

Think Pair Share Cooperative Learning Model Using Edmodo Application

Dewi Handayani, Agus Sundaryono, Salastri Rohiat

Chemistry Education Program, Faculty of Teacher Training and Education
University of Bengkulu
Bengkulu, Indonesia
d.handayani@unib.ac.id, salastri@unib.ac.id

Abstract—The purpose of this research was to investigate the application of the Think Pair Share (TPS) cooperative learning model by using Edmodo application media to improve the quality of the teaching learning process organic chemistry 1 course. This research was a classroom action research and conducted in 3 cycles, where each cycle consisted of several stages, namely: planning, implementation, action, observation, and reflection. The instruments used in this study were observation and test sheets collected from lecturers' and student's observation. The results show that application of TPS type of cooperative learning model by using Edmodo application media can improve the student's learning outcomes in organic chemistry course that can be seen from the average of the value of cycle 1, 2 and 3 (56.58; 80.54; and 89.73, respectively). Student learning activities also increased gradually from the first to third cycle, of which the student's average scores of cycle 1, 2, and 3 were 29.5; 33; 36.5, respectively.

Keywords—cooperative learning model; Think Pair Share (TPS); edmodo application media

I. INTRODUCTION

The cooperative learning model is a learning model that is widely used and is a concern and recommended by educational experts. The use of cooperative learning can improve student learning achievement and at the same time improve social relations, foster tolerance and respect the opinions of others [1]. In addition, cooperative learning can meet students' needs in critical thinking, problem-solving and integrating knowledge with experience. Cooperative learning model type Think Pair Share (TPS) is one cooperative learning model that provides opportunities for students to work alone and work together with other people in the study group [2]. The TPS type was developed by Frank Lyman, allowing students to work alone and work together with others, to optimize student participation, provide opportunities for at least eight times more for each student to show participation to others, and can be applied to all grade level subjects [3]. There have been researches related to Think-Pair-Share, research indicates that there is a significant improvement in term of students' ability in reading English narrative text after they were treated using Think Pair Share [4]. Think Pair Share was effective to improve students' motivation as well as students' achievement in studying biology [5].

Based on the observations of the teaching and learning process of Organic Chemistry I in the classroom, the lecturer has mastered the learning material in the classroom. However, the learning model used has not varied. The media used is also limited to the whiteboard and LCD. The lack of variation in classroom learning makes students less active and tends not to be motivated to attend the learning process in the classroom. This has an impact on student learning outcomes. So, it can be said that there needs to be a new learning model and method to be used as a solution.

To overcome these problems, one of the solutions is the application of Think Pair Share cooperative learning model (TPS) by using Edmodo application media which is expected to provide solutions. By utilizing internet services and electronic devices such as computers, laptops, tablets and cell-phones (android and smartphones). Utilization of cellular phones (cell-phones) owned by students. E-learning is distance learning utilizing computer technology, computer networks or the internet online [6].

The use of learning media can help overcome student learning difficulties in understanding abstract material such as alkane derivatives. By using instructional media, abstract material will be more easily accepted and understood by students. The use of instructional media in the teaching and learning process has several benefits, namely clarifying the presentation of messages and information so as to facilitate and improve the process and learning outcomes, can improve and direct learners' attention so that it can motivate learning, can overcome the limitations of the senses space and time and can provide students with common experiences about events in their environment, and allow for direct interaction between students and teachers, community and environment [7].

The development of information technology is increasing rapidly influencing the world of education. Making learning access wider. Students become easier to access learning material from the internet using electronic devices (cell phones) that have developed at this time. While lecturers can also provide material easily through internet services. This provides a positive potential for developments in the world of education. Social media such as Facebook or Twitter, which are Web 2.0 tools available on the internet, allow teachers and students to communicate in a variety of interactive, collaborative, and autonomous ways [8].

