



The Effects of an Active Learning Approach through Service Learning to Improve Students' Learning Achievement and Enhance Public Consciousness of Undergraduate Students

Los efectos de un enfoque de aprendizaje activo a través del servicio de aprendizaje para mejorar el rendimiento de aprendizaje de los estudiantes y mejorar la conciencia pública de los estudiantes de pregrado

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ABSTRACT:

The objective of this research was to examine the effects of active learning through the use of service learning by comparing the learning achievement and public consciousness of undergraduate students who were taught using active learning through service learning approach on the one hand, and through a normal approach on the other hand. The samples size was 63 undergraduate students that were selected using a cluster random sampling method. Those have been divided into two groups: 32 students in the experimental group and 31 students in the controlled group. Research instruments employed were as follows: (1) lesson plans for active learning through service learning, following the steps of SIARE Model, (2) a learning achievement test, and (3) a public consciousness test. The data analysis was conducted using Mean (X), standard deviation, and one-way MANOVA. The results were as follows: (1) the learning achievement and public consciousness of the group

RESUMEN:

El objetivo de esta investigación fue examinar los efectos del aprendizaje activo a través del uso del aprendizaje de servicio mediante la comparación del logro de aprendizaje y la conciencia pública de los estudiantes de pregrado a quienes se les enseñó el aprendizaje activo a través del enfoque de aprendizaje de servicio, por un lado, y a través de un enfoque normal, por otra parte. El tamaño de las muestras fue de 63 estudiantes universitarios que fueron seleccionados utilizando un método de muestreo aleatorio por conglomerados. Se han dividido en dos grupos: 32 estudiantes en el grupo experimental y 31 estudiantes en el grupo controlado. Los instrumentos de investigación empleados fueron los siguientes: (1) planes de lecciones para el aprendizaje activo a través del aprendizaje en servicio, siguiendo los pasos del Modelo SIARE, (2) una prueba de logro de aprendizaje y (3) una prueba de conciencia pública. El análisis de los datos se realizó utilizando la media (X), la

learning with an active learning through service learning approach were significantly higher than those of the group learning with a normal approach at .05 level.
Keywords: Active Learning, Service Learning, Public Consciousness, Computer Supported Collaborative Learning

desviación estándar y el MANOVA unidireccional. Los resultados fueron los siguientes: (1) el logro de aprendizaje y la conciencia pública del grupo inclinado con un enfoque de aprendizaje activo a través del servicio fueron significativamente más altos que los del grupo que se inclinó con un enfoque normal en el nivel .05.
Palabras clave: aprendizaje activo, aprendizaje de servicio, conciencia pública, aprendizaje colaborativo con soporte informático

1. Introduction

One of the important missions of higher education institutions is to produce qualified graduates for the labor market. Because of this, the Thai Qualifications Framework for Higher Education (TQF) has been established, with an emphasis on higher education institutions to produce graduates who possess professional expertise, responsibility towards oneself and the society, as well as moral and ethical values (Office of the Higher Education Commission, 2009). Hence, the aim of education management for higher education is not only to provide students with the knowledge for their future profession. Rather, it encompasses the fostering of desirable characteristics of graduates and rightful consciousness (Pongpeng, 2018; Suksup & Sukkamart, 2019; Nitchanet, 2018).

For public consciousness to be successfully developed, classroom explanation from instructors only is certainly not enough. It is necessary for learners to engage in learning-by- doing process using an active learning approach. Students have to take the role of active learners who participate in activities that help raise awareness through the use of a consciousness developing framework (Freire, 1970). Students should learn together with the community through experiential education so that they can learn to share and provide academic services for the community, as well as think, analyze, and find guidelines to generate benefits for the community (Dewey, 1976; Kolb, 1984, Billing, 2006; Deely, 2010; Dufour, Eaker, & Many, 2010).

However, the education management at the higher education level in Thailand is still facing issues, as the teaching methods usually focus on lecturing and emphasize theory over practice. Moreover, it still lacks diversified teaching methods, communication with learners, and practical teaching and learning methods. (Thirawanutpong, 2015; Ma-oon, 2016; Pradubthong, Petsangsri, & Pimdee, 2018; Office of the Education Council, 2018) These conditions and problems certainly can affect the quality of Thai graduates.

