Cherem, 2011). Students should also be educated about the use of formative assessment to help them to take advantage of the opportunities brought by formative assessment before its utilization (Yalaki and Bayram, 2015).

Homework, or a homework assignment, is a set of tasks assigned to students by their teachers to be completed outside the class. Wilson, Jan, and John Rhodes explain that :—Homework is very important to improve students learning and skill. But Teachers are finding that a number of students do not complete homework assignments for various reasons, and have long experienced the frustration of students who do not or will not complete their homework assignments. Based on the research of Wilson and John Rhodes that Not surprisingly, 73% of the freshmen agreed that they do not like homework, 84% thought it was boring, and 87% felt that teachers assigned too much each night (Jan and John, 2010).

Whereas, homework have the relationship to student's achievement, reinforce what they learn, prepare for complex lesson, and give the opportunity to parents about children's education. Understand about the subject learning need more assignment by homework frequently repeated. Rose explained that the lessons learned today will be forgotten as much as 70% within 24 hours if you do not do a special effort to remember it means that lessons must be frequently repeated (Rose and Malcolm, 2002). Then, research that done by Bayram and Arif displayed a positive correlation between chemistry achievement of the students in the first group and their science teaching attitude, and logical thinking ability. 78.4 % of the variance of chemistry achievement is explained by students' science teaching attitude, and logical thinking ability when doing their homework (Bayram and Arif, 2009).

In traditional assessment was occurred in error measurement and the person doing the assessment. Errors in measuring tool assessment can be improved by developing good formative tests through the analysis of item test which is used References Assessment Criteria (PAK) to obtain valid and reliable test. Errors in giving the assessment are influenced by subjectivity and error to give the assessment results. This can be corrected with a program-based assessment as well as multimedia website that can automatically process and calculates a score student learning outcomes (Arikunto, 2001). In addition, the problem is in the learning process is limited to a specified time schedule and just being in a classroom. For a long time, the main approach for teaching and learning was mainly the didactic traditional approach, which depends on memorization where teachers are the main source of information, and students are only passive receivers (Indra, 2013).

Educator must create and design homework to be more attractive to doing homework. Using of online assignments benefits the students' success more than offline, non-graded homework. Educators increasingly recognize that students must learn how to develop and apply knowledge creatively, not simply remember what they have been told. This goal requires shifting from traditional lessons based on transmitting information toward approaches that help learners build robust and flexible understanding. New technologies appear to hold promise in overcoming the traditional limitations of professional development. The World Wide Web, with its rich trove of multimedia resources, interactive tools, and telecommunication facilities, accessible from anywhere on the planet, seems full

of potential as a facilitator of teacher learning (Martha *et al*, 2001)

Eichler and Junelyn (2013) said that The use of online computer based systems also provides the opportunity to create –smart” homework systems that can respond individually to students in a way not possible with handwritten instructor graded homework, particularly for large enrollment courses where providing individualized feedback might be logistically unfeasible. Based on this research that using online homework systems helps prepare them for the first-quarter general chemistry course, and subsequently improves student performance on the final exam.

Interactive technologies provide multiple advantages and benefits for online instructors and learners. These include of more efficient management, collection, and transfer of assessment information; The ability to track, monitor and document students’ activities automatically; Multiple communication tools to facilitate and document dialogues that can be revisited as part of the learning and assessment process; More opportunities and ways for providing feedback to students; Vast libraries of resources and interpretive tools; Increased student participation in discussions (i.e., more students can participate in online asynchronous threaded discussions than in face-to-face classrooms); An increased emphasis on student thoughts and reflections as students learn to express their ideas in writing; More precise grading of student participation in the course content (process) because their discussions are captured in print (Comeaux, 2006).

