

The Utilization of Edmodo in Blended Learning

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Abstract—Information and Communication Technology (ICT) develops rapidly in all fields in our lives, including education. The development of ICT will have an effect on the learning process which was initially face-to-face conducted conventionally to be more open by using ICT. Blended learning is a combination of face-to-face learning and e-learning. Edmodo is a very popular Learning Management System (LMS). Utilizing Edmodo in blended learning will make learning be more flexible since learning can be conducted outside the classroom in addition to inside the classroom at anytime, anywhere. Edmodo has many features that can be used in blended learning. The features in Edmodo will make learning be more creative and innovative.

Keywords—Edmodo, blended learning, the utilization of Edmodo

I. INTRODUCTION

Nowadays, the industry 4.0 era has begun. The new era of industry 4.0 requires a new cross-functional role with different knowledge and skills by combining IT and production knowledge [1]. In education, in order to deal with the industry 4.0 era, there are some literacy changes needed. In Indonesia, the government has a program to strengthen the old literacy program (reading, writing, and mathematics) by new literacies. The three new literacies are data, technology, and human literacies [2]. With these three skills, it is expected that graduates will be able to compete in the industry 4.0 era.

Data literacy is aimed at improving reading, analyzing, and the use of digital information, while technology literacy is aimed at providing an understanding of how machines and technology applications work (Coding, Artificial intelligence, and Engineering principles), and human literacy is aimed at improving communication skills and design science [2]. The data and technology literacies can be applied in the learning

carried out at colleges, while human literacy will be a common part of education that must be mastered by the graduates.

The adaptation of new literacy movement can be integrated by adapting the curriculum and learning system in response to the 4.0 industrial era [3]. The learning that can be developed to respond the challenges in industry 4.0 is the 21st century learning. Utilization of information and communication technology (ICT) in all fields of life, including the learning process, is one of the changes in the development in the 21st century. ICT provides ease in communication and also for users to access various information quickly at anytime, anywhere. The use of ICTs in the learning process will help the learning process being more innovative. This is in line with the statement by Wichadee [4] that the use of technology with new teaching methods can create an innovative learning environment, which allows teachers to manage study in a more efficient way.

The implementation of the 21st century learning is e-learning. E-learning is the delivery of learning and training through ICT that is specifically designed to support individual learning or improve organizational quality [5]. E-learning allows distance learning by using ICT-assisted devices, such as computers and the internet. By utilizing ICT, e-learning is able to distribute learning materials, so students can access the materials anywhere [6]. Thus, teachers and students can interact with each other using a computer through the internet.

In order to make e-learning working well, a system that can provide the users' (teachers & students) needs in online learning. LMS (Learning management system) is a system designed to provide ease for the users to do online learning. LMS provides the features needed by teachers and students in virtual learning. There are various types of LMS used by the people nowadays, such as Moodle, Claroline, Dokeos,

Docebo, Edmodo, etc. Each LMS has different advantages and disadvantages.

Cost is one of the things that hinder the institutions in building an e-learning system. In making and developing e-learning, it takes a lot of money to produce the expected e-learning systems. Edmodo is one of the most popular LMS [7][8]. Edmodo is one of the unique LMS and is different from other LMS. Compared to other LMS, Edmodo has several advantages, one of which is the system has been provided by the developer so that the users (teachers & students) can use it without having to think about the development & maintenance of the server devices and security systems used. It is in contrast with moodle, claroline, dokeos, and docebo, where the users must have their own server devices and have experts to maintain the hardware used, as well as carry out the development and maintenance of the system periodically in order to be able to use. With such advantages, Edmodo becomes one of the alternative choices that can be used in the utilization of e-learning, especially for institutions that have limitations in terms of financing the production and development of e-learning.

