ปัจจัยที่มีผลต่อการเข้าร่วมการศึกษาต่อเนื่องของเภสัชกรไทย

นางสาว พรรณนภา เนียมพลอย

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PREDICTORS OF THAI PHARMACIST IN ACCESSING CONTINUING PHARMACEUTICAL EDUCATION

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ในปีพศ.2544 สภาเภสัชกรรมได้กำหนดให้เภสัชกรในประเทศไทยเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์ โดยกำหนดช่องทางของการเข้าร่วมได้ 3 ช่องทางคือ การประชุมวิชาการ การอ่านบทความจากวารสาร และการอ่านบทความผ่าน website โดยมีจุดมุ่งหมายเพื่อให้เภสัชกรได้พัฒนาความรู้อย่างสม่ำเสมอและต่อเนื่องโดยกำหนดให้เภสัชกรเข้าร่วมการศึกษาต่อเนื่องอย่างน้อยปีละ 10 หน่วยกิต และเก็บสะสมให้ได้ไม่น้อยกว่า100 หน่วยกิต ภายใน 5 ปี งานวิจัยนี้เป็นการศึกษาปัจจัยในการทำนายการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์ โดยยึดตามทฤษฎี Planned Behavior ซึ่งองค์ประกอบสำคัญ คือ ทัศนคติ สิ่งหรือบุคคลที่มีอิทธิผลต่อการเข้าร่วมการศึกษาต่อเนื่อง อุปสรรคที่มีผลต่อการเข้าร่วมการศึกษาต่อเนื่อง โดยใช้แบบสอบถามทางไปรษณีย์เป็นเครื่องมือในการเก็บข้อมูล และใช้ฐานข้อมูลหน่วยกิตของเภสัชกรจากศูนย์การศึกษาต่อเนื่องทางเภสัชศาสตร์ การศึกษานี้ได้รับแบบสอบถามตอบกลับร้อยละ42 (n=269) ใช้สถิติวิเคราะห์ตัวแปรคู่ (Bivariate anaysis) และการวิเคราะห์ความถดถอยเชิงพหุ (Multiple regression analysis) ผลการศึกษาพบว่าแบบจำลองนี้สามารถอธิบายความสัมพันธ์ของพฤติกรรมในการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์ (ใช้คะแนนหน่วยกิตการศึกษาต่อเนื่องทางเภสัชศาสตร์) โดยมีค่าสัมประสิทธิ์สหสัมพันธ์เท่ากับ 0.21 สามารถทำนายการตัดสินใจร้อยละ 21 ปัจจัยสำคัญในการทำนายการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์ของเภสัชกรไทยคือ เพศ (p=0.02) สถานที่ทำงานของเภสัชกรที่อยู่ในภาคกลาง (p=0.03) การเป็นสมาชิกของสมาคมวิชาชีพเภสัชกรรมโรงพยาบาล (p=0.01) การเป็นสมาชิกสมาคมเภสัชกรรมชุมชน (p=0.00) หน่วยงานที่จัดการศึกษาต่อเนื่อง (p=0.01) และอิทธิพลของผู้รับบริการ (p=0.05) นอกจากนี้ยังพบว่าเภสัชกรส่วนมากใช้ช่องทางการประชุมวิชาการเป็นช่องทางสำคัญในการเข้าร่วมการศึกษาต่อเนื่องและเภสัชกรมีความต้องการให้จัดการศึกษาต่อเนื่องในด้านที่สัมพันธ์กับสาขาวิชาชีพที่ปฏิบัติงาน ผลที่ได้จากการศึกษานี้ไปใช้เป็นข้อมูลในการวางแผนและจัดประชาสัมพันธ์ให้เภสัชกรเข้าร่วมการศึกษาต่อเนื่องให้มากขึ้น เพื่อบรรลุวัตถุประสงค์ตามนโยบายการศึกษาต่อเนื่องด้านเภสัชศาสตร์

ลายมือชื่อนิสิต .....

สาขาวิชาเภสัชศาสตร์สังคมและการบริหาร ลายมือชื่ออาจารย์ที่ปรึกษา.....

