

# Active Learning and E-Learning as Strategy Integration to Improve Motivated Strategies for Learning and Student Engagement

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**Abstract:** This study aims to test empirically whether the integration strategies of active learning and e-learning can be used to improve motivated strategies for learning and student engagement. The research method used is quasi experiment. The respondents of this study consist of both male and female students who are still active in one of the faculties of private universities in Yogyakarta. The numbers of respondents involved were 96 students (55 experimental group and 41 control group). The measuring tools used are motivated strategies for learning scale and student engagement scale. Data analysis method used is statistical method with the help of program facility of SPSS for windows. The results of the data analysis showed that there were significant differences between the pre-test and post-test scores obtained, but no significant differences between the experimental group and the control group. However, it can be said that the integration of active learning strategies and electronic-based learning (e-learning) can be used to improve motivated strategies for learning and student engagement. Further explanation will be discussed in the following article.

## 1 INTRODUCTION

Today we have entered the digital age, where all forms of information can be accessed and obtained easily by anyone. Similarly, in the world of education has experienced a paradigm shift, from the conventional become more modern to be able to achieve quality education and produce excellent human resources. This is stated in UU No.20 of 2003 on the national education system, which conveys that education is a conscious and planned effort to create an atmosphere of learning and learning process so that learners can actively develop their potential to have spiritual, religious, personality, moral intelligence and skills needed by himself, society, nation and state.

The quality of a good education can be seen from the learning process undertaken and learning achievements obtained by learners. Excelled learners are students who can graduate well and able to compete not only locally but also international scope in Southeast Asia. It is necessary to get attention, in order to answer the challenge of the determination of expert competency standards and uniform permit of experts related to the readiness of ASEAN member countries in welcoming the Asean Economic

Community in 2015. Therefore, to be able to get superior human resources is an important thing to note; in this case is achieving student.

There are many factors that can affect the learning achievement of the learners themselves, including teaching staff, teaching methods, facilities that support the learning process and personal input learners themselves. To be able to improve the achievement it is necessary motivation in the determination of learning strategies and behaviours that show the student engagement in teaching and learning process. Because motivated strategies for learning and student engagement in a positive potential for improving student success.

In general, motivation is based on a variety of theoretical frameworks. In the learning process, motivation is also associated with the internal drive of students to be able to succeed in academic tasks, and it is often referred to as achievement motivation. While in this study achievement motivation focuses on explaining why a student chooses, issues business, and how to survive in learning tasks (Nicholls, 1984; Dweck, 1999). The development of learning motivation, while improving learning and academic performance of students not only considers the components of cognitive learning alone but also

motivationally. (Pintrich and De Groot, 1990) states that the knowledge and regulation of cognitive and metacognitive strategies can be attributed to students who are motivated and interested in academic activities. In addition, some other researchers (Paris, Lipson and Wixson, 1983; Pintrich and De Groot, 1990; Zimmerman, 2008) also consider it necessary to integrate both aspects of learning in developing a model suitable for the process, as students need have the will and skills to gain academic success, and optimal results.

This concept seeks to explain how students differ from each other, whether in self-study or how to evaluate the effects of various aspects of cognitive and motivational teaching on them (Duncan and McKeachie, 2005). The basic assumption is that motivation and learning strategies are not typical of students but their motivations are dynamic and limited by context and that learning strategies can be learned and under the control of the students. That is, students' motivation varies among education (eg, more interest and value in freely chosen education and not on the required education) and their learning strategies may vary depending on the nature of the academic task (Duncan and McKeachie, 2005). So it can be concluded that the motivation of learning strategies referred to in this study is the orientation of motivation and the use of learning strategies applied by students in following the learning process.

