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**THE LEARNING CAPABILITY DEVELOPMENT OF TECHNICAL  
PHARMACY STUDENTS IN LAWS AND CONSUMER PROTECTION  
COURSE AT SIRINDHORN COLLEGE OF PUBLIC HEALTH  
CHONBURI, THAILAND**

**Abstract:**

This study was aimed to develop the learning capabilities of the students in laws and consumer protection course. The samples were 35 students of the 1st year technical pharmacy department at Sirindhorn College of Public Health Chonburi in the 2012 fiscal year. Data were collected from the self-evaluation questionnaire of learning capability standard in laws and consumer protection course before and after implementing a classroom action research of 4 steps, planning, acting, observing, and reflecting. In the planning step, learning problem was surveyed and analyzed. It was found that students were not able to apply the regulations or acts in order to solve related case studies after traditional lecture format. The student-centered teaching techniques were then used as an active learning tool in the acting step to mitigate this problem. These techniques included cooperative learning and experiential learning. In the observing step, the data were re-collected and compared using descriptive statistics and paired t-test. The results showed that after implementing the action research with student-centered teaching techniques, the evaluation score was increased from 54.97 to 57.43. Although it was a slight increase but could be concluded that an action research using student-centered techniques significantly developed the learning capabilities of technical pharmacy students ( $p < 0.05$ ). The teaching techniques used in this research would be reflected and applied in the course plan of laws and consumer protection in order to improve the teaching and learning strategies for the next fiscal year.

**Keywords:**

Action research, Student-centered, Learning capability

**JEL Classification:** I00, I20, I29

## Introduction

The current Law and consumer protection course at Sirindhorn College of Public Health has been developed for the technical pharmacy students since 2007. The specified learning objectives of this course regarding morals, knowledge, intellectual skills, interpersonal relationship and responsibility, communication and skills in information technology, as well as professional practices, were created for the students to develop their learning capability. However, the massive content of the course together with the old-fashion teaching style employing only lecture-based teaching lead to weariness and boredom of the students when attending the class. Moreover, a survey of self-evaluation of the students at the end of each lesson showed that the students were not satisfied with their learning capability and wished to improve their performances. The classroom action research using student-centered teaching technique as an intervention; therefore, was applied to ameliorate this problem.

The action research is a well-known research method used by the teachers to solve learning problems, improve professional practices and learning environment in the classrooms (Parsons and Brown, 2002). The action research comprises 4 steps; 1) developing a plan or planning, 2) acting to implement the plan, 3) observing the effects of action, and 4) reflecting on these effects for future planning (Kemmis *et. al.*, 2004). This research is a problem-focused, context-specific and future-oriented study which requires a partnership between the researcher and participants involved in the change process. Hence, an action research is typically planned to solve problems occurring in each classroom in which the teacher acts as a researcher.

The student-centered teaching technique is an approach of education focusing mainly on the interests of students. In contrast to traditional education which the teacher plays an active role in choosing what and how students will learn, the student-centered classroom requires students to be active and acknowledge student opinions as the center (Huba and Freed, 2000). Cooperative learning and experiential learning were the student-centered teaching techniques used in this research. The cooperative learning allowed students to work together and share their diverse intelligences in order to help each other and accomplish the group task (Johnson & Johnson, 2009) whereas experiential learning is the process of learning from direct experience (Kolb, 1984). By applying these techniques, the learning environment and students' capability were expected to be developed. The results will also be reflected and planned for the development of the course as well.

## Methods

Population; all 1<sup>st</sup> year students of technical pharmacy department in 2012 fiscal year at Sirindhorn College of Public Health Chonburi who registered and attended 3 classes of Law and Consumer Protection course including Psychotropic Substances Act, Food Act, and Cosmetic Act were selected for this classroom action research. The total number of population was 35. The study protocol and questionnaires were examined and approved by the Ethic Committee of Sirindhorn College of Public Health Chonburi.

Research tool; a self-evaluating questionnaire of learning capability according to the standard learning capability requirement for Law and Consumer Protection Course was developed. This questionnaire comprised 6 topics of learning capabilities including 2 questions of morals, 3 questions of knowledge, 3 questions of intellectual skill, 5

questions of interpersonal relationship and responsibility, 2 questions communication and skills in information technology, and one question of professional practices. All questions were 5-rating scale questions. The scale of 1-5 was; 1) poor, 2) fair, 3) good, 4) very good, and 5) excellent.

Statistical analysis; the data were analyzed using descriptive statistics and paired t-test to compare the results before and after applying the student-centered teaching techniques.