ปีการศึกษา2548 ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....

4576853133 : MAJOR SOCIAL AND ADMINISTRATIVE PHARMACY

KEY WORD: CONTINUING PHARMACEUTICAL EDUCATION / THEORY OF PLAN BEHAVIOR / ATTITUDE

PANNAPA NIAMPLOY :(PREDICTORS OF THAI PHARMACIST IN ACCESSING CONTINUING.PHARMACEUTICALEDUCATION).THESIS.ADVISOR:ASST.PROF. ANUCHAI THEERAROUNGCHAISRI. THESIS COADVISOR : ASSOC.PROF.JIRAPORN LIMPANNANON,PH.D. 66 pp. ISBN 974-53-2361-6.

Thai Pharmacy council has established a policy encouraging Thai pharmacists to carry out their continuing pharmaceutical education (CPE) through participating in academic conference, reading articles from journals, or website since 2001. Pharmacists are expected to accomplish for minimum of 10 credits granted in each year and 100 credits within five years. Therefore, this study was conducted to determine the predictable factors of accessing CPE. These factors were based on Theory of Planned Behavior (TPB) including attitude and subjective norms toward accessing CPE, and perception of barriers affecting their participations in CPE. Survey research using mailing-questionnaire was used and data on CPE score were collected from Center of continuing pharmaceutical education (CCPE). The response rate was 42.0 % (n=269). Bivariate analysis was used to explore the association of predictors and CPE score and Multiple Regression Analysis was conducted to establish the explanatory model on CPE. The result showed that the established model based on the TPB has correlation coefficient 0.21 that could explain their participation on CPE about 21 %. The significant predictors in the model were gender (p=0.02), working places of pharmacists in the Central region (p=0.03), being a member of Hospital Pharmacy Association (p=0.01), being a member of Community Pharmacy Association (p=0.00), CPE provider (p=0.01), and perception on patient influencing CPE participation (p=0.05). It was also found that academic conference was the most important channel that pharmacist chose for their participation and they required topic of CPE to be related with their practice area. The results of this study could be used to develop the appropriate strategies to promote and motivate Thai pharmacists to have more participation in CPE to achieve the Thai Pharmacy council policy and the CPE could consequently be an acceptable regulation.

Student's signature Pannapa Niamploy

Field of study Pharmaceutical Sciences. Advisor's signature Amchai Thee

Academic year 2005 Co-advisor's signature

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LIST OF ABBREVIATION

CE	Continuing Education
CCPE	Center Continuing Pharmaceutical Education
TPB	Theory of planned behavior
CPD	Continuing Professional Development
CME	Continuing medical education

CHAPTER I

INTRODUTION

Continuing Education (CE) is a major component to maintain the proficiency and effectiveness of health professionals. Participation in CE activities does not translate directly into increasing competency, but it is one of the several factors associated with competency. In 1967, Houle stated that while continuing education will not cure all of the problems of the professions **(1)**. More details were established by the following: within a cure-oriented group it was not surprising that so many had looked to continuing education as a panacea for the ills of the health care system. Continuing Education is a component of adult education. As asserted by Hutchison, Continuing Education is a broader concept than adult education, in that it implies the notion of un ending continuous learning and individual self-development **(2)**. As summarized by Kirk in1981, the term "continuing education" is referred to those planned, learning experiences and activities which are beyond the basic educational or preparatory programs **(3)**. These learning experiences and activities were designed to promote the continuous development of skills, attitudes and activity of service or products in addition to being responsive to needs and keeping abreast of significant change**(4).** Houle identified eight specific goals of continuing professional education **(5):**

- To keep up with new knowledge as required performing responsibly in the chosen career.
- To master new conceptions of the career itself.
- To prepare for changes in a personal career line
- To maintain a positive outlook on the work done, so that detail was not neglected.
- To continue to grow as a well-rounded person.
- To retain the power to learn.
- To effectively discharge the social role imposed by membership in a profession.

Although some might regard Houle's list of eight goals as worldly and somewhat esoteric, it is valuable in that it articulates many of the subtleties associated with the pursuit of CE. A less involved and more succinct statement of the goal of CE is to delay

and hopefully prevent the onset of professional obsolescence which means the loss of acquired knowledge and the non acquisition and/or non utilization of new knowledge **(6)**.