On the other hand, student engagement is a willingness to participate in school routine activities with cognitive, behavioural, and affective indicators in performing specific learning tasks (Chapman, 2003). Then (Fredrick, Blumenfeld and Paris, 2004) further elaborates student engagement through three dimensions: behavioural engagement, emotional engagement (e.g. attraction, joy, sense of belonging) and cognitive engagement (e.g. student effort to complete the task and strategy used in learning). This has a positive impact on students' self-development both short and long term as individuals. The change of learning paradigm toward student entered learning is expected to encourage students to be actively involved in building their knowledge, attitude and behaviour. In this learning process, students get the opportunity and facilitated to build their own knowledge so as to gain a deep understanding which will ultimately improve the quality of students (Harden and Crosby, 2000).

Therefore, there needs to be a strategy to strengthen motivation in the determination of learning strategies and behaviours that indicate the involvement of students in the learning process. Active learning model is considered able to answer

that need. Active learning is a learning technique that emphasizes the active use of the brain to find the main idea of matter, solve problems or apply what is newly learned into a real-life problem (Meyers and Jones, T., 1993). Active learning is a method that puts the student as a learning subject and has the potential to improve creativity or be more active in every learning activity, both inside and outside the classroom. In this method students are directed to active learning by touching, feeling, and looking directly and experiencing themselves so that learning is more meaningful and quickly understood by students. (Meyers and Jones, T., 1993) state that structure used in active learning method, among others are: (1) Elements, consisting of lectures and listening accompanied by an interactive process, writing, reading and reflecting on the experience gained, (2) Learning strategy, divided into small groups, activities that focus on cooperation, case studies, simulation, discussion, problem solving and journal reflection, and (3) Learning resources, consisting of reading material (reading), work tasks, learning process through technology, etc. The method used in this learning process may vary, but even if varied, the purpose of this learning method still refers to the ease of the students in understanding the lessons even they will greatly enjoy the lessons to be provided.

In addition to responding to challenges in the digital era then also need to involve an internet-based learning process. In this case, implementing internet-based learning (e-learning) is not just putting teaching material on the web, but also preparing learning scenarios that invite active and constructive learners' involvement in their learning process. It can be said that e-learning is a learning process that uses internet technology to send a series of solutions and information that can improve knowledge and skills (Rosenberg, 2001). Differences in traditional learning with e-learning are students can be independent at a certain time and responsible for the learning process; the atmosphere will force students to play a more active role. (Cisco, 2001) state that e-learning is the delivery of information, communication, and education online, as well as through the media a set of tools that support. There are three things that become a requirement in designing e-learning is simple, personal, and fast (Purbo, 2002). A simple system will allow learners to take advantage of existing technologies and menus. The personal requirement means that the teacher can interact well as a teacher communicates with the student in front of the class. A more personal approach and interaction will enable learners to be advocated for their progress, as well as assisted by all the problems they face. Then

the service is supported by the speed, quick response to complaints and the needs of other learners. So that the improvement of learning can be done as quickly as possible by the teacher or manager.

Therefore, it can be said that the method of active learning and e-learning can support the learning process of students. Through these two learning techniques students will be actively involved in every learning process, they will be directed by seeing, feeling and doing directly so that learning is more meaningful and quickly understood by the students. It will help students to find effective strategies to learn and be actively involved in the learning process. So that students will be able to improve the quality of learning, both at the level of conceptual knowledge, as well as at the procedural level. Based on the description above, the purpose of this research is to answer the research question: can active learning and e-learning as strategy integration improve the motivated strategies for learning and student engagement of the students.

## 2 METHOD

### 2.1 Participants

All participants in this study were active students (students who had entered the second year of lectures in four-year study period). Participants involved were 96 students (55 experimental groups and 41 control groups), all of whom were involved continuously for 28 sessions in the classroom learning process. The scale of the study was distributed online in the experimental group, while in the control group was distributed manually on paper scale.

