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A Comparison of students' learning achievement between classroom learning and e-learning in Digital Photography for undergraduate, Bangkok University

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ABSTRACT

The purposes of this research were 1) to compare students' learning achievement in Digital Photography subject between classroom learning and e-learning and 2) to compare students' learning achievement in the particular subject between before and after the course within both classroom learning and e-learning contexts.The study population was 2 groups of undergraduate students, 48 students in total, who were enrolled in the Digital Photography course at Bangkok University in the first semester of the 2020 academic year. The sampling utilised the purposive method. The research instruments consisted of 1) lesson plans applied in classroom learning and e-learning and 2) Pre-test and Post-test purposefully designed for testing knowledge of Digital Photography. The research data were analysed by using techniques of descriptive statistics in terms of mean (x) and standard deviation (SD). In addition, the researchers used inferential statistics to analyse the collected data by using dependent and independent samples t-test.

The research findings showed that the students' learning achievement in the Digital Photography subject from both different learning contexts, classroom learning and e-learning, did not exhibit significant differences. The research data from the Pre-test and Post-test also indicated that their learning achievement from both different forms of learning were higher at the statistical significance level of 0.01.

KEYWORDS: Achievement of learning, Classroom learning, e-learning

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Introduction. In the situation of the COVID-19 pandemic, governments of many countries around the world including Thailand, had to implement "Semi-lockdown" measures and social distancing measures in order to control and prevent the spread of the COVID-19 virus. This has resulted in the closure of public places including educational institutions at all levels. Consequently, universities, which comprise a lot of faculties and students, had to adapt teaching and learning from normal classroom learning to online learning inevitably in order that students can learn from home as well as avoiding crowds of people (Saowaruj Rattanakhamfu, 2020). Although, online learning seems to be not a brand new teaching and learning approach which means many students around the world have already been acquainted with teaching in the 'online' format for a while, it has suddenly changed its role from an alternative to a 'major way' of teaching and learning in many parts of the world during the outbreak of COVID-19. Each country has tried to adapt, develop or even create their learning platforms. However, adjusting the teaching mode to online immediately is not something easy for most every school in any parts of the world if they have never experienced 100% teaching and learning through a screen before. (Wongpun Ammarinteva, 2021)

Accordingly, this paradigm shift in teaching and learning to online learning seemed to be struggling in Thailand as well due to many factors. For example, there are still a lot of students who have limited resources i.e., computers including notebooks or tablets, and internet access at home.In general, teaching and learning in the field of digital photography consists of both theory and practice. Students are required to study fundamentals of digital photography as well as to get hands-on experiences in photography in order to improve their photography skills with an instructor as a consultant, who always provide themguidance. In the normal classroom setting, where teachers and learners can have interaction and exchange ideas directly face-to-face, it is likely to create an appropriate teaching and learning atmosphere and lead to effective learning more than in online learning setting.

Therefore, the researchers were interested in investigating the academic achievement in digital photography of Bangkok University students between normal classroom teaching and e-learning in order to find ways to develop teaching and learning appropriately which could be beneficial for students' learning in digital photography to the max. Also, the findings of the research could be further used or adapted as a guideline for designing Digital Photography courses in the New Normal Era.

Objectives of the Study

1. To compare learning achievement in digital photography subject of Bangkok University students between classroom learning and e-learning.
2. To compare learning achievement in digital photography subject of Bangkok University students between pre-learning and post-learning in classroom learning context.
3. To compare learning achievement in digital photography subject of Bangkok University students between pre-learning and post-learning in e-learning context.

Hypothesis

1. Bangkok University students who studied in the e-learning context in Digital photography subject have higher learning achievement than the students who studied in the classroom learning context with statistical significance at the .01 level.

2. Bangkok University students who studied in the classroom learning context in Digital photography subject have higher learning achievement than before the course with statistical significance at the.01 level.

3. Bangkok University students who studied in the e-learning context in Digital photography subject have higher learning achievement than before the course with statistical significance at the .01 level.

Definition of terms

Achievement of learning means scores obtained from testing i.e., pre-testing and posting, in the digital photography subject in both classroom learning and e-learning contexts.

Digital Photography Subject means a study of fundamental principles and applications of digital photography.

Classroom learning means a classroom setting where students and teachers regularly meet in the classroom as scheduled. Teaching activities include lectures, hands-on sessions, seminars and exhibitions.

e-learning means teaching and learning management through online platforms to help reduce limitations of time and place to study. In this research, the instructor taught through the LINE program, which is a widely used massaging application with facilitating functions such as creating meeting rooms, making VDO conferences, transferring files, etc. Teaching activities consisted of lectures, self-study, practices, and consultation.

Undergraduate Bangkok University means Bangkok University students who registered in Digital Photography subject with the instructor, Titikorn Atichatpong, Semester 1, Academic Year 2020.

Research instrument

Research instrument were a test to measure your knowledge of digital photography created by the researcher. The researcher has designed a digital Photography teaching documents by doing the following:

1. Study documents, textbooks, and lesson plan on the content of digital photography which includes uses of cameras to take pictures in various types, image editing by software, printing, understanding aesthetics, and impacts of photography on society.