Today's students are the 21st century learners who deal a lot with the social media. As a social networking site, Edmodo provides the students with the joyful of using social media dedicated for their learning purpose only. Edmodo is a tool that marries the benefits of social networking with a safe, controlled environment that educators can allow students to freely operate in. Students can access Edmodo via a web browser or iOS and Android Application on their Smartphone or tablet. In this manner, students can get immediate notification from any activities and or announcements posted in Edmodo as long as they are connected to the internet [9]. Edmodo is a school-based environment. Developed by Nicolas Borg and Jeff O'Hara, Edmodo is intended for use for teachers, students and parents. The appearance of Edmodo is almost the same as the social network Facebook. Facebook social networking site is common among teenagers and even elementary school age children already know what is called Facebook. Edmodo is a social media platform that is often described as Facebook for schools and can function even more according to needs because in addition to social networking / collaboration between users, Edmodo also supports the online learning process [10]. Edmodo is an interesting application for teachers and students with social elements that resemble Facebook, but actually, there is greater value in this social networking-based educational application [11]. Edmodo is a platform for social networking. Its layout and design are akin to the features used in Facebook [12]. It is one of the websites that has more than 6.5 million users worldwide [13]. Students who register into Edmodo may have a profile page where they can see latest posts of the communities they engage with and groups they join. Edmodo has a number of features and functions. When uploading into Resources, Edmodo allows users to upload profile pictures, documents, links and videos, which can be stored in the Library, to be further shared with other members. Moreover, items in the Library can be viewed at any time or place.

The Ministry of Communication and Information Technology (Kemkominfo) said internet users in Indonesia had reached 82 million people. With these achievements, Indonesia is ranked 8th in the world. Of the number of internet users, 80 percent of them are teenagers aged 15-19 years. For Facebook users, Indonesia is ranked 4th in the world. Edmodo as proof of the rapid internet technology that exists. It can be concluded that Edmodo is a social media platform for teachers and students that serves to share file ideas, activity agendas and assignments that can create teacher and student interactions. So, Edmodo allows it to be applied as a learning medium.

Some research results show that the effectiveness of learning using ICT (Information and Communication Technology) is better than traditional or conventional learning. Simamora revealed the results of the study of the learning process that uses the internet as follows: the quality of students far exceeds that of conventional classes, students have high enthusiasm in following and completing the entire learning process and there is a level of subjective satisfaction in students through a constructive pedagogical approach [14]. That learning outcomes using computer-based learning with models of tutorials and drill and practice were far better than conventional learning [15]. That students have positive

impression towards the use of Edmodo and feel comfortable of having online interaction with friends and teacher [16].

II. METHOD

The research methodology applied was Classroom Action Research since it was intended to improve the quality of the teaching learning process. Classroom action research is research conducted by lecturers in their own class through self-reflection, with the aim of improving their performance as lecturers, so that student learning outcomes increase. Class action research is a translation of Classroom Action Research, which is an Action Research conducted in class. [17]. It consisted of three cycles, and each cycle was divided into four steps; they are planning, action, observation, and reflection.

This classroom-based study was conducted in a university located in the southwest part of Sumatra Island, Indonesia. Forty-one students (6 males and 35 females) who enrolled in the Organic Chemistry Course participated in this research project.

In this study, the lecturers' observation sheets and student observation sheets were used. Lecturer observation sheets are used to observe lecturer activities in the teaching and learning process through TPS type cooperative learning models using Edmodo application media and student observation sheets are used to view student activities during the teaching and learning process take place. Achievement tests generally measure the mastery and ability of the students after they have received a certain teaching-learning process from the lecturer for a certain time. Test instruments in the form of learning outcomes. The test that is done is Posttest. Posttest is done after teaching and learning activities. This test is conducted to determine the ability of students to receive lessons learned. A questionnaire to find out the participants' view and experiences toward the use of Edmodo as social learning platform and survey on the participants' responses towards the organic chemistry 1 course. The response to this questionnaire was anonymous and done individually.