### 2.2 Procedures

This study was a quasi-experimental study with a pre-posttest control group design. This design aims to examine the effect of treatment on the treated group (experiment) and the untreated group (control) through several criteria. Subject selection is done by matching. Matching is an attempt to select participants in experimental and control groups based on the average of participants, such as gender, religion, and so on (Shadish, Cook and Campbell, 2002). In this study subjects were selected based on their participation in certain courses held in the current semester, one class being an experimental group and one class being a control group.

The experimental study was conducted to examine the possibility of a causal relationship

between each variable by placing the experimental group on several treatment conditions and comparing its resultant effect with the untreated control group (Azwar, 2009). In this study the measurement is done before and after treatment is given. The treatment given to the experimental group is the application of active learning strategy and electronic-based learning. The treatment materials and procedures have been stacked in the module. The control group is not given any treatment just following the usual lecture procedure. This research is conducted with several stages, namely:

#### 2.2.1 Preparation

Researchers conduct a review of treatment needs to address the problems that arise in the learning process students. The next step is to develop a module of active learning strategy and electronic-based learning. The treatment module is arranged by researchers based on active learning approach (Silberman, 2002) and e-learning adapted to course syllabus. Next set up a measuring tool used for pre-posttest using goggle form facility, each class is created a separate link.

#### 2.2.2 Intervention Tools and Materials

Tools used include lecture modules along with worksheets, video, klasiber (e-learning media). klasiber developed by the university is one of the e-learning software that can be used in the learning process. klasiber uses the same features as goggle classroom, so how to use it is just as easy as goggle classroom. Google Classroom is a mixed learning portico dedicated to every scope of education intended to find a way out of the difficulty of creating, sharing and classifying any paperless assignments. The purpose of blended learning is a formal education program that enables students to learn (at least in part) through content and instructions delivered online with independent control of time, place, sequence, and speed of learning. While still attending physical classrooms, face-to-face classroom methods are combined with computer-based activities. Supporters of mixed learning present two advantages of this model, namely the opportunity for data collection and adjustment of guidance and assessment.

The intervention module is arranged according to the number of sessions in the lecture that is 28 sessions with duration of 100 minutes each session. Each session is designed using online learning (i.e. read material online, work on case studies online, answer quizzes online, and discuss online using klasiber), and also active learning method in the

learning process (ie inquiring minds want to know, group resume, rehearsal practice, active knowledge sharing, learning start with a question, information search, think pair and share, role play, and video critic).

### 2.2.3 Implementation of Intervention and Evaluation

The treatment was started by giving pre-test to the experimental group and control group at the beginning of the lecture meeting, then treatment was given to the experimental group. While for the control group is not given any treatment, just follow the usual lectures. Then at the last session (28th session) were given post-test both in experimental group and control group.

## 2.3 Instruments

Motivated strategies for learning. Motivated strategies for learning was measured using a Motivated Strategies for Learning Questionnaire is a modification of the measuring instrument developed by (Pintrich and De Groot, 1990), which consisted of 81 item with Cranach's alpha reliability of 0.968. This scale consists of two parts namely the motivation and learning strategy. The motivation section consists of three components, namely the value component that includes the intrinsic goal orientation scale, the extrinsic goal orientation, and the value of the task; hope components that include scales to control learning trust and self-efficacy for learning and performance; and affective components that include scales for anxiety tests. The learning strategy part includes two components: the components of cognitive and metacognitive strategies that include scales for exercise, elaboration, organization, critical thinking, and metacognitive self-regulation; and components of a resource management strategy that encompasses the time scale and learning environment, regulatory efforts, peer learning, and aid seeking.

*Student engagement.* The measuring instrument used is the student engagement scale. This scale is adapted from the measuring instrument developed by (Dixson, 2015), which consisted of 19 item with Cranach's alpha reliability of 0.848. There are four aspects that are measured; among others are skills, emotional, participation or interaction, and performance.