The utilization of ICT becomes a central part in the 21st century education that must be optimized to create sophisticated learning and maximize the quality of students in the future [8]. The development of ICT will have an effect on the learning process which was initially face-to-face conducted conventionally to be more open by using ICT as learning media. The results of research conducted by Söderström [9] showed that, in the last 20 years, there has been a shift in the development of education towards ICT as one of the 21st century management strategies which is included institutional and human resources management. The learning developed in the 21st century tends to combine the conventional and ICT-based learning or known as blended learning. The 21st century will be remembered in the history of education as the beginning of blended learning [10].

Blended learning combines face-to-face learning environments and computer-mediated (or distributed) learning environments [11]. On the one hand, face-to-face learning can be carried out in the classroom, while on the other hand learning can be done online by using electronic media. In blended learning, there are various combinations of media, technology, and activities, so that learning can run optimally in accordance with the characteristics of the audiences [12]. In addition, to conduct face-to-face learning in the classroom, learning can also be carried out using e-learning, so that learning can run smoothly. It will be easier for the teachers to make planning and to conduct and control learning activities carried out by students. In a study conducted by Harris [13], it is known that Blended learning can maximize teaching time in planning and doing learning, as well as being able to provide data about activities carried out by students in details.

The combination of face-to-face learning in classroom and e-learning using Edmodo is expected to be able to respond the challenges of 21st century learning. Edmodo will make learning being more innovative so that learning will run smoothly. With blended learning, it will be easier for the teachers to organize and plan study, so that learning will be

more efficient. The utilization of Edmodo in blended learning will have a positive effect on learning.

II. RESEARCH METHODS

This study used the qualitative approach with analytical-descriptive type by trying to explain the problems examined in detail with a literature review approach sourced from books and journals on the utilization of Edmodo in blended learning. The references sourced from printed and online books, as well as journals are the main sources in article writing.

III. RESULTS AND DISCUSSION

A. Edmodo

ICT development has some effect on various sectors in life, including education. The social network Edmodo is one of the products in the field of education amid the development of ICT. Edmodo is a social media network designed by Jeff O'Hara and Nick Borg in 2008 which is available at www.Edmodo.com [4][14]. Using computers & mobile devices connected to the internet allows teachers and students to do online learning. Edmodo can be used on mobile devices and the web to create online groups [14] [15]. In addition to being accessible using a web browser installed on computers and mobile devices, Edmodo also provides applications that can be installed on smartphones. Edmodo is available for Android, iOS, and Windows [16]. The development of the use of smartphones and tablet phones is increasing, that makes learning with Edmodo is easier and accessible anywhere.

B. Features of Edmodo

Edmodo has various features that can be used by its users. Announcements, material sharing, creating groups, discussions, presenting actual problem scenarios to groups, and conducting learning planning activities can be done using Edmodo [17]. In research conducted by Endang [18], Edmodo has 8 features that support learning, they are:

- 1) *Groups Teacher*: Students and parents, this feature allows students and parents to join as members, and participate in the activities conducted in LMS,
- 2) *File and Links*: This feature allows users to send and share links, as well as various files using through attachment,
- 3) *Teacher Libraries and Student Backpacks*: This feature allows teachers to upload teaching materials such as materials, presentations, pictures, videos, references, etc.
- 4) *Quiz*: This feature allows the teachers to provide online evaluations to students in the form of multiple choices, short answers, and descriptions,
- 5) *Assignment*: This feature allows the teachers to provide assignments online to students, equipped with a deadline that can be determined by them, so it is expected that this feature makes students to be more discipline in submitting tasks,
- 6) *Gradebook*: This feature allows the teachers to provide assessments manually or automatically that can be seen by students,

7) *Badges*: This feature allows the teachers to reward students or groups for their achievements, and

8) *Post, Note, and Polling*: This feature is a tool provided to teachers and students to communicate in LMS.