III. RESULTS AND DISCUSSION

A. Learning Outcome

The results of this research includes the initial reflection, action plans, implementation of the action (first cycle, second cycle and third cycle) on the implementation of cooperative learning model TPS using Edmodo application media. Each cycle consists of planning, implementation, observation and reflection. Prior to implementing learning with cooperative learning model TPS using Edmodo-app media, we made preliminary observations of experience in teaching organic chemistry. The purpose of the initial reflection is to evaluate the issues concerned with teaching and learning activities of organic chemistry course Based on observations, it has been known that the lecturer has mastered the course material but not the learning process. It affected student's motivation, leading to poor learning outcomes.

This preliminary research was then reflected at the next stage. TPS with Edmodo application media was carried out in the teaching and learning process outside the classroom. The

teaching material was uploaded through Edmodo, and it was made accessible by students. The Edmodo also design for students asking questions.

The planning of actions taken starts with the preparation of learning devices, including making a plan for implementing cycle 1 learning. Create and compile the material to be uploaded in Edmodo. Make and compile material that will be delivered systematically during the learning process. Prepare observation sheets for lecturer and student activities. Make the posttest cycle I questions and answer keys. Make individual notes during the learning process to see the involvement and progress that occurs in students. Class preparation for Edmodo, namely researchers creates a class at Edmodo with the name SEMESTER 3. Share a password code that students can use to create an account and join Edmodo. In cycles II and III the learning process steps are the same as in cycle I.

Before carrying out the teaching of organic chemistry by using cooperative learning model type TPS and Edmodo application media, 2 days earlier the researchers provided course material through Edmodo. At the beginning of learning, the lecturer delivered and wrote the title of the material to be studied. Lecturers give apperception by asking students to recall Hydrocarbon material. Then the lecturer gives motivation to students, by conveying the benefits of the material to be learned in daily life. Furthermore, the lecturer explained the purpose of learning so that students can be more motivated in the learning process.

In the implementation of learning in the classroom, the researchers carried out the steps of the TPS type cooperative learning model which included: thinking, pairing, sharing. The stages of learning implementation are described as follows.

1) Thinking: The lecturer asks questions related to the lessons to be considered by students. Lecturers give them the opportunity to think about the answer.

2) Pairing: At this stage the lecturer asks students to pair up. Give the couples the opportunity to discuss. It is hoped that this discussion can deepen the meaning of the answers that have been thought through inter-subjectively with their partners.

3) Sharing: At this stage the results of inter-subjective discussions in each pair of results are discussed with the partner in front of the class. In this case, it is expected that there will be a question and answer that encourages integrative construction. Learners can find the structure of the knowledge they learn.

Lecturers monitor and guide students in solving questions on the discussion sheet. Discussion sheets are given to train and strengthen students' understanding of course material. Furthermore, the lecturer invited representatives from the student group to convey the work that had been completed and asked other students to give opinions. Then the lecturer gives an award in the form of praise to students who dare to display their work in front of the class as a form of motivation to students.

After the action in each cycle is completed, the lecturer gives the students a test in the form of posttest questions.

Assessment of learning outcomes for each cycle is seen from the posttest results of each cycle.

TABLE I. POSTTEST DATA PER CYCLE

Description	Posttest		
	Cycle I	Cycle II	Cycle III
Number of students	41 People	41 People	41 People
The number of students taking the test	36 People	37 People	37 People
The total number of students completed	11 People	33 People	35 People
Unfinished number of students	25 People	4 People	2 People
Average of value	56.58	80.54	89.73
Classic Absorption (%)	56.58%	80.54%	89.73%
Learning completeness (%)	30.55% (Not Completed)	89.19% (Completed)	94.9% (Completed)

Table 1 describes the posttest results per cycle. In the posttest result of cycle, I, it shows that out of 36 students only 11 students received grades ≥ 70 and 25 students got a score of ≤ 70 . The learning outcomes at posttest cycle I had an average score of 56.58 with classical absorption 56.58% and mastery learning amounted to 30.55%. classically the learning process in cycle 1 has not yet been completed because classical learning completeness is achieved when as many as 85% of the number of students in the class have received a score of ≥ 70 . While individually in learning cycle I only a small proportion of students achieve mastery learning.