Being aware of the problems above, the researcher decided to study about the learning and teaching conditions and problems. Then, the researcher developed a learning approach examined by experts. The approach following an SIARE model consists of Stimulation, Investigation, Action, Reflection, and Evaluation. The educational support employed was local community and a computer supported collaborative learning. The researcher then developed an interest to employ the SIARE model in a learning and teaching approach and examine its learning outcomes in order to use it as a guideline to improve the learning and teaching as well as to produce high quality citizens both for The Thai society and the world.

1.1 Research Objective

To examine the effects of active learning through the use of service learning by comparing the learning achievement and public consciousness of undergraduate students enrolled in the Educational Technology course who were taught using active learning through service learning approach on the one hand, and through a normal approach on the other hand.

2. Methodology

2.1 Population and sample

Population of this study were 260 undergraduate students from the Faculty of Education, Nakhon Ratchasima Rajabhat University, enrolled in the Educational Technology course in the second semester of academic year 2018. The course was divided into 8 classes. The participants in this study were selected using a cluster random sampling method. There were 32 students in the experimental group and 31 students in the controlled group, with the total number of 63 students.

2.2. Instruments

The research instruments were developed by the researcher and were tested as follows:

1. Lesson plans: there are nine lesson plans the steps of which follow those of the SIARE model (as shown in Table 1). The contents of the lessons consist of: graphic design, educational resources, instructional media, and media assessment. The lesson plans were evaluated by 5 experts, with the quality of the lesson plans accepted to be of high level. The average score was 4.40 (SD = 0.64). The evaluation results were divided into 5 levels: 4.50-5.00 (highest), 3.50-4.49 (high), 2.50-3.49 (moderate), 1.50-2.49 (low), and 1.00-1.49 (lowest).
2. Learning achievement test: the test included 60 multiple-choice questions. The Index of Item Objective Congruence (IOC) was calculated from five experts' evaluations. The IOC obtained was between 0.60 – 1.00, the difficulty value was between 0.27 – 0.63, and the discrimination value was between 0.27 – 0.67. The reliability of the test was calculated using Cronbach's Alpha Coefficient, with the result of 0.86.
3. Public consciousness test: the test was a situational test of public consciousness with 60 multiple-choice questions with four options (the scoring weight of each option depended on the level of Kohlberg (1976)'s Moral Development). The IOC was calculated from 5 experts. The IOC obtained was between 0.60 – 1.00. After that, the reliability of the test was calculated using Cronbach's Alpha Coefficient, resulting in 0.83.

2.3. Data collection

The steps of data collection are as follows:

1. Introduce an active learning approach through the use of service learning, as well as the roles of the instructors and the learners.
2. Before starting the learning process, the samples in the experimental group and the controlled group were tested using the learning achievement test. The results of the test were used to compare the learners' learning background.
3. The course was taught using an active learning approach through the use of service learning following the nine lesson plans of the SIARE model, with the duration of 9 weeks. The steps are as follows:

Table 1

Illustrates the five teaching steps used in an active learning approach through the use of service learning (SIARE Learning Model). The educational support was local community and computer supported collaborative learning (CSCL). The steps are as follows:

Steps SIARE Model	Activities
Stimulation	<p>Stimulate learners to feel interested, curious, wanting to learn, as well as raise learners' awareness by using examples, pictures, news, columns, video clips about the problems caused by lack of public consciousness and role models with public consciousness. Instructors stimulated learners with the use of questions and asked them to express their opinion online via Padlet program.</p> <p>CSCL: an online opinion board, Padlet program</p>
Investigation	<p>Learners visited the local community in order to find a problem and learn about the community. The learners were assigned to collect data (outside of their class time). The communication was done via LINE application employing both chat and video chat.</p> <p>CSCL: communicate through LINE application and video chat</p> <p>Local community: community in close proximity to the university that has cooperation network with the university</p>
Action	Employed a variety of teaching methods that allowed the learners to

	participate and practice by doing. The active learning techniques used were round table, walk rally, debate, and think pair share.
	CSCL: an online opinion board, Padlet program, Google Classroom, and Google Site
Reflection	Learners wrote their reflections before, during, and after the learning processes via Google Blogger. Then the learners helped each other conclude and summarize the lessons they had learnt both in class and from the community.
	CSCL: an online notebook Google Blogger
Evaluation	Evaluate to see how much the learners achieved according to the learning and teaching objectives. The evaluation was conducted according to what really happened and could be divided into 2 parts as follows: 1) An evaluation done during the learning and teaching processes, using an online notebook evaluation form and an interview about public consciousness. 2) An evaluation to summarize the learning outcome, using a learning achievement test and a public consciousness test.
	CSCL: Google Form

4. When the teaching sessions were completed, the students from the experimental group and the controlled group were tested using the learning achievement test with 60 question with the duration of 60 minutes, and the public consciousness test with 60 questions with the duration of 120 minutes.