C. *The Advantages and Disadvantages of Edmodo*

Edmodo has several advantages that make it an alternative choice for LMS. Edmodo has simple, user-friendly, and responsive display on desktop and mobile browser pages. Due to the user-friendly menu, it gains more attention of the teachers and students [19]. Edmodo looks very similar to Facebook, so it is known as "Facebook for school" [20]. For Facebook users who have never used Edmodo yet, they will not find many difficulties in using Edmodo. The basic thing that distinguishes Edmodo from other social media platforms is that Edmodo is a social learning media designed to ensure cooperation, communication, share knowledge, do homework, and conduct discussion between students, teachers, and parents [7][21]. The development of the system, contents, features, and security is performed by Edmodo. Teachers and students can use the system that has been provided without having to think about the server devices and security systems used. Thus, in terms of economy, Edmodo is very helpful for institutions whose limited budget but want to conduct online learning.

Edmodo is a platform for learning that allows students and teachers to interact outside the classroom [22]. Through Edmodo, learning will be more flexible, because in addition to conduct learning in the classroom, students and teachers can interact with each other to conduct learning activities anytime, anywhere. Edmodo as a free and safe learning platform is not only able for teachers to create and manage online classes, but also for students to contact their colleagues and teachers anytime and to provide an easy learning [7]. Various features provided by Edmodo make learning being more varied. Edmodo transforms learning activities to be more interactive, innovative, and creative [23]. In addition to the advantages, there are also some disadvantages in Edmodo, one of which is that the development of server system and maintenance used by Edmodo is carried out entirely by its developers, so that if there is a technical issue in the system and server, the users can only leave it to and depend on the developer.

D. *The Advantages of E-Learning*

Edmodo is one of the systems used in E-Learning. There are several advantages and disadvantages of e-learning in the learning activities. According to Guragain [24], the advantages of implementing e-learning are:

1) *Convenient for students*: learning materials are accessible anywhere and anytime by students without having to attend the class,

2) *Lower cost*: the materials can be chosen by students according to what they want in the form of soft copy, in addition, institutions will also save more costs because the materials are reusable in another session,

3) *Up-to-date learning materials*: learning materials in e-learning can be updated faster than in the classroom learning,

as the materials stored in the system are reusable for a long period,

4) *World-wide learning society*: e-learning enables the world society to learn regardless of its geographical location, in addition, students can also contribute to the updates of learning materials in order to stay up to date,

5) *Scalable e-learning systems*: the number of students in a virtual class will not result in a significant difference in terms of cost,

6) *Higher degree of freedom for students*: an e-learning system gives students the freedom to learn the same materials repeatedly until they are satisfied,

7) *Better retention*: the audio and video materials in e-learning makes the whole learning process being more enjoyable, as this will help students to remember the materials learned for a long period, in addition, the materials are accessible anytime, so that repetition makes retention easier.

E. *The Disadvantages of E-Learning*

In addition to advantages, there are also some disadvantages of e-learning. According to Guragain [24], the disadvantages of the implementation of e-learning are:

1) *Low Motivation*: the tentative schedule used in learning makes students lazy and having low motivation,

2) *Technology-dependency*: the materials in e-learning are delivered by utilizing ICT so that if there is any damage or interference to the hardware and the internet connection, the learning process will be disrupted,

3) *Compatibility issues*: the number of available learning systems, the material provided is incompatible with certain devices, such as the iPad which blocks the flash videos, make the users of these devices unable to get the materials provided,

4) *Reliability of the content*: the content provided on the internet is not always reliable, there are even people who mislead their readers by giving wrong information, therefore, in searching for information on the internet, people must be careful and check the reliability of the content before learning it,

5) *Social isolation*: the lack of friends in real-life when learning will make some students being socially isolated,

6) *Expenses management*: in a long-term, e-learning is a cheaper option, but at the beginning of its use it may be quite expensive for some institutions, in addition, the cost of training and material development is higher than traditional learning,

7) *Disadvantages for disabled students*: in developing new instructional materials, the institutions usually target large groups of users, so they don't think about the disabled students, such as students with visual impairments,

8) *Not effective in all cases*: in some cases, face-to-face learning is more effective than online learning because e-learning does not have two-way communication.

