



The Effectiveness of Cyber Learning Methods to Improve Learning Motivation in Interior Design Courses

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The Interior Design courses emphasizing accuracy requires high learning motivation. One stimulus to grow motivation is by applying teaching methods that are in accordance with the characteristics of the course, namely cyber learning methods that also facilitate accuracy and efficiency. The purpose of this research is to improve learning motivation in interior design courses through cyber learning methods employing steps of project-based learning (PjBL). The study included quasi-experiments using two-group post test design. The instrument of learning motivation was adapted from McClelland's motivational theory. The number of participants was 60 students divided in two groups. The first students group learned by using conventional methods (control group), while the second students group learned by using cyber methods (experimental group). The number of learning was 10 meetings. After completing the meetings, the two groups were measured based on the learning motivation. The results of the study indicate that cyber learning methods can increase student's learning motivation in interior design courses. Result shows that the experimental group of students has higher learning motivation than students in control group who were leaved un-interfered with the conventional method—the lectures.

Keywords: Cyber Learning Method, Project-Based Learning, Learning Motivation, Interior Design Course.

1. INTRODUCTION

Learning outcomes in interior design courses emphasize design work quality and design processes that emphasize accuracy, precision, discussion, creativity and innovation. However, the quality of design cannot only be seen from the originality and creativity of the designer in displaying the design, but also from reasoning to describe, announce, analyze, and solve the existing problems, then make the best decisions [1]. In practice, the delivery of the interior design materials and assignments are by project requests, for example apartment projects. In this task assignment is completed in groups.

Complex learning demand requires high learning motivation therefore learning becomes fun. With high motivation, students become enthusiastic and have a strong drive to actively participate in learning and completing tasks well. This is in line with who states that one of the most important factors that lead a person to achieve their goals is encouragement [2]. This drive is called motivation. This drive is enthusiasm and determination—an excitement that

guides a person to be diligent and persistent in achieving it regardless of the obstacles confronts him.

One way to encourage students to actively learn in class and be active in completing assignments can be stimulated by applying teaching methods that are under the characteristics of the subject matter. Teaching methods are sources of extrinsic motivation that can be used by lecturers to produce student learning motivation. Extrinsic motivation refers to impulses that come from outside the individual [2].

Based on the characteristics of the interior design learning outcomes and the efforts to foster motivation to learn from external factors, the use of cyber learning methods is one of the right efforts. The cyber learning method referred to in this method is a teaching method that utilizes computer media in the classroom with lecturers as tutors and facilitators. The use of computer media as a tool that functions as multimedia can also increase students' motivation when studying in class and when completing various tasks [3–5].

Regarding the subject matter and interior design tasks as project completion, the application of cyber learning

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methods by utilizing computer media in the classroom needs to be supported by teaching steps based on project-based learning (*PjBL*). The application of the *PjBL* considers aspects of the authenticity of the project. That is, students are given real project assignments in their daily lives (example: Interior design of apartment projects) and students face authentic problems (analyzing projects directly into the field rather than through the media before the case is brought to the class). Consequently, *PjBL* students are more motivated to solve problems because they experience problems in daily life. Even, students focus on project interests and values. In solving problems with the *PjBL* method, students are allowed to use electronic devices such as computers, with internet facilities to observe, search, investigating, and seeking answers [6, 7]. After completing activities in the field, students and groups can work on the project and make group presentations in class [8].

In motivating student learning to grow enthusiasm and motivation to complete project tasks properly, this study aims to answer the problem of whether cyber learning methods are effective in increasing student motivation in interior design courses.

1.1. Motivation

One of the most important factors that lead a person to achieve goals is encouragement which is known as motivation. Motivation is an internal drive that describes why and how human behavior is activated. This encouragement is the spirit that directs the individual to be diligent and persistent in achieving the goal, regardless of the obstacles confronted [2].

Achievement motivation means subjective and internal psychological impulses, which allow individuals to complete tasks that are considered valuable and encourage them to achieve goals [2, 9]. Motivation for student achievement is more directed at individual efforts in learning and studying at school. If they think that success is something that can be achieved, they will struggle to achieve their goals, despite what obstacles they face [9, 10].