Research design;

- 1) Identifying problem; all students were requested to complete all questions of the learning capability questionnaire after the Psychotropic Substances Act class (pretest). The teacher used traditional teaching methods for this class. Data were collected and analyzed using descriptive statistics. Learning capability topics that possessed the average scores of less than 70% were identified as problem.
- 2) Developing a plan; causes of the problems were analyzed. Suitable teaching techniques were explored by literature reviews and the student-centered techniques were chosen for tackling the problems. The techniques used were cooperative and experiential learning.
- 3) Acting to implement the plan; lesson plans for 2 classes, Food Act and Cosmetic act, were established and taught applying student-centered teaching techniques.
- 4) Observing the effects; students were required to complete the learning capability questionnaire after finishing the above mentioned classes (posttest). Data were collected and analyzed using descriptive statistics and paired t-test.
- 5) Reflecting for future planning; the results from both pretest and posttest were compared and summarized. The capability topics of which the test scores were still less than 70% were the next challenging problem for the succeeding classroom action research.

## Results

The findings showed that learning problems of the students were knowledge, intellectual skills, and professional practices (Table 1).

**Table 1:** Self-evaluation scores of learning capability of the students before applying student-centered teaching techniques. (n=35)

Learning capability	Full scores	Evaluation scores	Passing criteria
1.Morals	10	7.31	Pass
2.Knowledge	15	9.80	Do not pass
3.Intellectual skills	15	9.49	Do not pass
4.Interpersonal skills and responsibility	25	17.86	Pass
5.Communication and skills in information technology	10	7.08	Pass
6.Professional practices	5	3.43	Do not pass
Total	80	54.97	Do not pass

Before applying student-centered techniques, most students found that they had good basic knowledge in health sciences, pharmaceutical sciences, as well as understanding in the situations of community (Table 2). In term of intellectual skills, most students evaluated that they could systematically link causes and effects of the problem, analyze and interpret the data for problem solving, and think critically at the good level (Table 2). Concerning professional practices, most students thought that they can work well as the pharmacy technician (Table 2). However, the average evaluation scores in these three topics were still lower than standard. The student-centered teaching techniques were; therefore, used to improve these learning skills of the students.

**Table 2:** Comparison of self-evaluation percentages of learning capability before and after applying student-centered teaching techniques. (n=35)

Learning capability	Poor		Fair		Good		Very good		Excellent	
	Bef	Aft	Bef	Aft	Bef	Aft	Bef	Aft	Bef	Aft
<b>1. Morals</b>										
- Responsible for self, society, and environment	0	0	0	0	45.7	28.6	54.3	62.8	0	8.6
- Act on discipline and follow rules & regulations	0	0	0	0	34.3	34.3	54.3	54.3	11.4	11.4
<b>2. Knowledge</b>										
- Have the basic knowledge of health sciences, social sciences, and law enforcement	0	0	8.6	0	74.3	48.6	17.1	51.4	0	0
- Have the principal knowledge of pharmaceutical sciences for working as the future competent officers	0	0	11.4	0	54.3	57.1	34.3	40.0	0	2.9
- Understand the community situations and cultural changes that impact on population and health system	0	0	0	0	54.3	45.7	42.9	48.6	2.8	5.7
<b>3. Intellectual skill</b>										
- Systematically link the causes and effects of a problem	0	0	5.7	2.8	68.6	60.0	20.0	34.3	5.7	2.9
- Can analyze and interpret the data for problem solving in everyday practice	0	0	5.7	5.7	71.4	51.4	20.0	42.9	2.9	0
- Think critically	0	0	14.3	8.6	68.6	62.9	17.1	22.8	0.0	5.7
<b>4. Interpersonal relationship and responsibility</b>										
- Eager to learn and self-develop	0	0	5.7	2.9	57.1	37.1	28.6	51.4	8.6	8.6
- Can work alone and work as a team, having good interpersonal relationship	0	0	0	0.0	28.6	22.9	54.3	57.1	17.1	20.0
- Be the leader in a small group	0	0	8.6	5.7	65.7	45.7	20.0	42.9	5.7	5.7
- Responsible for society and job assignment	0	0	0	2.8	34.3	22.9	42.9	51.4	22.8	22.9

Learning capability	Poor		Fair		Good		Very good		Excellent	
	Bef	Aft	Bef	Aft	Bef	Aft	Bef	Aft	Bef	Aft
- Can find self-defects in knowledge and skills as well as plan to solve these problems	0	0	5.7	2.8	45.7	34.3	45.7	54.3	2.9	8.6
5. Communication skills and information technology										
- Can effectively communicate with Thai language	0	0	5.7	2.8	48.6	40.0	37.1	54.3	8.6	2.9
- Can appropriately use informational technology for data searching and presentation	0	0	8.6	5.7	37.1	45.7	40.0	45.7	14.3	2.9
6. Professional Practices										
- Can work in public health pharmacy area as the pharmacy technician.	0	0	0	0.0	65.7	54.3	25.7	40.0	8.6	5.7

The student-centered teaching techniques chosen for developing knowledge, intellectual skills, and professional practices of the students were cooperative learning, and experiential learning (Kolb, 1984). Since the students did not know how to acquire relevant knowledge and apply it, the teacher then developed a plan to let the students work as a group, searching for pertinent knowledge and applying it.