F. *Blended Learning*

One of the 21st century learning models is blended learning. Blended learning is a learning that combines face-to-

face and online learning [25]. Blended learning is a relatively new concept in learning where instructions are delivered through a combination of online and traditional learning, led by a teacher or instructor [26]. Furthermore, according to Kaye Thorne [27], Blended learning is a mixed learning that utilizes multimedia technology, cd-rom, virtual class, voice-mail, e-mail, video streaming, and so on. Based on the opinion of some experts on blended learning, it can be concluded that blended learning is a learning that uses a variety of approaches, media, and technology that combines face-to-face activities in the classroom and independent learning online.

Online learning is different from blended learning. Many people assume that blended learning is similar to online learning. There are 4 types of learning based on the proportion of content delivered to the students online [28]. The 4 types of learning are described in Table 1.

TABLE I. PROPORTION OF CONTENT DELIVERED ONLINE

Proportion of Content Delivered Online	Type of Course	Typical Description
0%	Traditional	Course with no online technology used content is delivered in writing or orally.
1 to 29%	Web Facilitated	The course which uses web-based technology to facilitate what is essentially a face-to-face course. Uses a course management system (CMS) or web pages to post the syllabus and assignments, for example.
30 to 79%	Blended/Hybrid	Course that blends online and face-to-face delivery. A substantial proportion of the content is delivered online, typically uses online discussions, and typically has some face-to-face meetings.
80+%	Online	A course where most or all of the content is delivered online. Typically have no face-to-face meetings.

Based on the content delivered to students online, a lesson is included in online learning if more than 80% of the content is delivered online and has almost no face-to-face learning. Whereas, in blended learning, 30%-79% of the content is delivered to students online. Learning materials that are not comprehended yet by students online can be asked more clearly to the teacher through face-to-face activities so that

learning can run smoothly. Blended learning is a way to improve interaction between teachers and students, as the students have the freedom to choose teaching materials that they are interested in, to manage their schedule freely so that through communication with teachers and peers in face-to-face classes, the knowledge provided in online learning can be internalized [29]. In practice, blended learning has several advantages and disadvantages. Some of the advantages of blended learning are; it can broaden the boundaries of the learning space on face-to-face activities by which learning can be done anywhere and anytime; students can meet their learning needs and interests and can determine the learning speed of each material; it can improve student learning motivation; provides a fun and harmonious learning environment for students; the teachers can have a general picture of students' learning situations; and introduces more relevant information to increase the depth of teaching [30]. Basically, blended learning is a solution to overcome the problems in both face-to-face and online learning. However, some educational actors still find difficulties in implementing blended learning because there are several disadvantages in its implementation. The disadvantages in blended learning are; teachers must work extra hard in implementing blended learning; teachers find difficulties to divide the proportion between face-to-face and online learning; and blended learning has some effect on students' cognitive and learning styles [31]. Students who are accustomed to learning by reading textbooks then shift to online learning will have some effect on their cognitive development. In order to implement blended learning, teachers must have skills in managing the IT-based learning.

Blended Learning has several models that can be used by the teachers so that it can adjust the situations and conditions. According to Heather Staker and Michael B. Horn [32], there are 4 models in blended learning:

1) *Rotation Model*: integrating online learning while having face-to-face learning in classroom with the supervision of a teacher or instructor. Face-to-face and online learning take place in the same place, students only take turns on schedule in carrying out the face-to-face and online learning. In the interval between face-to-face and online, students are divided into groups then given assignments and asked to complete the assignments online and submit the assignments on the next face-to-face class,