Motivation is an important basis in directing cognitive behaviors, such as planning, organization, decision making, learning, and assessment. Achievement motive is the drive to work with perseverance to continue directly to the goals and inclinations to perform challenging tasks to achievement. By the definition above, achievement motivation is a subjective psychological motivation and is internal, which allows individuals to complete tasks that are considered valuable and encouraging them to realize goals [11]. Related to the learning activities, learning motivation means enthusiasm or encouragement to learn by interacting with the learning environment to achieve learning goals.

Motivation is the transformation of energy in a person characterized by the appearance of strong feelings

and reactions to achieve goals [12]. Furthermore, motivation is a psychological condition that encourages someone to do something. Thus, motivation to learn is a psychological condition that encourages a person to yearn for knowledge [12].

1.1.1. Intrinsic and Extrinsic Motivation

Motivation, as an internal impulse, can be sourced from within (intrinsic) or outside (extrinsic) individuals [2]. Intrinsic Motivation refers to the motivation that is driven by interest or pleasure in completing tasks goal. This interest is in the individual without being affected by external pressure factors. (Extrinsic motivation) refers to encouragement that comes from the outside of the individual. This can be in the form of rewards such as money and score, compulsion, and the warning of punishment. In social psychology research, reward giving can have an effect on completing assignments. Children who are given prizes will complete tasks faster than children who do not receive gifts as extrinsic rewards.

1.1.2. Dimensions of Motivation

The dimensions of learning motivation in this study were adapted from McClelland's which consisted of 5 dimensions [13], namely (1) performing tasks with moderate difficulties. Highly motivated, everyone will choose to work on tasks with moderate difficulties. If the task is easy, then there is no question of doing it better, because anyone can do it; if it's very difficult, there are also no questions to do it better, because everyone tends to fail to try it. Tasks with low levels of difficulty will not make someone feels successful. Tasks with high levels of difficulty will make it difficult for everyone to succeed because the chances of failure tend to be high. (2) Persistent in carrying out their duties. Highly motivated, everyone will last longer in the task. They last longer in performing difficult tasks than everyone with low motivation [13]. (3) Responsible for performance. Highly motivated, everyone prefers to be personally responsible for the results of their performance. Based on this condition, they can feel satisfaction for doing something better. (4) Like feedback from others. Highly motivated, individuals prefer to work when they get feedback about how well they have done. Thus, they can learn whether they have done better than others. Failures experienced does not make these individuals feel hopeless, but as a learning process and improve their performance. Those who are high achievers will work more efficiently after receiving feedback. They want to know how well they have done in completing their assignments. (5) Innovative. Highly motivated individuals will really like to do something better. They like to do things that are different from before. Individuals are more anxious and avoid routines. They are more likely to look for information to find better ways to do things. This is what is called innovative. They want to find shortcuts to achieve goals, variations or new

ways of doing things, and competition and the need to be the best.

1.2. Cyber Learning Methods

Cyber Learning is a learning activity using computer media that can be combined with face-to-face class activities. Knowledge sharing can be done from any location with a connection to the source of knowledge and interactivity made possible directly or indirectly with complete visualization (multimedia). The development of cyber learning facilities is important through the community to enable parents and students to have an optimal space to participate. Cyber learning is one of the choices in modern computer-based learning. The availability of internet and computer technology facilities is an opportunity for the creation of modern learning and sharing of knowledge communities. As a result, what is meant by the Cyber learning method is delivering learning material to students conducted systematically and regularly using computer media or computer networks and other electronic media by the teacher.

Cyber at the beginning was used to describe new things generated by computers. Anything related to the internet is also included in the cyber category, about or involving computers or computer networks (such as the internet) and electronic media. Cyber learning is a good strategy to stimulate creative teaching approaches. Cyber learning provides a flexible environment and collaborative learning [14] and active participation of students in content production [15]. Even, the use of Cyber learning by teachers and students as a collaborative tool in the classroom needs to be understood. Currently, Cyber learning can provide new insights to integrate creativity in learning.