Edmodo is an educational technology company offering communication, collaboration, and coaching tools to K-12 schools and teachers. The Edmodo

network enables teachers to share content, distribute quizzes, assignments, and manage communication with students, colleagues, and parents (Wikipedia^c, 2015). As co-founder of Edmodo, Nic Borg provides teachers and students a secure social network for classroom use. Edmodo provides classrooms a safe and easy way to connect and collaborate, offering a real-time platform to exchange ideas, share content, and access homework, grades and school notices (Ziolkowski, 2011). The collaborative environment provided by Edmodo ensures that knowledge is no longer contained in places defined by geography and can be shared and viewed transparently (Al-Kathiri, 2014). In Edmodo, Teachers can create their own questions and select correct answers by using Qui and interactive online assessment tool that is automatically graded through Edmodo. (Faison *et al*, 2012).

Schools and companies are using similar technologies to address similar problems because there is ample evidence that appropriate use of technology can boost retention rates, reduce boredom and misbehavior, and, in many cases, cut costs. Numerous studies have found that educational technology clearly boosts student achievement, improves student attitudes and self-concept, and enhances the quality of student-teacher relationships (Lagowski, 1998). Using web-based activities contributes significantly to students' understanding (Frailich *et al*, 2007).

Based on description above it is necessary to do an research in the preparation of interactive assessment by using online system. So the researcher

establish the title : “The Effectiveness of Edmodo Website as a Media to Improve Student’s Achievement and Motivation on Learning Acid Base ”.

1.2. Problem Identification

Based on the background, it can be identified that the important problems to be observed and researched in the effectiveness of Edmodo: online homework and formative Assessment to improve student’s achievement and motivation in learning acid base for senior high school as below:

1. Why most students spend their time in social media that make student’s achievement become decreasing?
2. How the online-based learning could be used as reference for improving the learning process?
3. How classroom assessment in homework and online test learning environment can be practiced in pedagogical component by interactive and dynamic teaching learning?
4. How educator creates and design homework to make student be more attractive to doing homework so that can enhance student’s achievement?
5. How the learning outcomes (i.e., perceived content knowledge, quality of course projects, and final course grades) of students enrolled in online homework and formative test?

1.3. Scope of Study

Based on the problem identification, so doing the limitation of problem below:

1. The learning material would be done for senior high school in learning acid base related to material that suitable in second semester.
2. Design the homework and online formative test by online system in increasing student's academic achievement in learning acid base material.
3. Design the homework and online formative test by online system in increasing student's motivation in learning acid base material.
4. Student's achievement will be measured in cognitive domain through bloom taxonomy in learning acid base material.

1.4. Problem Statement

Based on the scope of study has been stated, the problem statement in this research consist of:

1. Is there a significant difference of student's achievement between online homework and formative assessment by using edmodo website?
2. Is there a significant difference of student's motivation between online homework and formative assessment by using edmodo website?
3. Is there a significant correlation between achievement and motivation for students in learning acid base by using edmodo website?
4. How much the effectiveness of edmodo website as a media to improve student's achievement and motivation on learning acid base?

1.5. Research Objectives

The objectives of this research was used:

1. To know the effectiveness of implementation the online learning system using edmodo website as media on learning acid base for student's achievement in senior high school.
2. To know the effectiveness of implementation the online learning system using edmodo website as media in learning acid base for student's motivation in senior high school.
3. To find out the correlation between achievement and motivation for students in learning acid base by edmodo website as media in learning acid base.
4. To know the effectiveness of edmodo website as a media to improve student's achievement and motivation on learning acid base

1.6. Research Advantage

This research is expected to be useful as follows:

1. To improve the quality of learning, especially with regard to the development of online learning media by online system.
2. As input for teachers, prospective teachers, managers, developers, and researchers and educational institutions that want to examine more deeply about the development of an online learning system.
3. As consideration for teachers to use online learning system so that the teacher can design learning plan that can motivate students to learn.

1.7. Operational Definition

1. Edmodo is an educational technology like social network in website that company offering communication, collaboration, and share content, distribute quizzes, assignments, and manage communication with students, colleagues, and parents.
2. Student achievement is the outcome of education — the extent to which a student, teacher or institution has achieved their educational goals.
3. Motivation is a theoretical construct used to explain behavior that represents the reasons for people's actions, desires, and needs.
4. Paper and pencil test mean the students doing homework or formative test using paper and pencil directly and traditionally.