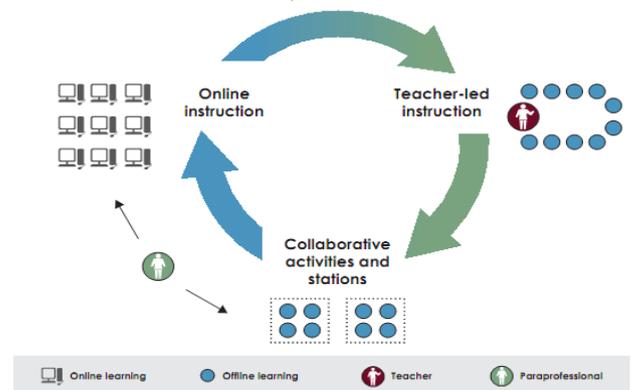


Figure 1. Rotation Model

2) *Flex Model*: Utilizing the internet media in delivering learning materials to participants. In this case, the participants can form discussion groups. Learning is carried out online but the teachers give flexibility in various activities in the classroom,

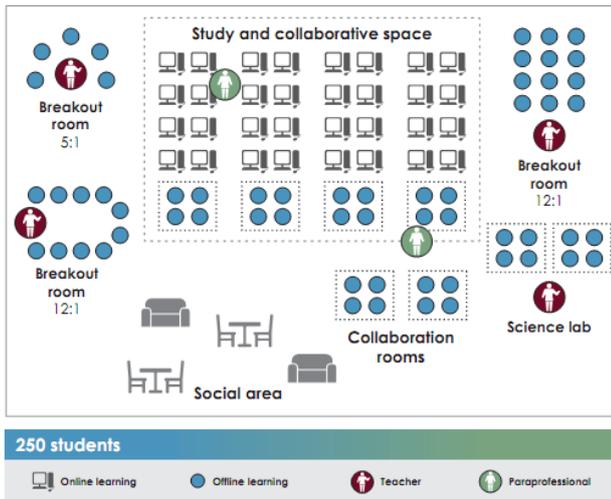


Figure 2. Flex Model

3) *Self-Blend Model*: In this case, students can individually choose to take an online class as a complement to the traditional class that is not require inside the classroom but can be outside the classroom,

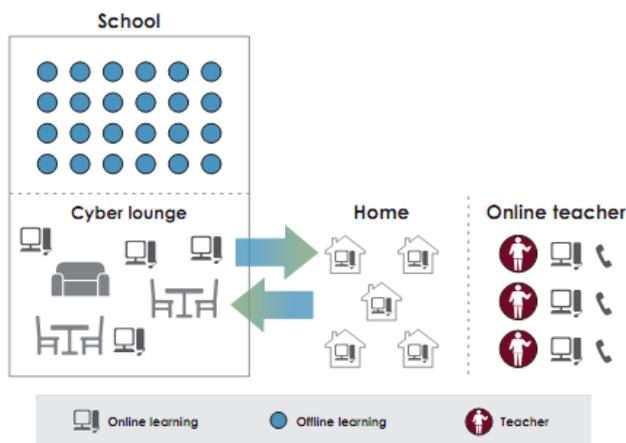


Figure 3. Self-Blend Model

4) *Enriched Virtual Model*: Students can manage their time to decide between attending every face-to-face learning class and distance learning using materials and instructions delivered online. Students can complete the remaining assignments given in face-to-face learning online either at school or outside the school.