Related to creative teaching, the teacher tries to make his students not feel bored. One of the efforts used by teachers is that interesting learning is using media. The media can arouse curiosity, interest in new things and can arouse student motivation in learning [16]. One of the media used by teachers to avoid boredom in learning to use computer media. With computer media, it is expected that lecturers can present more interesting learning material so that they can improve learning outcomes [17].

Learning to use computers is known as the concept of learning with the help of computers (computer-assisted instruction). In this CAI concept, the computer functioned as a presenter of learning material and learning evaluation analysis. The form of CAI learning varies such as tutorials, drills, and practices, as well as simulations [18]. Learning outcomes using computer media are better than direct learning models. This event happens because computer media allows students to be actively of the learning process. In addition, students can understand learning material more deeply through visualization. Learning becomes more interesting and fun with multimedia as animation, images, videos, and quizzes that support the process of

learning. This learning process also involves several sensory devices collectively which can make students more motivated to take part in learning. Learning motivated students can absorb information better and information can be remembered in a relatively long period. This event does not happen to traditional learning with lectures. Direct learning without using media promotes passiveness and less motivation correspond to the learning delivered by the instructor. Therefore, the learning material absorbed by students only persists in memory for a relatively short period [4]. Thus, the use of computer media in learning is one form of use of technology that can motivate student learning.

By using computer media learning styles become more diverse. Learning can be done independently in a collaborative learning environment. To facilitate collaborative teamwork with friends, students do not fully learn independently from the internet. Instead, students must investigate and solve problems with their colleagues in a team [7]. Students become more active when they use digital devices in class, and classes also become more interactive because of online instruction [19]. This event corresponds to the opinion that computer technology, as a tool, can help students solve problems and think independently and collaboratively. Furthermore, the use of computer technology can encourage a team approach to problem solving in the real world and increase individual responsibility [20].

1.3. Project Based Learning (PjBL)

The application of the PjBL method in learning functions (1) increases learning motivation, (2) integrates and builds knowledge, (3) increases collaborative opportunities for teamwork in solving problems, and fosters problem-solving and communicative abilities [20, 21].

In implementing the PjBL method, need to consider the authenticity aspects of the project. That is, students are given real project tasks in their daily lives (example: Interior design of apartment projects) and students face authentic problems (analyzing projects directly into the field rather than through the media before the case is brought to class). In PjBL, students are more motivated to solve problems because they experience the problem in everyday life. Even, students focus on project interests and values [6, 7].

In solving problems with the PjBL method, students are allowed to use new technologies, such as the internet or other electronic devices to observe, examine, investigate, and seek answers. After completing activities in the field, students and groups can work on the project and make group presentations in class [8]. The method of evaluation in the PjBL method is quite diverse, including portfolios, presentations, reports, and so on [8, 22].

In implementing the PBL, there are 6 stages, namely project determination, project step planning, schedule

preparation, monitoring and report presentation, and project evaluation [23].

2. LITERATURE REVIEW

Learning motivation is the basis for students to direct their behavior in learning and completing assignments. Related to the material and assignments of interior design that are quite complex, it needs to be stimulated by teaching methods that stimulate interest in learning so they are encouraged and eager to learn. One teaching method that facilitates collaborative work between students is cyber learning that utilizes computer media in the classroom by applying the work steps of PjBL. Here are some previous studies that support this research.

2.1. Motivation

Motivation is very necessary in learning. Learning motivation is an encouragement from within the student who can generate learning activities, ensure continuity, and provide direction to learning activities, so that the desired learning goals are achieved [24].

