The Effect of Mentimeter Application on Enhancing Students' Communication Skills through Environments Issues

Nuraini Sirajudin, Said Hasan
Biologi Education Study Program, Universitas Khairun, Ternate, Indonesia

Keywords: Mentimeter, Communication, Environments issues

Abstract: Teacher-centered learning is common problem found in teaching and learning activities in the classroom. Students become listeners than learners. Therefore, learning activities require a media that can enhance communication interactions between students and lecturer. Communication is an integral part of the reasoning process both when working and studying both individually and in groups. Good communication in the class expected to increase knowledge of students and know what students understand. The communication that will be developed in this study is written communication. Written communication is not a simple thing. Writers and readers have their own perception toward what the issues to be discussed and will affect the construction and interpretation of the writer. One of media which be able to be used in teaching and learning is Mentimeter. The Mentimeter is an interaction media that can be used to have students actively participating in class. It allows students to anonymously their opinions on the questions that lecture can prepare in advance. This allows lecture to check how students think about a subject or if they have understood a lecturer explanation. The results of the study indicate that students are very active in participating in learning activities. There is increasing of students' communication skills. Therefore, the use of mentimeter in learning is very good for enhancing students' communication skills.

1 INTRODUCTION

Large classes are an alternative learning approach that is commonly applied to various institutions of higher education. The reasons for using this approach vary from the limited lecture room, the effectiveness of education costs, and efficiency in learning activities. Therefore, it is certain that this approach may not be replaced in the near future. Some students may prefer large classes because in large classes than small classes. In large classes, students will more meet and make friends with other students compared to small classes. One problem in the large class was most students easily bored and less actively participate in learning activities (Hassanin *et al.*, 2016). As a result, there are many criticisms of this approach, especially in terms of learning that is still lecturers-centered rather than student-centered. Communication only occurs in the one direction, if there are students who asked, mostly just a few of all student. Students play more roles as listeners than learners.

Communication in learning activities is very important for students. Communication is an integral part of the reasoning process of students, both when working or studying, both individually and in groups(Brodie, 2010). When studying individually, students will organize their thinking skills through communication. In addition, students would be prosecuted for communicating their thinking skills in solving problem in a coherent and clear to friends using good language to indicate the ideas when studying in groups.

The development of science and technology in this century has shifted the educational paradigm from traditional learning methods to active learning methods and student-centered. Students are faced with a variety of choices in learning, from learning by digital technology, learning with experimental methods, learning by means of active interaction, and various other learning models related to the use of technology. The pressure to use technology, especially those related to active learning in class activities, is felt to be increasing at this time. Some studies show that learning is designed so students can play an active role in learning activities have increased the absorption of learning materials and increase motivation to learn in the classroom.

Sirajudin, N. and Hasan, S.
The Effect of Mentimeter Application on Enhancing StudentsâĂŹ Communication Skills through Environments Issues.
DOI: 10.5220/0008899602180222
In *Proceedings of the 1st International Conference on Teaching and Learning (ICTL 2018)*, pages 218-222
ISBN: 978-989-758-439-8

The existence of large class problem, lack of communication, and a shift in the educational paradigm need to be found in a breakthrough. The solution is to solve the problem of the facts on the learning activities. One alternative that can be used to solve this problem is the use of learning media that can facilitate students to communicate in large classes. The media is Mentimeter. Mentimeter is one of audience response system (ARS) that refers to a number of similar names, such as audience polling systems, classroom feedback systems, interactive voting systems, student response systems, and personal response stations (Kastner, no date). Mentimeter allow students to communicate their opinions through an android phone, tablet, laptop or personal computer. Students can communicate their opinions and ideas through writing. Therefore, good language is very necessary in this written communication. The use of good language can deliver good ideas, namely ideas that can be understood by both students who convey and lecturers who will capture the ideas or opinions of students. Language as a communication tool should be used properly to deliver learning material. Students can convey various important information in a problem, discuss the strategies needed in conducting an investigation, and conclude the solution to the problem.