2. Use the information obtained from first process to be a digital photography knowledge test. The trial was conducted with 25 Bangkok University students who registered for digital photography

with instructor Titikorn Atichatpong, Section 1115, Semester 1, Academic Year 2019.

3. Optimise the language of the Digital Photography Knowledge test.

Scope of the Study

population

The population used in the research was 48 Bangkok University students who registered in the Digital photography subject in the first semester of the academic year 2020, divided into 2 groups by their registered sections.

samples

In this research, the researchers used the entire population as research samples. Those 2 groups of students were randomly selected (purposive sampling) by selecting one group as an experimental group and another group as a control group. The experimental group consisted of 22 students from section 1150 and section 1151 who were taught in the e-learning context. Next, the control group consisted of 26 students from section 1180 and 1185 who were taught in the normal classroom.

Variables

1. Independent variable is teaching methods used as follows:

1.1 e-learning method

1.2 classroom learning method

2. Dependent variable is achievement of learning in the subject Digital Photography

Research Ethic

This research did not disclose the identity of the students.

Context of the Study

The content used in this research is digital photography which includes uses of cameras to take pictures in various types, image editing by software, printing, understanding aesthetics, and impacts of photography on society.

Trial period

This research was conducted in the first semester of the 2020 academic year (August to December 2020), using a 16-week trial.

Expected Benefits

1. To know students' learning achievement in the subject of digital photography before and after the course.

2. To get guidelines for improving the academic achievement of students.

Research Methodology . The researcher proceeded the trial operation as the following steps:

1. Before the course, Those 2 groups of students were randomly selected (purposive sampling) by selecting one group as an experimental group and another group as a control group. The experimental group consisted of 22 students from section 1150 and section 1151 who were taught in the e-learning context. Next, the control group consisted of 26 students from section 1180 and 1185 who were taught in the normal classroom. both groups of students were tested their knowledge of digital photography by using the pre-test created by the researchers.

2. Teaching the experimental group and the control group according to the lesson plans.

3. After the course, both groups of students were tested their knowledge of digital photography again by using the post-test created by the researchers.

4. The collected data which are test results from both the pre-test and the post-test were analysed by using statistical methods in order to test the hypotheses.

Results. As stated earlier, this research, A Comparison of students' learning achievement between classroom learning and e-learning in Digital Photography, aims 1) to compare learning achievement in digital photography subject of Bangkok University students between classroom learning and e-learning; 2) to compare learning achievement in digital photography subject of Bangkok University students between pre-learning and post-learning in the classroom learning context; and 3) to compare learning achievement in digital photography subject of Bangkok University students between pre-learning and post-learning in the e-learning context.

The research findings from the data analysis were divided into 4 parts as follows.

Part 1: Basic information of the sample group

Part 2: The comparison of academic achievement Digital Photography between classroom learning and e-learning

Part 3: The comparison of achievement of learning in the subject Digital Photography between pre-learning and post-learning in the classroom learning context.

Part 4: The comparison of achievement of learning in the subject Digital Photography between pre-learning and after-learning in the e-learning context.

Part 1: Basic information of the sample group

Table 4.1 *Basic information of the sample groups*

Sex	number (people)	percentage
Male	19	39.60
Female	29	60.40
Total	48	100.00
Method	number (people)	percentage
Classroom Learning	26	54.20
e-learning	22	45.80
Total	48	100.00

From Table 4.1, the data shows the preliminary data of the sample group that most of the samples were 29 females, representing 60.4%, followed by 19 males, representing 39.6%. The sample group who studied in the normal classroom setting consisted of 26 people, representing 54.2%, while the method of teaching e-learning had the sample group of 22 people, representing 45.8%.

Part 2: The comparison of academic achievement Digital Photography between classroom learning and e-learning

Table 4.2 *The comparison of academic achievement Digital Photography between classroom learning and e-learning*

	N	- □	*SD*	t	Sig.
Classroom Learning	23	7.54	.999	-1.609	.118
e-learning	22	7.90	.426		

From Table 4.2, although switching from onsite to online learning is probably new for some students, it was found that learning achievement in the normal classroom learning was not different from e-learning at the statistical significance level of 0.01.

Part 3: The comparison of achievement of learning in the subject Digital Photography between pre-learning and post-learning in the classroom learning context.

Table 4.3*The comparison of achievement of learning in the subject Digital Photography between pre-learning and post-learning in the classroom learning context.*

	N	- □	*SD*	t	Sig.
pre-learning	26	6.38	1.298	-7.980	.000*
post-learning	26	7.71	1.050		

*P<.01

From Table 4.3, the data points out that pre-learning achievement was different from the post-learning achievement at the statistical significance level of 0.01 with the higher means of the learning achievement when comparing the pre-learning ($\bar{□} = 6.38$) and the post-learning ($\bar{□} = 7.71$)

Part 4: The comparison of achievement of learning in the Digital Photography subject between pre-learning and after-learning in the e-learning context

Table 4.4 *The comparison of achievement of learning in the subject Digital Photography between pre-learning and after-learning with e-learning context*

	N	- □	SD	t	Sig.
pre-learning	22	6.27	.984	-7.319	.000*
post-learning	22	7.90	.426		

*P<.01

The data from Table 4.4 shows that the pre-learning achievement was different from the post-learning achievement at the statistical significance level of 0.01 with the higher means of the learning achievement when comparing the pre-learning ($\bar{X}$ = 6.27) and the post-learning ($\bar{X}$ = 7.90).