Learning motivation directs students to be of making learning efforts. Learning motive is considered as a belief inherent in someone, who guides and directs himself to achieve learning goals. With the existence of motivation, a person has the drive or enthusiasm for learning behavior to achieve learning goals which have been set by the teacher in learning. Learning behavior is carried out continuously and strengthens the cognition to achieve successful learning [25]. Motivated learner carries out learning activities influenced by factors in him (intrinsic motivation) and external factors (extrinsic motivation). Intrinsic motivation occurs when someone wants to learn because they feel happy or interested in the material being studied. Someone who has intrinsic motivation does not need incentives they can decide and direct themselves to learn [26, 27]. Extrinsic motivation refers to the urge to do something, including learning activities because there are rewards or punishments from others, for example, students are motivated to learn because they expect gifts from others, or students are motivated to learn because they are afraid of being punished by their parents [28].

2.2. Cyber Learning Method

The development of modern technology can have an impact on the use of multimedia in all fields, including the field of education. The use of multimedia has been widely used in Indonesia in the field of teaching and has a large impact on the learning process in the classroom [7, 29]. Multimedia learning facilitates students to learn more diversely. Learning is not only independent, but can learn in a collaborative environment with classmates [7]. With collaborative work, students become more active and class conditions become interactive [19]. Students can discuss and even be able to teach each other

between friends in groups when they must solve problems. Learning in groups can build behavior in collaboration with friends. Therefore, learning becomes more fun [7].

Learning using the cyber teaching method is more effective in increasing student learning motivation than using conventional teaching methods, for example using lectures. The application of the cyber method is related to the use of computer media in classroom learning while presenting lecturers as tutors and facilitators. The following are some previous studies that confirm that cyber teaching methods can increase learning motivation in a variety of different learning materials.

The use of multimedia can increase student learning motivation in English vocabulary learning. The group of students taught by using multimedia has a higher average value than the group of students taught using blackboard and textbooks, which is a conventional method (lecture) [3]. The use of communication and information technology through computers can increase learning motivation and learning outcomes of elementary school students in science lessons [16].

Computer-based learning has a positive influence on student learning motivation in science subjects. The average value of students taught using computer media is higher than students who are taught directly without computer media [4]. The use of computer simulation media can increase the learning motive of the middle school students in Lhoknga Aceh Besar, Indonesia. Motivation of students taught by using computer simulations is higher than students who are taught by conventional methods in physics lessons [5]. Conventional learning is no longer attractive to students; Lecturers must introduce more modern media that allows students to be more interested in learning physics. If students are interested in the teaching methods used by the teacher, students become excited (motivated) to learn [5, 30]. Students taught by e-learning methods are more intrinsically motivated than students taught with traditional methods [31].

There is a huge relationship between e-learning and student motivation. Students tend to be more motivated when taught using e-learning methods [32]. If students are more motivated to learn, they become more involved and interested in learning. Their involvement will make them understand learning material so that they can achieve learning goals [33]. Learning motivation of the students who are taught using digital teaching methods are higher than the students taught with the traditional methods [27].

2.3. Project-Based Learning

The use of project-based learning to teach methods can increase student learning motivation in learning English in Taiwan. The average students on tests 1 and 2 is higher (81.95 and 82.24) than the average value of students taught using traditional methods (77.25 and 74.00) [7]. Projects-based learning can increase student learning motive

and provide an authentic learning environment, because project-based learning uses a student-centered approach and teachers act as facilitators. In project-based learning, students are given assignments or real project learning material and students are asked to identify problems, analyze, and find solutions to the right problems and the lecturer is only directing. Students are required to study with other friends in the group [7, 22].

Project-based learning methods cannot only be improved by students motivation to study food and beverage at vocational schools in Taiwan, but can facilitate students' ability to solve problems from project assignments given by lecturers [34]. Learning by using the project based learning method can motivate medical students to apply to research method skill materials in India [35].

3. METHODOLOGY/MATERIALS

3.1. Method

The research method used was a quasi-experimental research method using two classes as a control group and an experimental group. In this study, all students (students who are research subjects and not research subjects) remain in class as usual.