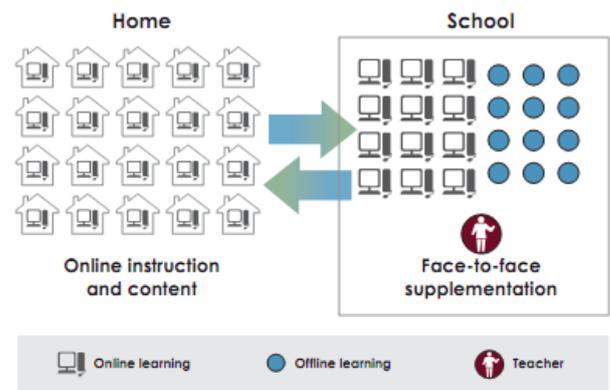


Figure 4. Enriched-Virtual Model

G. The Utilization of Edmodo in Blended Learning

Learning strategies are very influential on achieving learning goals. The success in achieving learning goals can be supported by using Edmodo. In learning, Edmodo facilitates the teachers and students to be able to interact with each other both to consult the materials and assignments given and things related to other learning. Edmodo also facilitates students to communicate with each other. Through the facilities provided by Edmodo, teachers can easily provide and distribute learning materials to their students. Edmodo has an interesting design that attracts students' attention to learning so that teachers can easily give experiences and create a blended learning environment [19]. By utilizing Edmodo in blended learning, learning will be more interesting and varied. Edmodo has several features that can be used in blended learning, as follows:

1) *Classes*: Classes in Edmodo is used for placing student groups as face-to-face classes. By grouping, it is expected that face-to-face learning conducted in class can be synchronized with e-learning using Edmodo. The face-to-face and Edmodo virtual classes allow the learning conducted by the teachers and students to run smoothly. The disadvantages in e-learning can be covered with face-to-face learning and vice versa. Classes make blended learning better organized.

2) *Small Group*: Small group is used to make smaller group in class. With small group, so the organizing of subject that are taught will be more regular in a class. Teachers can make some subjects smaller groups in a class. This feature make discussion in blended learning become more organized.

3) *Library*: Library in Edmodo can be used by the instructor to store the material sources, such as e-books and files related to the subject. The library can also be used for storing Assignments and Quizzes that can be used and modified in the future when needed. The library can also be linked to OneDrive and Google Drive accounts so that if the teacher has stored data on both Cloud storages, it can be opened and shared easily to the students using Edmodo. Library also gives teachers the authority to share materials that can be accessed by students and which can only be accessed by teachers. In blended learning, this feature will help students

and teachers to be able to access learning resources at anytime, anywhere.

4) *Note*: Note in Edmodo can be used for making announcements, notifications, and asking questions related to learning. In blended learning, this feature will ease the teachers in providing information to students without having to meet students directly. In addition, students can also access information provided by teachers outside the classroom.

5) *Poll*: Poll is made to find out the opinions of all students in the class. Edmodo provides this feature that can be used by teachers to find out the most votes from a poll held. In blended learning, this feature will give students the opportunity to freely express their opinions without any influence from their class environment. Teachers can also easily create polls to be delivered to students anywhere, anytime.

6) *Assignment*: Teachers can give independent assignments to students by using one of the features provided by Edmodo. The form of assignments that can be given by the teacher to students can be multiple choices, short answers and descriptions. To make multiple choices, you can use the Quiz feature, while making assignments in the form of descriptions and other assignments can be made using the Assignment feature. In this feature, besides being able to directly making questions in the page provided by Edmodo, questions can also be sent to students in the form of files through Attachment provided by Edmodo. The assignment is equipped with a *turn in* a button that serves as a marker that students have completed their assignments. In order to make students more disciplined in submitting assignments, this feature also comes with a due date facility which functions to set the due date to students to submit the assignments. In blended learning, this feature eases the teachers to give and evaluate assignments submitted by the students. It will also be easier for students in accessing assignments given by teachers, rather than attending the class directly in the classroom.

7) *Quiz*: Quiz in Edmodo is used to help students getting more enjoyable learning. There are 5 types of quizzes provided by Edmodo to create games using Quiz Feature, they are:

a) *Multiple choice*: By using Edmodo, the teachers can ask questions with several alternatives which is one of them is the correct answer.

b) *True False*: Unlike the Multiple Choice, True-False type only provides 2 alternative choices of answers, name True and False.

c) *Short Answer*: Teachers can make questions with short answer easily.

d) *Fill in the blank*: With Edmodo, the teachers can make a question where students must fill the answer in the blank space.

e) *Matching*: The teachers can make questions and answers in the same number randomly, then the students have to match the questions to the most appropriate answers.