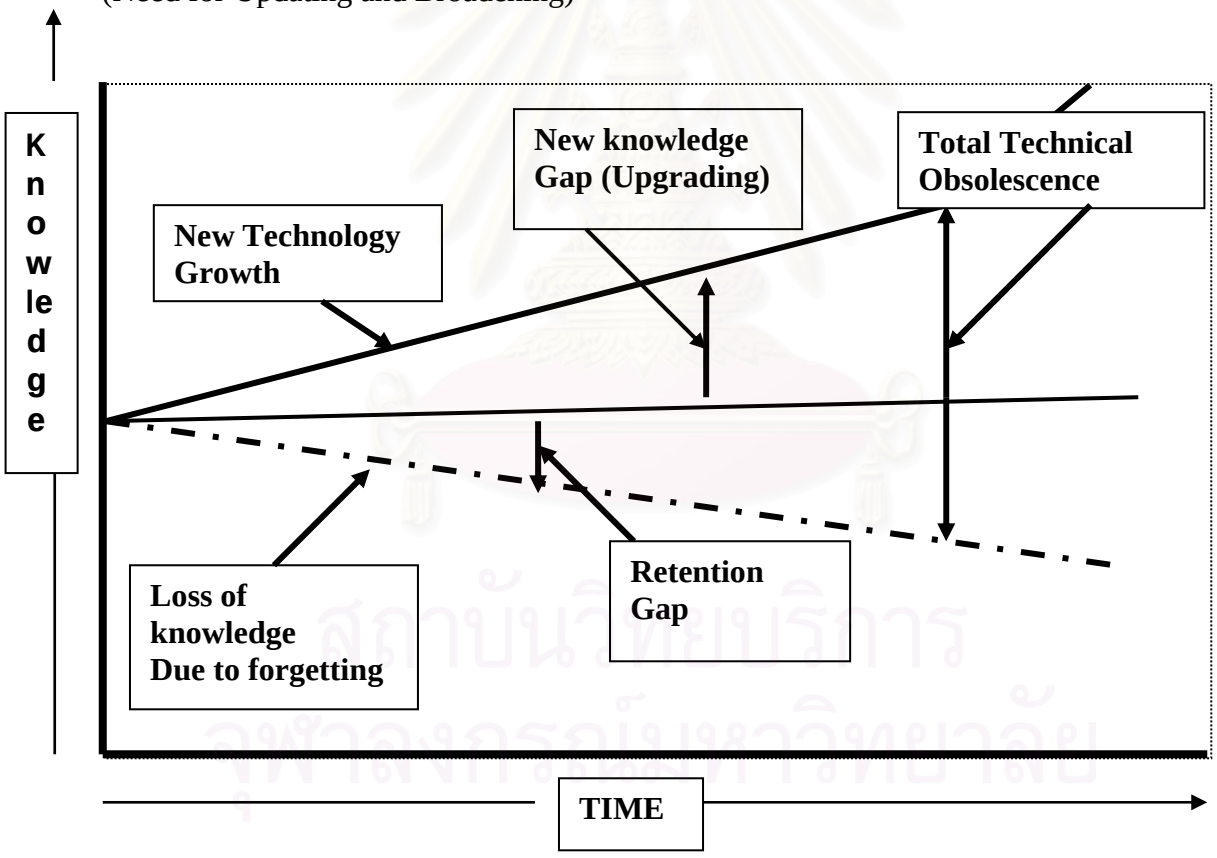
The primary goal of CE is to update the practitioner's knowledge base, skills, and attitudes. In other words, the process of CE was an effort to avoid professional obsolescence. Klaus developed a graphic representation of time-dependent knowledge gaps for technically educated people (Figure 1-1) **(7).**

This concept is readily applicable to the healthcare profession. A health professional entered his/her field with a base knowledge which diminishes due to the forgetting process and becomes obsolete by virtue of new technological advancements. CE is one means of attempting to close this ever-widening gap.