Conclusion and Discussion.The researchers discussed the results of the findings in this research as follows:

1. The normal classroom learning achievement was not different from the e-learning learning achievement at the .01 level of statistical significance, which was inconsistent with the research hypothesis. Possibly, this could be because the lesson plans and class materials implemented, which were designed by the instructor, were the same. Also, the teacher probably needed to provide more time to mentor students who studied e-learning than the students who studied in the normal class. Consequently, both groups of students had opputunities to consult with teachers equally. In addition, an important part for effective digital photography could be achieved through a consistent development of photographic skills which means this skill development process doesn't necessarily take place in a normal classroom. So, learners can effectively improve and develop their photography skills anywhere and at any time if they have interest, readiness and determination in learning. As the research of Thanaphan Saptha-nadon, NakhonRatchasima Rajabhat University (2011 : 652-666) reports that instructors are considered as an influential factor affecting e-learning in many aspects i.e., lesson contents, teaching approaches, class activities, teaching materials, assessment and evaluation procedures, and numbers of online courses. This is because it is quite time-consuming for teachers to organize online learning. For example, time to answer e-mails, chat rooms, ICQ and web boards, etc. Teachers have to be able to use hyperlinks and associate them with various media. Correspondingly, Parker (1997) studied the design, implementation, and evaluation of educational web project in order to be used as a model for facilitating learning at home. The study aims to increase learners' knowledge and positive attitudes towards learning through computer screens based on cognitive social theory and to encourage learners to interact directly with computers. The samples used in the research were randomly divided into 2 groups: the experimental group and the control group in terms of energy content. The experimental group studied via the web, while the control group studied with the instructor. The research findings showed that the web is effective enough for teachers to teach as-is. The learners who studied via the web seemed to have more positive attitude towards the lesson than the instructor-led group. While the learners in the instructor group saw that they did not learn as much as those in the computer group. Additionally, most students had positive attitude towards the use of computers as a good educational tool. However, the results of the social-cognitive theoretical measure found out that the experimental group seemed to lack social skills and gender integration during the use of web and computer programs.

2. The comparative results of learning achievement in digital photography subject between before and after learning by using normal classroom teaching and e-learning found that the pre-learning achievement was different from the post-learning learning achievement at the statistical significance level of .01, with the mean post-learning achievement higher than the pre-learning achievement. This indicates that both forms of teaching and learning in the subject of digital photography can develop higher learning outcomes. This is due to the purposes of the subject focus on providing students the knowledge and understanding of fundamentals photography which are basic for them in terms of being able to control the use of digital cameras. Therefore, through learning steps designed by the teacher, students were motivated to train themselves to have photography skills until they could create beautiful and quality photos that meet the criteria for learning evaluation. This is in line with the research of Sudhimolibodhi (2020 ,P. 13-14) which states that achievement motivation refers to the need or desire of a person that stimulates behaviors that are aware and aim to achieve success and excellent standards with a high level of achievement by trying to compete with the standards and individuals. To do that, ones need to be ambitious, enthusiastic, responsible, and determined. And it is also in line with the research of Yingkwancharoen (2012,P. 98), students who studied with web-based integrated lesson on studio lighting and photography had higher learning achievements than before studying which can be concluded that learning Integrated web-based teaching helps students achieve better learning outcomes.

From the results of this research, it can be concluded that Learning achievement between classroom learning and e-learning in Digital Photography is not different. Both Instructional models have advantages and disadvantages. This is caused by many factors, such as teachers, teaching styles, teaching technology. Therefore, the researcher suggests that the teaching and learning style should be combined between classroom learning and e-learning by brainstorm opinions from both students and teachers taking into account the resources for Instructional model such as cameras, computers, online learning programs, duration of study in order to achieve maximum academic achievement.

Recommendations

Recommendations form Research

1. In teaching digital photography with an e-learning method, teachers should have a plan and prepare to organise the learning process more systematically in order to manage time in teaching and learning more appropriately. The disadvantage of online learning is that teachers and students need self-discipline and time management skills.

2. Teachers should find suitable platforms for teaching and learning the subject of digital photography in order to convey the knowledge effectively and smoothly. Also, teachers should have understanding and skills in technology, including how to use it, advantages and disadvantages of each program or online application in teaching and learning management.

3. Teachers should integrate online learning with self-learning by providing learning platforms or resources which allow learners to learn at their own pace in a variety of ways in advance or later. So that the learners can prepare before going to the e-learming class and can also review the content whenever they want.

Recommendations for Future Research

1. Digital photography learning achievement should be researched with a combination of class room learning and e-learning.

2. Researches should be conducted to examine appropriate models for teaching and learning digital photography.

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