In cycle II there was an increase in learning outcomes from the previous cycle. Marked by an increase in the average value of students to 80.54; classical absorptive power of 80.54% and completeness of learning rose to 89.19%. In the third cycle, there was also an increase in the average value and absorption capacity obtained by students. The average value increased to 89.73 with learning completeness of 94.59%. Each cycle has experienced an increase in learning outcomes. Overall students get better grades than cycle I and cycle II. The improvement of student learning outcomes can be seen from the increase in the average score, the classical absorption of students and the completeness of student learning.

In general, it can be said that an increase in student learning outcomes in each cycle is caused by the TPS cooperative learning model using the Edmodo application media. This e-learning learning model utilizes cellular phones owned by students and hotspots in the GKB III area. At the teaching stage, learning is applied to the TPS cooperative learning model using the Edmodo application media where in the first phase students are invited to observe the material that has been uploaded to the Edmodo page and then record the important things and discuss with the lecturer about lecture material, the material is uploaded before students begin the lesson.

At the beginning of the lesson, the lecturer asks students to review the material that they have summarized from Edmodo, and added to the explanation and linking the material with real

life. This is done so that students recall the initial picture of the material to be studied.

The next stage, is the provision of learning materials, where students pay attention and discuss with lecturers or between students and complete student worksheets. In this stage students will collect data based on the understanding that has been obtained from reading material in Edmodo and strengthening material from the lecturer in front of the class. In cycle I students were given questions about the chemistry of carbon and alkanes. In cycle II students are given a problem in the form of alkene. And in the third cycle, students are given the problem in the form of alkuna.

After completing the worksheet, the lecturer asks students to present the results of the student worksheets that are done in pairs to be displayed in front of the class. In the closing activity, students are provoked to conclude on their own based on the material they have obtained. At the end of learning students work on individual posttest questions. Giving praise is seen from the learning process and the results of working on student worksheets. Giving praise is expected to be able to motivate students to be able to perform better.

B. Student and Lecturer Activities

The learning process in this study applies the TPS cooperative learning model using the Edmodo application media. To find out its application in this study, an observation sheet was used to determine the extent of the application of TPS type cooperative learning models using Edmodo application media conducted by lecturers and students in the learning process. The activities of lecturers and students in the learning process will influence the learning outcomes obtained. The observations can be seen in table 2 below.

TABLE II. RESULTS OF OBSERVATIONS OF STUDENT AND LECTURER ACTIVITIES

Observation Activity	Cycle	Score	Criterion
Student Activity	Cycle I	29.5	Enough
	Cycle II	33	Good
	Cycle III	36.5	Good
Activity Of Lecturer	Cycle I	35	Good
	Cycle II	35	Good
	Cycle III	36.5	Good

Table 2 illustrates that student activity in the TPS cooperative learning model using Edmodo application media has increased in each cycle. In addition, Table 4 shows that from cycle I to cycle III lecturer activity during the learning process of e-learning models through TPS type using Edmodo application media in each cycle has a good category.

In the first cycle, the average score obtained in student activity is 29.5, this score is included in the criteria. This is because students are still in the adjustment stage of learning organic chemistry I through TPS cooperative learning models using the Edmodo application media. Students also still do not realize the essence of learning to use TPS cooperative learning models. This can be seen when the lecturer provides a reference to learning material there are still many students who are less active in expressing their opinions. Based on the results of reflection on cycle I, improvements were made in cycle II.

Where the lecturer has provided more even guidance to students in completing student worksheets and motivating students by giving awards and reinforcement. So that students become more confident and achieve.