Figure 1

Time –Dependent Knowledge Gaps for Technically Educated People

(Need for Updating and Broadening)



Source: Reprinted from "Continuing Engineering Education," *The Military Engineer*, **71**, 180 (1979), with permission of developer, John P. Klaus.

1.1 Rationale of this Study

The professional careers of pharmacists are involved with medicines which are essential for health and life. In the world period of information technology, the amount of

new knowledge related to drug therapy is very fast so pharmacists have to catch up their knowledge in order to ensure the quality of their pharmaceutical care service. The Thai Pharmacy Committee (2001-2003) established the Subcommittee on Continuing Pharmaceutical Education to organize continuing education for pharmacists by The Thai Pharmacy Council, No. 10/2001 on 23 March, 2001**(8)**. The objectives of continuing pharmaceutical education (CPE) are as the following;

1To reinforce and update knowledge to increase pharmacists' potential in their service to patients.

2To improve skills and experience in different areas of practice.

3To develop pharmaceutical profession which consequently will be useful to people.

In 2005, Center Continuing Pharmaceutical Education (CCPE) had 21 major institutions and 82 minor institutions providing for continuing pharmaceutical education **(9)**. There are 393 activities or 3,179.9775 credits as well as 26 articles from on line article or 65.5 credits in 2004. The examples of institutions that frequently organized CPE are Community Pharmacy Association (Thailand), Songanakarin University and Mahidol University. Three years (from March 2001 to December, 2003) situation of continuing education credits of pharmacists in Thailand is summarized as the following table.

Table 1 Number of Pharmacists and CPE Credits

Interval Scores (Credits)	Pharmacists	Percent
>100	**949**	**5.35**
50-99	**3,606**	**20.33**
1-49	**8,513**	**47.99**
0	**4,670**	**26.33**
Total	**17,738**	**100**

Source: Center Continuing Pharmaceutical Education (December 2003)

Based on the data from Pharmacy Council, there are approximately 1,000 new pharmacists registered per year as shown in table 2.

Table 2 Number of Registered Pharmacists from 1995 to 2003.

Year	No. Pharmacists	Registered Pharmacist	University	
			Public	Private
1995 *	10,503	670	585	85
1996	11,227	724	621	103
1997	11,939	712	629	83
1998	12,633	694	630	64
1999	13,518	885	729	156
2000	14,472	954	806	148
2001	15,507	1,035	868	167
2002	16,735	1,228	914	269
2003	17,903	1,169	966	203

***** Before 1995, Registered Pharmacists was controlled by Re-licensing Department

Source: www.pharmacycouncil.org (Accessed September 1, 2004)

The Thai Pharmacy Council in (2001) declared that pharmacists should have 100 credits in five years (2006) and should collect CE 20 credits each year. CCPE had reported that there were only 2,937 pharmacists who had more than 50 credits (16.56 %). Since 2001, there were few studies researching about CE in Thailand. Saowako et.al, (2000) had shown that most of pharmacists (60%) agreed with re-licensing by using continuing education for a criteria **(10).** Rapeepan et.al, (2003) monitored pharmacist's satisfaction toward the continuing education process. The result showed that 85.3 % of subjects understood all three objectives of CPE and 92.4 % of samples knew about the CPE process **(11).** Moreover, Patcharaporn and Venus (2003) had indicated that 61.3 % of pharmacists concerned the idea of re-licensing by CE, about 53.8% and 47.8 % expressed that re-licensing by CE would increase the standard of pharmacy practice and quality of patient care respectively **(12).**

Maintaining or increasing practitioners' effectiveness within the health care team was the main interest of the continuing education program in pharmacy.

Consequently, providers of CE in pharmacy must engage in an in-depth planning program and development process.

From above information, further study of **Predictors of Thai Pharmacist in Accessing Continuing Pharmaceutical Education** was essential for pharmacy professional.