## 3 RESULT AND DISCUSSION

### 3.1 Demographic Profile

An overview of the demographic data obtained from the data shows the variation in the number of respondents related to sex, the tools used in the classroom process, the convenience of using e-learning, and the constraints faced in using e-learning. Based on sex data showed male participants in the experimental group were as many as 14 (25.4%) and in the control group as many as 14 (34.1%). While the female participants in the experimental group as many as 41 (74.6%) and the control group as many as 27 (65.9%).

Furthermore, based on existing data also obtained information about electronic devices used by students in the learning process in the classroom. Divided into 5 categories, i.e. students who only use smartphone (experiment: 5 students, control: 6 students); only use laptop (experiment: 2 students, control: 1 student); using smartphones and laptops (experiments: 45 students, controls: 32 students); using laptop and tablet (experiment: 1 student); and using smartphones, laptops and tablets (experiments: 2 students, control 2 students). Besides, the information obtained related respondents related to their convenience in the application of e-learning process in the lecture. In the following table 1 there is information on each group (experiment and control) during pre-test and post-test.

### 3.2 Descriptive Statistics

Furthermore, there is also information constraints faced by participants in following the learning process by using e-learning either in the experimental group or control group. The data can be seen in figure 1. In the figure 1 shows the condition faced by the respondent is A). Bad internet connection; B). Uncomfortable learning to use laptop / tablet / smartphone; C). Uncomfortable learning to use laptop / tablet / smartphone and bad internet connection; D).

Table 1: Participant description based on e-learning convenience on pre-test.

Informasi	Pre-test		Post-test					
	Experiment		Control		Experiment		Control	
	f	%	f	%	f	%	f	%
Comfortable	53	96.4	40	97.6	55	100	40	97.6
Uncomfortable	2	3.6	1	2.4	0	0	1	2.4
Total	55	100	41	100	55	100	41	100

Table 2: Description of research data.

Goup	Variabel	Mean		SD	
		Pre-test	Post-test	Pre-test	Post-test
Experiment Group	Motivated Strategies for Learning	249.56	259.85	38.205	33.357
	Student Engagement	65.93	68.65	9.289	9.182
Control Group	Motivated Strategies for Learning	256.76	264.20	32.155	27.299
	Student Engagement	65.93	66.73	9.288	8.874

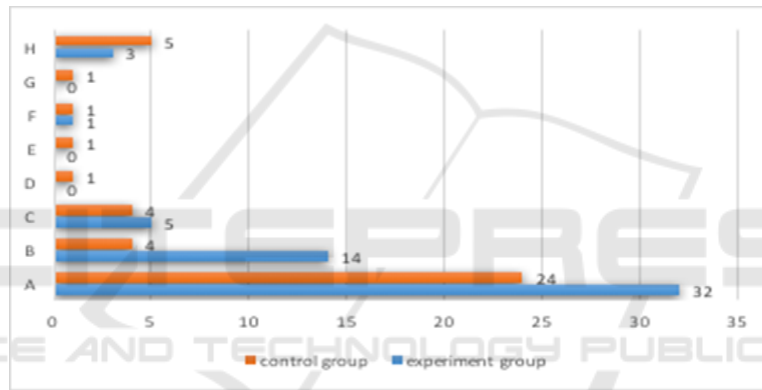


Figure 1: Implementation obstacle e-learning.

Not yet joined in klasiber; e). Lecturers lack e-learning facilities; F). Not face to face with lecturers; G). Lecturer late uploading material; H). There are no obstacles. Based on the data, most of the respondents in both experimental and control groups questioned the bad internet connection. While in the control group appears variations in the lecturer's obstacles are considered to lack the e-learning facility and late upload the material. In addition to each group there is one respondent who still feel less comfortable not face to face directly with the lecturer.

Based on the results of data analysis, it obtained the norm description of the study data that contains the basic functions of statistics, can show in Table 2.

Description of the research data in motivated strategies for learning in experiment group and student engagement.