Steps in cooperative learning were;

- 1) The teacher introduced important regulations of Food Act, and Cosmetic Act.
- 2) The teacher presented examples of illegal actions according to Food and Cosmetic Acts using multimedia or video from Thai Food and Drug Administration (Thai FDA). The students were asked whether they found these actions illegal and how.
- 3) Students were purposively divided into 6 groups.
- 4) Teacher provided case studies of over-claimed, illegal advertised or labeled of food and cosmetic products from FDA newsletter.
- 5) Each group chose one interested case study to discuss.
- 6) After 20 minutes of group discussion, each group presented their results in front of classroom for further class discussion.

Steps in experiential learning were;

- 1) Students were assigned to search for example cases of over-claimed, illegal advertised or labeled of food and cosmetic products in the market, newspaper, internet, radio or television.
- 2) Each group presented their findings in the classroom, and simulated the regulations or law enforcement according to Food Act and Cosmetic Act.
- 3) Students were asked to propose the solutions in order to reduce these problems and worked as groups to prepare information for public dissemination.

After applying cooperative learning and experiential learning, students were required to complete the learning capability questionnaire. The average scores from 5 of 6 learning capability topics increased except communication and skills in information technology which was slightly decreased. In addition, the knowledge and professional practices of students passed the criteria after using these techniques (Table 3). Overall, the learning capability of the students was better after applying the student-centered teaching techniques in the classroom action research ( $p < 0.05$ ) (Table 4).

**Table 3:** Self-evaluation scores of learning capability of the students after applying student-centered teaching techniques. (n=35)

Learning capability	Full scores	Evaluation scores	Passing criteria
1.Morals	10	7.57	Pass
2.Knowledge	15	10.57	Pass
3.Intellectual skills	15	10.00	Do not pass
4.Interpersonal skills and responsibility	25	18.74	Pass
5.Communication and skills in information technology	10	7.03	Pass
6.Professional practices	5	3.52	Pass
Total	80	57.43	Do not pass

**Table 4:** Comparison of average self-evaluation scores of learning capability before and after applying student-centered teaching techniques in classroom action research. (n=35)

	$\bar{X}$	$\bar{D}$	S.D.	t	p
Before applying student-centered techniques	54.971				
After applying student-centered techniques	57.429	2.457	7.052	2.061	0.047

## Discussion

The results showed that students in Law and Consumer Protection course had passive learning activities in class when teacher used the traditional teaching style. The self-evaluation scores of learning capability also illustrated that the students were not satisfied with their learning capability. Therefore, the action research was applied to develop their learning capability.

According to the evaluation scores of student learning capability before using action research, the students evaluated that they had limited knowledge, intellectual skills, and professional practices whereas the scores of morals, interpersonal and

communication skills were more than 70%. In order to let the students work as a team since they were good at the interpersonal skills, the cooperative learning was chosen for these students to allow them help each other using their difference skills to complete the task (Slavin, 1990). Working as a group, students could share individual intelligence and had more confidence to complete the group assignment, thus yielding more effective work (Gillees and Adrian, 2003). In addition, the experiential learning was also implemented in the acting step to help the students learn from experience by finding and evaluating the example cases by themselves. So, the students could apply the knowledge with reality allowing them develop intellectual and professional practice skills since learning from case studies provided by the teacher alone seemed to be insufficient for the development of their practical skills (McCarthy and McCarthy, 2006).

In the observing step after implementing these two techniques, the evaluation scores of students' learning capability were significantly increased ( $p < 0.05$ ). Besides, from the observation, the students were satisfied with working as a group to accomplish their task. The students reflected that they were enthusiastic when finding the illegal labeled or advertised food and cosmetic products in the market and tried to match with the law and regulation enforcement according to the Food and Cosmetic Acts with their groups.

Overall, learning capability of the students was improved. The average scores of all capability topics were increased; however, 5 out of 6 learning capability topics passed the standard criteria of 70% except the intellectual skills concerning critical and systematic thinking of the students. This could be resulted from the difficulty and complexity of the real illegal advertised or labeled food and cosmetic found in the market which required more comprehensive knowledge for problem solving. The critical thinking skill of the students was, therefore, identified as a problem for the next action research cycle.

It could be concluded from this study that the action research implementing cooperative learning and experiential learning as the student-centered teaching techniques could help the students improve their learning capability for Law and Consumer Protection Course.

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