The effective way to improve communication is through writing because formally the use of a language can be easily implemented by writing (Ahmad, Salim and Zainuddin, 2008). Written communication helps students become active students and improve their academic achievement because students use language to facilitate their understanding and writing provides students the opportunity to communicate what they know and do not know (Kostos and Shin, 2010).

2 METHODS

The research method used is a quasi-experimental. The main difference of this study with true experimental research lies in placing individuals into groups. In experimental studies, individuals were chosen randomly to minimize bias. If individual selection is perceived as impossible or impractical, quasi-experimental research is the right choice. Because the quasi-experimental design does not provide full control, it is very important for researchers to pay attention to factors that affect internal and external validity in interpret the results of his research.

The variables in this study consist of independent variables namely ARS (Mentimeter) and the dependent variable is critical thinking. The quasi-experimental design used in this study is Posttest-Only Design with None Equivalent Groups as shown below.

$$\begin{array}{ll} NR & X \quad O_1 \\ \hline NR & \quad O_2 \end{array}$$

Note:

NR	=	Nonrandom (Not
X	=	Random)
$O_1 = O_2$	=	ARS (Mentimeter) Communication Ability Test

The dashed line between two sample classes, namely the experimental class and the control class indicates that the two classes are not formed by randomly placing individuals or research subjects into sample classes (Suratno, Ardiana and Tonra, 2018). The research subjects were eighty-two 3rd semester pre-service biology teacher from two full classers. Students who are subject to the experimental class are taught with ARS (Mentimeter) while students who are used as the research subject in the control class are taught conventionally. At the end of the learning activities, students in both sample classes were given a final test ($O_1 = O_2$), which is a test to measure their communication skills.

Written communication is not as simple as just conveying what the author thinks and then conveying it to the reader's mind. Writers and readers have their own perception toward what the issues to be discussed and will affect the construction and interpretation of the writings interpretation (Morgan, Watson and Tikly, 2004). Students' communication skills through writing must be trained regularly. For this reason, there is a need for a series of activities that support the progress of the exercise through this study. The steps of learning activities using ARS in this study are as follows:

1. Lecturers ask questions using the Mentimeter application.
2. Students answer questions individually through the menti.com website
3. After the students' initial answers are displayed, students are grouped into several small groups to discuss the correct concepts and answers.

4. Students are asked to enter the corrected answers through the menti.com website
5. The correct answer is displayed by the lecturer. Lecturers can also explain the rationalization of the correct answers so as to reduce students' misconception (Moreno, Bremner and Emerson, 2010).

3 RESULTS

This study of communication skill was in environment education courses. Description of students' communication skills can be seen based on the average and standard deviation. There were two groups of treatment. Description of students' communication ability is on the Table 1.

Table 1: Description of Students' Communication Ability.

Treatment	Mean	Std. Deviation	N
ARS (Mentimeter)	77,9	7,52	41
Conventional	42,6	7,95	41

Both of ARS (Mentimeter) and conventional classes were 41 students. The average of students' communication skills in ARS class was 77,9 with a standard deviation of 7,52. In other hand, the average students' communication abilities in conventional classroom were 42,6 with a standard deviation of 7,95. The average of both groups was 60,1 and standard deviation is 7,74. Students' communication ability to have a range of values between 0 - 100 so students' communication abilities in the ARS and conventional class be able to be classified in the good and moderate criteria, respectively.

Normality test of the data based on learning approach showed that both the ARS and conventional classes have p-value < 0.05 by Kolmogorov-Smirnov test. Based on the Shapiro-Wilk test, ARS class has p-value of < 0.05 and conventional class has p-value < 0.05. Test of homogeneity of variance showed that ARS and conventional class have a p-value > 0.05. Therefore, it can be concluded that test based on learning approach that data of students' communication ability came from non-normal distributed population and abilities of students' in communication were homogeny based learning approach.