### 3.3 The Role of Active Learning and E-Learning as a Strategy in the Learning Process

Hypothesis test is conducted to fulfil the purpose of this research is to prove that the treatment of active learning and e-learning can increase motivation of learning strategy and student engagement. Based on result of hypothesis test known that treatment can increase motivated strategy for learning and student engagement significantly in experiment group. In the motivated strategies for learning variable can be seen from the results of Mauchly's Test of Sphericity which shows the significance level  $p = 0.000$  ( $p < 0.05$ ) which means that post-test score depends on the pre-test score. So the value of  $F = 0.690$  and the significance level  $p = 0.000$  ( $p < 0.01$ ) in the Test of Within-Subject Effect indicates that there is a



significant interaction between the learning strategy motivation score obtained during the pre-test and post-test. It can be concluded that there is a difference between the pre-test and post-test conditions in the experimental and control groups. While the scores obtained by the experimental group and the control group did not show any significant difference, it is seen from the value of  $F = 0.955$  and the significance level  $p = 0.331$  ( $p > 0.05$ ).

While the student engagement data variable shows that the result of Mauchly's Test of Sphericity shows the significance level of  $p = 0.000$  ( $p < 0, 05$ ) which means post-test score depends on pre-test score. So the value of  $F = 5.360$  and the significance level  $p = 0.023$  ( $p < 0.05$ ) in the Test of Within-Subject Effect shows that there is a significant interaction between the student engagement score obtained during the pre-test and post-test. It can be concluded that there is a difference between the pre-test and post-test conditions in the experimental and control groups. While the scores obtained by the experimental group and the control group did not show any significant difference, it is seen from the value of  $F = 0.308$  and the significance level  $p = 0.580$  ( $p > 0.05$ ). In Figure 2 the following shows a graph of changes in conditions occurring before and after treatment.

This study provides an overview of how the influence of integration of active learning strategies and electronic-based learning to motivation of learning strategies and student involvement. The results showed that there was no difference between the experimental group and the control group. However, on the other hand, the integration of active learning and electronic learning (e-learning) strategies can improve the motivation of learning strategies and student engagement. This is in line with that proposed by (Appleton, Christenson and Furlong, 2008) which states that the concept associated with student involvement is student motivation. Motivation is a matter related to psychological processes, while student involvement refers to the extent to which students are actively involved in a learning activity both in class and outside the classroom. When students are involved in learning they will learn, however the lecturer needs to involve students actively in learning by strengthening it through active learning (Center for Mental Health in Schools at UCLA, 2012).

In the motivation of learning strategy variables, there is no difference in condition between the control group and the experimental group. However, on the other hand, there was a change in the motivation of learning strategies, between the conditions before and

after the integration of active learning and electronic learning (e-learning) in both experimental and control groups. This is in line with the opinion of (Taylor and Parsons, 2011) which states that learning must be challenging but also interesting. This is important because appropriate teaching strategies can improve student motivation. The task must be challenging, interesting, positive, and supported by appropriate lecturers and learning climate. Lecturers should talk about the learning process and how to improve learning, should discuss the content and processes.

In addition, the findings in this study are also in line with the results of research conducted by (Allen and Baughman, 2016) which showed that students who were involved in classroom activities directly demonstrated much better knowledge and skills related to the material discussed in class, and were more confident with their abilities and motivate them to apply this knowledge in the future.