5. The scores from the learning achievement test and the public consciousness test were collected for the data analysis using one-way MANOVA.

3. Results

The researcher analyzed the data collected from the implementation of an active learning approach through the use of service learning by comparing the average scores of learning achievement and public consciousness of undergraduate students enrolled in the Educational Technology course who were taught using active learning through service learning approach on the one hand, and through a normal approach on the other hand. For this, the research assessed the assumption of MANOVA. The results are shown in Table 2.

Table 2
Test results of preliminary agreement by MANOVA analysis

	Normal Distribution		Pearson Correlations	Box's M Test (Sig.)	Bartlett's Test (Sig.)	Levene's Test (Sig.)
	Experimental	Control				
Achievement	.102	.540	.769**	.240	.000	.983
Public consciousness	.334	.170				.784
Results	Normality	Normality	.769 < .80	Sig. > a	Sig. < a	Sig. > a

Sig.=.00, a = .05

From the data in Table 2, when the dispersion was calculated using Shapiro Wilk, the result showed normal distribution in all the four groups with the level of significance of .05. As for the

equality of covariance matrices calculated using Box's M, the results showed no significant differences. The correlation of the dependent variables, achievement and public consciousness, was .769, which did not .80 meaning that MANOVA could be used.

Table 3
The comparison of means and SD of the learning achievement and the level of public consciousness after attending the course (by group)

Dependent Variable	Independent Variable	N		SD	F	Sig.
Achievement	Experimental	32	55.71	5.03	31.73	.000
	Control	31	48.70	4.83		
Public consciousness	Experimental	32	54.40	3.94	35.13	.000
	Control	31	48.09	4.49		

Sig.=.00, $\alpha = .05$

From Table 3, the scores of the learning achievement and the level of public consciousness of the experimental group were significantly higher than those of the controlled group, with the level of significance of .05. When examined in details, it was found that the average learning achievement score of the experimental group was 55.71 (SD.=5.03), higher than the average post learning achievement score of the controlled group, which was 48.70 (SD.=4.83). Moreover, the average public consciousness score of the experimental group was 54.40 (SD.=3.94), higher than that of the controlled group, which was 48.09 (SD.=4.49). From the findings, it is possible to conclude that the students in the experimental group who learned the lessons with the active learning approach through the use of service learning in the Educational Technology course obtained higher learning achievement scores and public consciousness scores, than the controlled group which were taught using a normal approach.

4. Discussion of the results

The findings of this study demonstrated that the students in the experimental group who learned the lessons with the active learning approach through the use of service learning in the Educational Technology course have received higher learning achievement scores and public consciousness scores, than the controlled group, which have been taught using a normal approach, at .05 levels of significance. This is because the active learning approach involves analyzing and synthesizing frameworks, theories, and the principles of an active learning approach through the use of service learning. In addition, the information about the learning and teaching conditions and problems were employed in order to determine the teaching and learning steps. The quality of this teaching method was also verified by experts and evaluated by the learners. Teaching and learning using an active learning approach through the use of service learning, yielded positive effects on the improvement of learners' abilities.

The first step used in this teaching method was Stimulation. Pictures, news, and video clips were used in order to stimulate learners' awareness and curiosity. For this kind of teaching, the instructors had to stimulate the learners with the questions that could motivate the learners to find answers. The instructors needed to allow the learners to share their opinions as much as possible. It was also necessary to motivate the learners by employing role models to promote public consciousness. Incorporating these role models could motivate the learners to do beneficial things to their community. In this process, using stimulating questions was crucial. The instructors, therefore, needed to possess good questioning skills. Moreover, Swan (2006) also suggested that the role of the instructors was to stimulate the learners to come up with ideas and seek knowledge, as well as to create learning atmosphere that encouraged the exchange of knowledge.