3.2. Participants

Two classes of students take interior design courses that participate in research first semester (10 × meetings). One class as an experimental group ($N = 30$) and one other class as an experimental group ($N = 30$). Overall, the number of participants was 60 students. Students who are in the experimental class are taught by lecturers using a cyber learning method which applies the project-based learning steps. Students in the control class are taught by lecturers using conventional methods that apply direct teaching steps (lectures).

3.3. Instrument

Instruments are used to measure student learning motivation. The form of the instrument is a questionnaire which is a *likert scale* using four alternative answers. This instrument was developed from five dimensions of McClelland's theory of achievement motivation. The number of valid instruments after the trial is 25 items. All items are valid with item correction-total correction >0.2 with Cronbach's alpha reliability figures $r = 0.827$. The five dimensions are (1) doing tasks with moderate difficulty (4 statements), (2) Persistent in carrying out their duties (8 statements), (3) Responsible for performance (6 statements), (4) like feedback from others, (4 statements), and (5) innovative (3 statements).

3.4. Design

The design used was two-group posttest by following the procedure. First, choose two classes among the other

parallel classes. Second, provide a learning motivation questionnaire in both classes. The purpose of giving the questionnaire is for participant control that participants have the same learning motivation. Third, set one control class to be taught interior design material with conventional methods. One experimental class was taught interior design material using the cyber learning adaptation method using the project based learning step. The interior designs material provided is the same for both classes. Lectures are held 10 × meetings. Fourth, is to measure the motivation of interior design learning in both classes by using the same learning motivation questionnaire. Fifth, is the learning motivation data processing from the two groups to determine cyber teaching methods. The procedure can be seen in Figure 1 below.

3.5. Intervention Procedure

The intervention the experimental group uses cyber learning methods (with the use of computer media in the project design process) by applying the 6 steps of PjBL work [23]. The realization of these steps is (1) determining Project. The lecturer assigns an apartment design assignment to students in groups. Each group consists of one supervisor. Each group consisted of 7 students. (2) Step Planning Project. The lecturer gives direction to the design regarding the division of design tasks. Design tasks include: Problem identification, data collection, data analysis design, development design, programmatic concepts, design concepts, and design implementation. (3) Schedule Preparation. The lecturer explained the apartment design performance schedule. Lecturers give tutors about the use of computer media for design activities, (4) Monitoring. Lecturers monitor and provide guidance in the design. Students do peer tutoring in their assignments in groups. Lecturers oversee the peer tutoring process of students. Lecturers provide guidance to students who have not understood the material or who have not understood the use of media computers in the design. (5) Reports Preparation and Presentation. Students in groups compile reports on apartment design projects by their parts. Students present the final design assignments which are the group's responsibility. Lecturers give feedback to students related to the project design report. The student group revised the project design task which was part of it to be integrated into the project design whole. (6) Evaluation of Project. Lecturers give questions and assessments related to the design and design results to students. Students in groups combine the revised part of the project design into a complete project design. The implementation of the intervention was 10 meetings to complete the task by following the 6 stages of the PBL. First meeting is (completion of assignment's stage 1–2), second meeting is (completion of task stage 3), third and fourth meeting are (completion of task stage 4), fifth and sixth meeting are (completion of task stage 5), and ninth and tenth meeting are (completion of assignments stage 6).

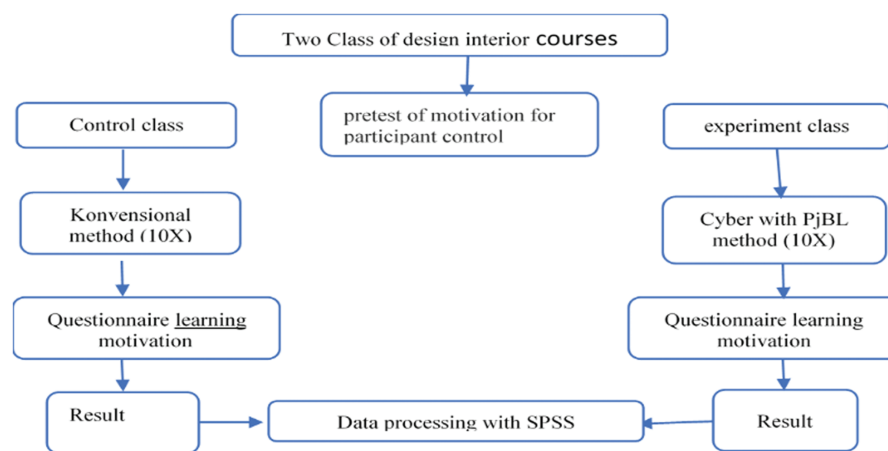


Fig. 1. Research design.