Statistical tests of effects of method of learning on students' communication skill used the Mann-Whitney Test. The output of test is on Table 2. Table 2 Showed factor of learning approach that has a p-value < 0.05. It means learning approaches has effect on the ability of students' communication.

Tabel 2: Test Statistics[a].

	SCS
Mann-Whitney U	16,000
Wilcoxon W	877,000
Z	-7,779
Asymp. Sig. (2-tailed)	0,000
a. Grouping Variable: Approach	

4 DISCUSSION

The results of the study showed that there was an effect of using ARS on student communication skills. The research team has prepared all the possibilities that occur during research, especially the potential problems when introducing new technology. Potential problems can arise when introducing new technology in education. The researcher recommends that teachers explain new technologies that will be used in learning activities for their students (Kay and LeSage, 2009). Therefore, at the beginning of the learning activity, the researcher asks a question and the student answers via Mentimeter. After all students can convey all the answers well and smoothly, the lecturer continues with the learning activities. One of the studies carried out in the study discussed the problem of environmental pollution. Students are faced with environmental issues that occur in Ternate City. The environmental issues that are used as problems in the learning activities are as follows.

Water pollution in Ternate City is caused by organic and non - organic chemicals sourced from households and industries. What efforts can you do to maintain water in Ternate City to avoid pollution?

Students answer questions asked by lecturers through the website menti.com. Mentimeter is an interaction media that can be used by students to actively participate in classroom learning activities. This media allows students to provide answers or opinions that have been prepared by the lecturer without being identified. Therefore, students have been trained at the beginning of the learning

activities to write down the names of each at the beginning of the answers delivered. The purpose of writing the name is to see the development of student abilities from week by week. Some student answers submitted through the mentimeter are as follows.

Student A: *The effort is done by not throwing garbage in the sea and giving a warning not to throw-in of garbage in the sea*. Student B: *The effort is to maintain cleanliness in the sea, by taking organic waste to be recycled.* Student C: *The effort taken is not to throw-in of garbage in the sea, and to give information to the fishermen not to use explosives or chemicals in the fishing*. Student D: *A work that can be done is that we do not make the water flow to the sea so that the water that has been mixed with dirt or other chemicals is not forwarded to the sea*. Student E: *The effort is by not throwing garbage in the sea as well as the use of waste in the sea by recycling.*

Based on the overall answers of students, it was shown that ARS (Mentimeter) is an effective media in increasing student involvement in classroom learning activities (Funnell, 2017). Although there are obstacles related to the internet network, all students actively participate in learning activities. This is indicated by student participation in expressing their opinions through Mentimeter.

Good communication will occur if the recipient of the message understands what is conveyed by the sender of the message. Therefore, it is necessary that all components involved in a communication play a role in order to have good communication. The success of communication can be seen based on the smoothness and coherence of negotiations between all components/participants towards the desired goal (Forrest, 2008). One of the indication of whether a communication is effective or not is to look at the process of interaction means that occurs between learning plans, learning, and the experience and understanding of the students after learning (Olteanu and Olteanu, 2012). This shows that the preparation, the process, and the results are a unity of success of communication. The teacher's preparation in choosing the right form of communication will direct the success of improving communication activities.

Besides being able to be used in ARS learning activities it is possible to use it in measuring students' initial abilities before learning activities (pre-assessment), measuring student attitudes, assessing whether students have completed assigned reading and continuing the next steps of learning activities, allowing students to confirm conceptual errors, improve students 'memory of the material, test students' understanding, contribute to fair assessment, facilitate peer discussion and interaction, and increase student attendance in the classroom (Duncan, 2005). Therefore, this media should be a new alternative in solve learning problems.