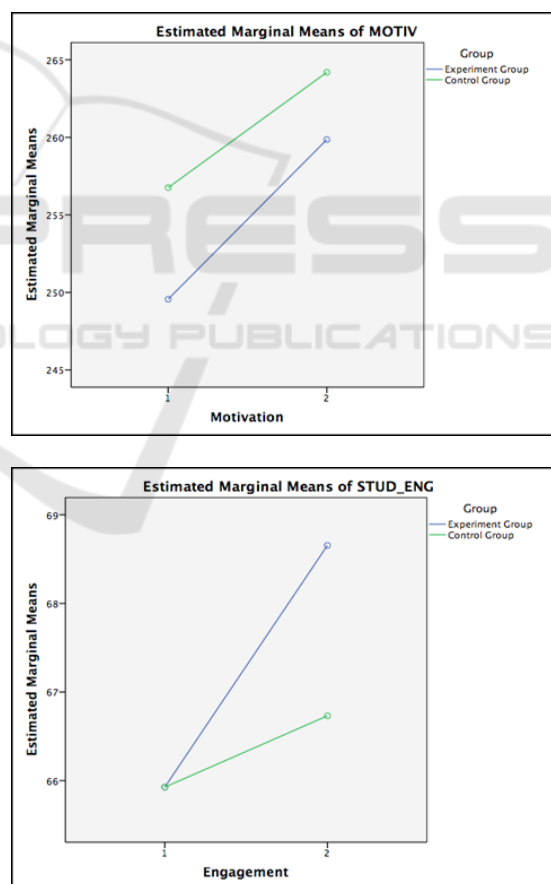


Figure 2: Graph of students' condition before and after intervention.

Research conducted by (Chuang, 2014) also shows that learning is supported by the use of technology, such as e-learning, making students more active in class. In addition, students also gain more knowledge, increase learning motivation, give greater attention in the classroom, and ultimately can stimulate interest in learning inside and outside the classroom. The implication is that students are more actively involved in classrooms and lecturers / instructors will be more motivated to teach. This is further strengthened by the results of (Harandi and Safiyeh, 2015) research which highlights the significant relationship between e-learning and student motivation. Students are more likely to be motivated when lecturers / instructors apply e-learning. Correspondingly, (Kim and Frick, 2011) stated that when students are more motivated to learn, students are more likely to be involved; and if they are involved and successful, students are more likely to achieve learning goals. So in other words, this is an important suggestion for lecturers / instructors to use e-learning as a standard tool in instruction / teaching for students.

In the student engagement variable there was no difference between the control group and the experimental group. On the other hand, there was a change in student engagement, between the conditions before and after the integration of active learning and electronic learning (e-learning) in both experimental and control groups. In the academic field, research shows that active information processing improves learning (Catrambone and Yuasa, 2006). Active learning is important to master facts and procedures. Active learning requires more time in the application, but it is very helpful when having to deal with many new tasks. These findings are corroborated by (Mahatmya *et al.*, 2012) studies which conclude that students must actively participate in achieving and engaging in lectures, on the grounds that active interaction will encourage students to grow. Based on several research results it is known that by applying active learning methods in the student learning process it can encourage active student participation in the learning process so as to get a better understanding of the material taught in the classroom (Cavanagh *et al.*, 2016). Furthermore, based on research conducted by (Rodgers, 2008) it was found that greater online learning interactions were found to have a positive and significant impact on student involvement and performance.

## 4 CONCLUSION

Based on the results of research and discussion, it can be concluded that the treatment of active learning and electronic learning (e-learning) can improve the motivation of learning strategy and student engagement in the students. However, there was no difference between the experimental group and the control group. The limitation of this research is the provision of role play method which is always present in each session not only in the experimental group but also in the control group. This happens because the presented lecture material is the practice of the psychological testing instruments used the same and the procedure must be explained related to administration and scoring to every student who takes the course. Therefore, in the next study is expected to use a more varied test kits and differentiated how to explain the test tool so that the control group is maintained condition. In other words, the limitations of this study are in the form of not being able to strictly control the active learning method and e-learning in the control group so for the researcher to do further research it should be able to control the situation faced by the control group and can do it in the laboratory. Because if the real conditions of the lecture will make morally uncomfortable.

Suggestions for the institution that is expected to provide support in the form of facilities that can improve the motivation of learning strategies and students engagement in the learning process in lectures by providing an adequate internet connection and provide training for teachers related skills in using e-learning facilities.

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