The intervention procedure of the experimental group uses the method of cyber learning (with the use of computer media in the project design process) by implementing 6 PjBL work steps [23]. The realization of these steps is (1) Determining Project. Lecturers give apartment project assignments to students in groups of tutors. Each group consists of one supervisor. Each group consists of 7 students. (2) Project Step Planning. The lecturer gives direction on the design process related to the division of design tasks. The design tasks include: identification of the problem, data collection, analysis of planning data, design development, programmatic concepts, design concepts, and design implementation. (3) Schedule Preparation.

4. RESULTS AND DISCUSSION

By the results of testing the student learning motivation in interior design courses after completed the 10 meetings, the experimental group and the control group differed significantly ($p = 0.016 < 0.05$), related to cyber learning methods by implementing project-based learning steps (see Table I).

Thus, differences in results can be assumed that the application of cyber learning methods (using computer media in class) by following the steps of project-based learning can increase students' learning motivation in interior design courses.

Student learning motivation measured in research is motivation to learn in interior design courses. The material and assignments given by lecturers are as completing the design of real projects in the field. In the completion of the project, must work in team so that they can have a discussion when they face a problem. Material in interior design takes completing real project design tasks (for example: Apartments). The material faced in the design is quite complex, including producing originality and quality of creative design [23]. In the design process, need to think to describe, analyze and solve the problems encountered, then make the best decisions. In solving, this complex problem, students need to work in teams guided by lecturers. Even, to solve complex problems need stimulation with multimedia media (computers) so that they do not feel bored compared to learning which is usually done with lectures and without media. With computer media, students can access information in audio and visual form easily and. However, in applying this cyber learning method, the use of computers directly in class is guided by lecturers. Thus, students can use computers as fun multimedia, easy to use because they are taught by lecturers, so they motivate students to learn in the design to complete their project assignments.

The results of this study support previous research. Previous research shows that the application of cyber learning methods (the use of multimedia computer media) can

Table I. Student's independent samples test.

	Levene's test for equality of variances		t-test for equality of means					95% confidence interval of the difference	
	F	Sig.	t	Sig. df	Mean (2-tailed)	Std. error difference	Difference	Lower	Upper
	Motivation								
Equal variances assumed	1.574	0.215	-2.492	58	.016	-5.40000	2.16698	-9.73767	-1.0623
Equal variances not assumed			-2.492	58	.016	-5.40000	2.16698	-9.76378	-1.0362

Table II. Descriptive statistics.

	Group	N	Range	Minimum	Maximum	Mean	Std. deviation	Variance
Motivation	Control	30	26	55	81	68.73	5.753	33.099
	Experiment	30	63	38	101	74.13	10.381	107.775

increase learning motive and learning outcomes. In previous studies, increased learning motivation occurred in learning English vocabulary, automotive electricity, social studies and sociology, science learning, English learning, studying physics, problem solving for students, students in public schools, and vocational schools. Project-based learning motivates students to conduct in-depth discussions and investigations about problems faced by friends in groups. This condition allows students to learn critical problems found [3–5, 7, 12, 18, 21, 23, 24, 27, 32, 34, 35].

The description of the other test results shows that the mean value of the experimental group is higher (74.13) than the control group (68.73). This figure reinforces that student learning motivation in interior design courses taught by cyber learning methods that follow the steps of PjBL by utilizing computer media in the classroom is more effective than being taught by conventional methods by lecturing. The minimum average value of the experimental group was lower (38) than the average value of the control group (55). This happens because the experimental group students, not all students, feel like using computers. However, the maximum value of the experimental group students (101) is higher than the maximum value of the control group students (81). All in all, the use of computer media while face-to-face in class is a part of an effective cyber method for increasing student learning motivation in interior design courses.