The *Quiz* feature provided by Edmodo is also equipped with several facilities that make quizzes more interesting and fun. Each question in Quiz can be set for its point that can be obtained by students when answering it correctly. Thus, each question can have different points. *The quiz* is also equipped with Time Limit which serves to limit students' time in working on quizzes. *The time limit* will work after students open the quiz. Another facility provided by this feature in Edmodo is that the teacher has an authority to whether display or not the results of students. The quiz can be delivered or distributed directly by the teachers to students after making the questions. The quiz can also be scheduled for delivery according to the time set by the teachers. In blended learning, the use of *Quiz* contained in Edmodo can make the implementation of quiz more organized in preparation and implementation.

8) *Discussion*: Edmodo provides a discussion room that can be used by teachers and students to discuss anything related to learning. The things that can be discussed are information that comes from some of the features previously mentioned, such as Note, Assignment, Quiz, and Poll. Note that contains information submitted by the teachers can be discussed by students and teachers if there is a need to discuss the information. The assignment can also be used for discussing anything related to the assignment given by the teachers, such as technical instructions in doing the assignment and evaluating the results of the work done in the assignment. The quiz given by the teachers to students can also be discussed in Edmodo as discussed in the evaluation of the results of the quiz. The results of the Poll can also be discussed by the teachers and students. Each Note, Assignment, Quiz, and Poll can be the subject of a discussion conducted by teachers and students. It is very easy to conduct a discussion by only sending comments in the field provided. Students can conduct a discussion with each other guided by the teachers. The discussion process with Edmodo is very similar to the use of Facebook by exchanging comments. Discussion using Edmodo is more enjoyable because it can be conducted anywhere and anytime. In the implementation of blended learning, the discussion conducted using Edmodo can be continued with discussion conducted in the classroom or vice versa.

9) *Messages*: Messages feature in Edmodo can be used by teachers to have private communication with students. In addition, the teachers can also send a message to several students at the same time with the same content. This feature can be used by teachers to have private communication to students regarding anything related to the development of students. In the implementation of blended learning, this feature is used by teachers to communicate to students outside the face-to-face meeting.

10) *Progress*: With this feature, the teachers can monitor the progress of students' achievements by using the Grades facility. Edmodo provides an assessment sheet that can be filled by teachers. In addition to the assessment sheet, Edmodo provides Badges that teachers can give to students for their

participation and achievements. The types of badges provided by Edmodo are; (1) student of the month, (2) star performer, (3) perfect attendance, (4) participant, (5) homework helper, (6) hard worker, (7) good question, and (8) good citizens. With the provision of badges, students are expected to be more enthusiastic and motivated in improving their achievements and abilities. In blended learning, Grade can be used by teachers to provide assessments anytime, anywhere, including when conducting face-to-face learning. The badges given to students are expected to improve students' motivation to try to be the best, so that there is a positive competition in learning, both inside and outside the classroom.

IV. CONCLUSION

The rapid development of ICT will have some effect on various sectors in life. In education, The development of ICT will have an effect on the learning process which was initially face-to-face conducted conventionally to be more open by using ICT as learning media. Blended learning is a combination of face-to-face learning in class with e-learning, both of which are complementary. There are some disadvantages in the face-to-face learning in the classroom that can be complemented by e-learning and vice versa.

The utilization of Edmodo in blended learning can be applied by teachers to improve the quality of learning. Through many features that Edmodo has in supporting the learning process, the teachers can choose the features needed to be used in blended learning. Blended learning by combining face-to-face learning with e-learning using Edmodo will make learning more innovative and effective. Teaching and learning activities that were previously limited can only be done in classrooms can be more flexible by using Edmodo because it can also be done outside the classroom.

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