5 CONCLUSION

Mentimeter is a student response system or some people prefer the term Turning Point or Clickers. A web-based system like this reduces the burden on lecturers because students can use their own mobile phones to participate in internet learning activities by entering six-digit codes to participate in answering questions or assignments. Lecturers no longer need to give a set of questions or collect answers that have been done manually by students. This reduces waste of time that can be used for further learning. Questions that can be made in Mentimeter can be multiple choice, open questions, or scale. Mentimeter also provides a menu for lecturers to check the check to which students understand the material they have explained. Therefore, lecturers can do remedial or repetition of material, if the student's understanding of the material explained by the lecturer is felt to be lacking.

Research has shown that the use of media such as mentimeter is useful for students to be able to actively participate in learning activities. Mentimeter can show answers to questions at that time. Users also don't need to download and need to also install. We only need to visit the Mentimeter website and we can participate easily using a cellphone, tablet, or laptop.

The ability to communicate in each student is of course different. However, mentimeter have been able to demonstrate their communication skills. If this learning activity is done regularly, the student is expected to improve their good communication. Communication that occurs in the classroom is one indicator of the success of a lecturer in managing learning activities. However, all students also play an important role in the communication process. Therefore, students need to be good communication skills. There are some skills needed by students to be active and able to accept the opinions of others in learning. There are paraphrasing, checking impressions, and using "I" messages (Arends and Kilcher, 2010). Paraphrasing is communication skill needed by students to convince yourself to

understand what the other person. Once students are able to understand what the other person, then they are expected to check the truth of the statement feelings or emotions of others with skills in communication checking impressions. After that, students are expected to be able to determine their standpoint or viewpoint on what others have said through using "I" messages. Conditioning a learning activity needs good preparation. Lecturers must be able to choose a strategy or learning approach that is in accordance with the character of the subject matter so that the learning objectives can be achieved.

REFERENCES

Ahmad, A., Salim, S. S. and Zainuddin, R. (2008) 'A cognitive tool to support mathematical communication in fraction word problem solving', *Wseas Transactions on Computers*, 4(7), pp. 228–236.

Arends, R. I. and Kilcher, A. (2010) *Teaching for student learning: Becoming an accomplished teacher*. New York: Routledge.

Brodie, K. (2010) *Teaching mathematical reasoning in secondary school classrooms*. New York: Springer.

Duncan, D. (2005) *Clickers in the classroom*. San Francisco: Pearson Addison Wesley.

Forrest, D. B. (2008) 'Communication theory offers insigh mathematics teachers' talk', *The Mathematics Educator*, 18(2), pp. 23–32.

Funnell, P. (2017) 'Using audience response systems to enhance student engagement and learning in information literacy teaching', *Journal of Information Literacy*, 11(2), pp. 28–50.

Hassanin, H. *et al.* (2016) 'Enhancement of student learning and feedback of large group engineering lecture using audience response system', *Journal of Materials Education*, 38(5–6), pp. 175–190.

Kastner, M. (no date) 'Incorporating Students' Self-Efficacy and Subject Value in the Evaluation of Audience Response Systems', in *48th Hawaii International Conference on System Sciences*.

Kay, R. H. and LeSage, A. (2009) 'A strategic assessment of audience response systems used in higher education', *Australasian Journal of Educational Technology*, 25(2), pp. 235–249.

Kostos, K. and Shin, E. (2010) 'Using math journals to enhance second graders' communication of mathematical thinking', *Early Childhood Education Journal*, 38, pp. 223–231.

Moreno, N., Bremner, M. and Emerson, C. (2010) 'The Use of Audience Response Systems in Nursing Education: Best Practice Guidelines', *International Journal of Nursing Education Scholarship*, 7(1).

Morgan, C., Watson, A. and Tikly, C. (2004) *Teaching school 11-19: Mathematics*. New York: RotledgeFalmer.

Olteanu, C. and Olteanu, L. (2012) 'Improvement of effective communication: The case of substraction', *International Journal of Science and Mathematics Education*, 10, pp. 803–826.

Suratno, J., Ardiana and Tonra, W. S. (2018) 'Computer-assisted guided discovery learning of algebra', in *Journal of Physics: Conference Series*. doi: 10.1088/1742-6596/1028/1/012132.