In the second cycle and third cycle, the average scores obtained in student activities were 34 and 36.5 respectively. This score is also included in good criteria. It can be seen from the scores obtained that each cycle experiences an increase in student learning activities. This is because students and lecturers have been able to adapt to the learning model applied.

In each cycle, the TPS type cooperative learning model was implemented using the Edmodo application media, where before starting the learning process students were given teaching material first which was packaged into Edmodo and then accessed by students to be read and summarized to be used as learning resources. After that the learning process starts with using the TPS type. In the third cycle, students are more confident and become more enthusiastic in undergoing the learning process because they feel they have the knowledge about the material learned during the learning process. Students also feel motivated to improve learning outcomes. Learning in cycle III can be said to be as expected

The increase in student activity is inseparable from the role of a lecturer as a mentor, facilitator as well as a motivator so that more student activities take place. It can be concluded that student activity has increased. Research that has been conducted on the application of TPS cooperative learning models using Edmodo application media can actually increase the activity and learning outcomes of student chemistry on the subject of hydrocarbons. The increase in learning outcomes is due to an interesting learning model, where learning is carried out through sharing the process between learning by utilizing communication tools that have become the needs of students in daily life, so as to realize shared understanding that creates a wider interaction. Interaction and communication of lecturers with students, students with students and students with lecturers through learning anywhere and anytime as long as internet access is available.

In this study, the provision of teaching materials before starting learning makes students more prepared and feel confident in following the learning process, can make students more active, and train students to use their communication tools for a fun learning process. This can make students enthusiastic in learning so that the expected learning outcomes can be achieved.

The application of the TPS cooperative learning model can improve student learning outcomes and activities because in learning activities students are given the opportunity to work on LDS independently before finally pairing to discuss the work obtained and presented in front of the class. This means that all students are given the same responsibility in solving problems and given the opportunity to think independently before exchanging opinions. This makes all students have more time to think. The cooperative learning model type TPS has explicitly defined procedures to give students more time to think, answer and help each other. In related research, it was found that think-pair-share increases interaction among students. It has a social dimension since it increases

cooperation and communication among them [18]. Moreover, research on academic achievements, it found out that the strategy improved students' achievements in speaking [19].

After the implementation of Edmodo, students responded more positively, there are 10 students strongly agree that they like using Edmodo, while 25 of them agree to the statements, 4 students are neutral and there were 2 students who slightly disagree to the statement that they like using Edmodo.

The interface of Edmodo which is similar to Facebook is very familiar for them as active social media users. Most of the students also think that they have no technical problem in doing the exercises and assignment in Edmodo. However, most of the problems are related to the slow internet connection which hinders them from accessing the website. [16]. Also, it is estimated that students who are already Facebook users can use Edmodo without difficulties [20].

IV. CONCLUSION

Based on the results of the study, it can be concluded as follows The application of TPS type of cooperative learning model using Edmodo application media can improve the learning outcomes of organic chemistry students in semester 3 material hydrocarbons with alkane, alkene and alkuna sub-topics seen from the average I cycle the average student is 56.58 with a classic absorptive capacity of 56.58% and the completeness of learning outcomes is 30.55%. Meanwhile, in the second cycle, the average student was 80.54 with a classic absorptive power of 80.54% and the completeness of learning outcomes was 89.73%, then in the third cycle experienced an average increase of students was 89.73 with classical absorption 89. 73% and completeness of learning outcomes amounted to 94.59%. The application of TPS type cooperative learning model by using Edmodo application media can improve the learning activities of organic chemistry I students in semester 3 material on hydrocarbons with the subtopics of alkanes, alkenes and alkynes from the average cycle I the score was 29.5 with enough categories, increasing in cycle II to 33 with good category and increasing to 36.5 in good category.

REFERENCES

- [1] R. Slavin, Cooperative Learning. Bandung: Nusa Media, 2005.
- [2] D. Djuanda, "Pengaruh model pembelajaran kooperatif tipe think pair share terhadap hasil belajar siswa kelas X TKJ di SMK Negeri 1 Tomohon," Engineering Education, vol. 1, no. 4, 2013.