The limit of this study is that there is no control on student interest or students' ability in using computer media. Thus, students who are less able to use computers or less interested in computers can reduce the value of overall learning motivation (see Table II).

Furthermore, for the answer to the dimensional questionnaire (1) working on tasks with moderate difficulty, the highest average score of 4, represented by a positive statement "I do not want to do tasks that I find very difficult" and negative statements "I am not excited and not challenged to finish assignments with moderate difficulty." Dimension (2) perseveres in carrying out tasks, with an average value of 4, represented by a positive statement, "I would like to learn if I face an exam" and a negative statement with an average value of 1 in my statement "I am easily discouraged when I have learning difficulties design material." Dimension (3) is responsible for work performance, represented by the statement "I still finish my work that is a little behind even though it is time to go home," statement "I want to finish the design on time" and I am willing to lose time off, so the task is completed on time."

The statement "I am not eager to do a task that I find very difficult" is considered positive because the statement measures the dimensions of "doing tasks with moderate difficulty." Consequently, if the student answers "not eager to do a task that is considered very difficult," it is still concluded in of having high motivation, unless the answer is "not eager to do a task that is considered to have moderate/moderate difficulties."

Based on the findings of the questionnaire above, we see that students with high learning motivation in interior design courses when taught by the cyber method that uses

Table III. Results of the learning motivation questionnaire.

No.	Statement	Mean
1.	I am not eager to do a task that I find very difficult	4.000
2.	I want to complete the assignment if it suits my ability	3.000
3.	I prefer the completion of tasks that have a moderate level of difficulty rather than a very easy task.	3.000
4.	I am not excited and not challenged to complete tasks with moderate difficulties.	1.000
5.	I am eager to learn if I face an exam	4.000
6.	I am easily discouraged when I have difficulty learning design material	1.000
7.	I continued to study lecture material every night despite many other assignments	3.066
8.	If I experience a failure on a task, I will not try again	3.160
9.	I still try to do the task even though it's difficult	2.500
10.	I often complain in learning difficult design material	2.633
11.	I am eager to learn if there are assignments.	3.000
12.	I tried to ask friends/lecturers for help when facing difficult design material	2.833
13.	I still finished my work which was a little left even though it was time to go home	4.000
14.	I am excited to finish the design material on time	2.733
15.	I tend to delay working on difficult tasks	4.000
16.	I am excited to complete all the tasks that I have received.	4.000
17.	I prefer to play than to do the difficult assignments that I have received	3.133
18.	I am willing to lose time to rest so that the task is completed on time	4.000
19.	I became lazy to complete the task after getting feedback from the lecturer	2.900
20.	I am increasingly excited to complete design tasks after getting input from lecturers	2.966
21.	do not like feedback on my work because I feel I have completed the task correctly	3.130
22.	I am lazy to improve the task based on the feedback that has been given	3.066
23.	I like to look for new information as a provision for completing difficult tasks	3.033
24.	I tried a variety of different ways from my friends in doing assignments.	3.100
25.	I am excited to find new ideas in completing design material	3.200

computers in the classroom. This event can be seen in the questionnaire answers that are consistent with the answers to positive statements and confirmed in the answers to negative statements. In design courses, there are positive and negative statements that reinforce each other, namely the statement “I am easily discouraged when I have difficulty learning design material” with the lowest average value, 1 and the statement “I am eager to finish design material on time” with the highest average value of 4 (see Table III).

5. CONCLUSION

Based on the research findings, it can be concluded that there are significant differences between the experimental group and the control group. The learning motivation of the experimental class students are more than of the control students who are taught by conventional methods through lectures. The high learning motivation in the designed courses was observed through the answers to the statements which reflected consistency whether in positive statements or negative statements reviewed.

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