The second step was Investigation. The learners visited the local community to examine the problems, collect data, and find the solutions. For this step, the learners cooperated and made a plan for the community visit. They could learn to work together with the community that could help them form positive attitude towards the community. During this phase, the instructors had to support, coordinate, make a plan with the community, and closely monitor and provide advice for

the students via CSCL. This was in accordance with the study by Simons & Beverly (2006), which found that working with the community could create bonding, link knowledge, make the learners want to help the community, create consciousness, promote team working, and generate positive attitude towards the community. Furthermore, Galvan & Parker (2011) also exerted that service learning could develop learners' social ability after encountering the problems in the community.

The third step was Action. During this step, the learners actually solved the problems for the community. The practice was done through a variety of teaching and learning activities with the emphasis on learners participating and finding the knowledge by themselves. The learners needed to adapt the lessons learned to serve the community. The instructors provided support and guidance. This was in accordance with the concept exemplified by Dewey (1976), which gave importance to learning-by-doing or experiential learning (Kolb, 1984; Wileds & Bondi, 2007). In addition, Shaikh & Anupama (2018) also found that service learning could provide learners real-world experience. Learning could be gained through doing and the body of knowledge could later be created (Deely, (010)

The fourth step was Reflection. For this stage, the learners reflected on their thoughts with the help of an online notebook, and then they concluded together what they had learned both in the classroom and from the community. The role of the instructors at this stage was to give suggestions and prompt the learners to exchange ideas so that they could create public consciousness, as well as to help make the learning process more complete. This was in accordance with Richardson (2006) and Power (2010). Recording the learning was an important element for promoting the learning and thinking processes. Reviewing leads to knowledge management and reflection on what has been learned. Considering and reflecting are essential tools for service learning experience (Welch & James, 2007).

The last step of this learning method was Evaluation. The instructors evaluated the learning outcome of the learners. This should be done in terms of cognitive domain, affective domain, and psychomotor domain. For the evaluation of public consciousness, which was in an affective domain, the evaluation should be done using various methods, as well as multiple times, and should cover various features of public consciousness. Alkire (2007) and Panadero & Jonsson (2013) stated that an evaluation of public consciousness was highly abstract. Therefore, it was important that the evaluation covered all the features that needed to be evaluated. This should be done many times as public consciousness could alter depending on various situation.

The researcher decided to use Computer-Supported Collaborative Learning to support the teaching and learning to enable the learners to learn together, facilitate communication and exchanging of ideas, and create cooperation through computers and IT. The technology employed was as follows: 1) Synchronous tools: chat and video chat via LINE application was employed. These were effective tools for communication. Photos, voice, and video clips could be recorded. It enabled the instructors to monitor the learners while they were in the community and give advice to them instantly. Brainstorming through Padlet program could help promote exchange of opinions and prompt the learners to share their opinions. This is because the display of results by Padlet program is varied and simultaneous. Thus, it could effectively motivate the learners. 2) Asynchronous tools: an online notebook was employed for the reflection on each learning session. This was done through Google Blogger, an online program with easy access and with various and interesting forms. As for the online lessons, Google Site program was employed in order to create a flexible learning atmosphere that encouraged self-learning. For online tests, Google Form was used to create online tests. It assisted in collecting the data about the learners and the output was in an Excel form, making it convenient for further statistical analysis. This is in accordance with Yoon & Brice (2011), who mentioned the educational use of supporting tools, both synchronous and asynchronous, on the Cloud system. This could facilitate the use of online tools of Google for instructors. Guthrie & Mccracken (2010) stated that teaching with technology and teaching through websites could have positive effects on learning and stimulate the learning process. Participating in idea exchanging could create learning opportunities and awareness through the use of various and effective tools.

5. Conclusion

An active learning approach through the use of service learning is a method that can improve learning achievement and enhance public consciousness of learners. This is in accordance with the ideas of many educational philosophers who focused on learning-by-doing and generating the body of knowledge from linking experiences. Learners could be aware that they are a part of solving problems for a community, and adapt what they learn in class to be used in their real

lives, learn about the conditions of the community and help solve the problems, improve their communication and team-working skills, learn to help others, and in the end they will be proud of their service to the community. Active learning through service learning, therefore, is a kind of learning that can really be beneficial in real life. This can respond well to the guideline to develop learners to become qualified, talented, and happy citizens. This is then in accordance with the university policy, as well as the policy for national improvement. (Dewey, 1976; Vygotsky, 1978; Freire, 1970; Meyers & Jones, 1993; Billing, 2006; Dufour, Dufour, Eaker, & Many, 2010; Dick, Carey, & Carey, 2014; Fink, 2015; Shaikh & Algannawar, 2018)

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