- [3] M. Huda, Cooperative Learning Metode, Teknik, Struktur, dan Model. Yogyakarta: Pustaka Pelajar, 2013.
- [4] D. Sugiarto and P. Sumarsono, "The implementation of think-pair-share model to improve students' ability in reading narrative texts," International Journal of English and Education , vol. 3, no. 3, 2014.
- [5] D. Indrayati, "Penerapan pembelajaran kooperatif model tps untuk meningkatkan motivasi dan hasil belajar biologi siswa kelas VII-D SMPN 2 Beji Pasuruan," (Unpublished).
- [6] G. Suriadhi, D.K. Tastra, and Ign. W. Suwatra, "Pengembangan E-learning Berbasis Edmodo Pada Mata Pelajaran IPA Kelas VII di SMP Negeri 2 Singaraja," Journal Edutech Universitas Pendidikan Ganesha, vol. 2, no. 1, 2014.
- [7] A. Arsyad, Media Pembelajaran. Jakarta: PT Raja Grafindo, 2007.
- [8] N. Cowie and K. Sakui, "It's never too late: An overview of e-learning," ELT Journal: English Language Teachers Journal, vol. 67, no. 4, pp. 459-467, 2013.
- [9] S.M. Scott, "Go ahead...be social using social media to enhance the twenty-first century classroom," Distance learning, vol. 9, no. 2, pp. 54-59, 2012.
- [10] A. Sudibjo and Wasis, "Penggunaan media pembelajaran fisika dengan e-learning berbasis edmodo blog education pada materi alat optik untuk meningkatkan respons motivasi dan hasil belajar siswa di SMP Negeri 4 Surabaya," Jurnal Inovasi Pendidikan Fisika, vol. 02, no. 03, pp. 187 – 190, 2013.
- [11] S. Prasetyono, Pengembangan Media Pembelajaran E-learning Berbasis Edmodo Pada Kompetensi Dasar Menerapkan Konsep Dasar Sistem Komunikasi Data Sinyal Digital Melalui Media Kabel Fiber dan Frekuensi Radio di SMK Negeri 1 Jetis Mojokerto, Teknik Elektro, Fakultas Teknik, Universitas Negeri Surabaya, 2014.
- [12] T. Trust, "Professional learning networks designed for teacher learning," Journal of Digital Learning in Teacher Education, vol. 28, no. 4, pp. 133-138, 2012.
- [13] R. Flanigan, "Professional learning networks taking off. Education Week," 2011. [Online]. Retrieved from <http://www.edweek.org>.
- [14] Rusman, Model-Model Pembelajaran. Jakarta: PT Raja Grafindo Persada, 2011.
- [15] Rusman, D. Kurniawan, and C. Riyana, Pembelajaran Berbasis Teknologi Informasi dan Komunikasi. Bandung: Rajawali Pers, 2013.
- [16] F. Dewi, "Edmodo: ASocial learning platform for blended learning class in higher education," Research in Education Technology: Pedagogy and Technology Journal, vol. XI, no. 2, 2014.
- [17] Wardani and Wihardtit, Penelitian Tindakan Kelas. Jakarta: Universitas Terbuka, 2009.
- [18] C. Parker, Foundational Methods: Understanding Teaching and Learning. Toronto: Pearson Education, 2009.
- [19] M. Brady and M. Tsay, "A case study of cooperative learning and communication pedagogy: Does working in teams make a difference?," Journal of the Scholarship of Teaching and Learning, vol. 10, pp. 78-89, 2010.
- [20] S. Çankaya, G. Durak, and E. Yunkul, "Using educational social networking sites in higher education: Edmodo through the lenses of undergraduate students," European Journal of Educational Technology, vol. 1, no. 1, pp. 3-23, 2013.