1.2 Research Questions

1. What are the predictors of Thai pharmacist in accessing continuing pharmaceutical education?

2. What are the most important barriers on participation in CPE of Thai pharmacist?

1.3 Objectives

1. To examine predictors that effect on Thai pharmacist in accessing the continuing pharmaceutical education.

2. To investigate barriers of Thai pharmacist in accessing continuing pharmaceutical education.

1.4 Expected Outcomes

1**.** The important predictors affecting of Thai pharmacist in accessing continuing pharmaceutical education

2. The knowledge and information from the present study will benefit for Thai CCPE for properly planning and providing CPE that will subsequently gain participation from Thai pharmacists.

CHAPTER II

LITERATURES REVIEW

The world is changing so rapidly that individuals must live in several different worlds during their life-times. One generation could no longer pass along to the next generation what was needed to get along in the world. The recognition that no education could last a lifetime was changing the way our society thought about education and learning. Education is now regarded as a continuous process and is needed in most every aspect of an adult's life.

The above statement underscores the tremendous complexity of our present day society. We are living in an "information age" which necessitates a continual effort to update our skills and knowledge level. As Francke observed in 1966, ninety percent of the scientists of all time were living and publishing today and most of the scientific literatures of the world had been published during the past 10 years. **(13)**

Continuing Education in the Health Professions

Next to integrity, competency was the first and most fundamental moral responsibility of all the health professions. Each of our professions must insist that competence would be reinforced through the years of practice. After the degree was conferred, continuing education is society's only real guarantee of the optimal quality of health care **(14)**.

The health care industry is a dynamic system in which new technology and expanding roles of health care personnel are constantly changing the ways and means of health care delivery. Technological advances and an explosion of knowledge are resulting in rapid technological and professional obsolescence **(15).** Because of this, an individual practitioner not only needs to maintain the knowledge base with which he/she entered the profession, but must constantly obtain new knowledge, attitudes, and skills. As observed in the following quotation, the continuing competence of health professionals has become a significant political, social, and professional concern.

For many years reliance had been placed on the processes of registration and licensure as means of assuring competence of health professionals to serve the public. In the process of using these screening mechanisms, it had been assumed with rare exceptions that an individual initially registered or licensed would continue to passes

competence to practice. This assumption was now being questioned not only by many members of the professions but the general public **(16)**.

During the late 1960s and throughout the 1970s, CE in the health professions expanded tremendously. This expansion was fueled by government legislation, professional organization standards and requirements, regulatory bodies such as the Joint Commission on Accreditation of Hospitals, and social pressure for the delivery of quality health care service **(17)**.

CE is a major component in the effort to maintain the proficiency and effectiveness of health professionals. Participation in CE activities did not translate directly into increased competence, but it was one of several factors associated with competence **(18)**.

The ultimate goal of continuing education in the health professions was to improve professional performance leading to an improvement in the quality of health care providers **(19)**. Since 1986, 38 state boards of pharmacy in the USA representing over 74 percent of the nation's practicing pharmacists required continuing education activities as a perquisite for re-licensure **(20)**. In mid 1990s, the professional of pharmacy instituted a mandatory peer-review process to ensure maintenance of competency of its members in Ontario, Canada. The process consists of two parts; first, pharmacists self-assed learning was needed through a structured review of a personal learning portfolio and second, direct assessment of pharmacists' patient care competencies was undertaken through use a written test of clinical knowledge and an objective structured clinical examination consisting of five simulated patient care stations**(21)**. The Royal Pharmaceutical Society in Scotland had issued guidance to pharmacists who recognize that clinical audit and continuing professional development (CPD) was essential components of clinical governance **(22)**. CPD was a cyclical process of reflection, planning, action and evaluation, requiring motivation for both service and self improvement through continuing education (CE) **(23)**. Pharmacists had a personal commitment to undertake at least 30 hours of CE per annum and community pharmacists in Scotland had a contractual requirement to undertake clinical audit. In Italy, each professional career must collect at least 150 credits over a five-year time span, with a minimum of 0 and a maximum of 5 per year. The educational program based on the accumulation of points should include:

(a) Self- learning projects (40% of total credits);

(b) Programs dealing with educational objectives suggested by the National Commission in agreement,

(c) Educational objectives suggested by the National Commission in agreement,

(d) The National Health Plan (30%);

(e) Programs dealing with educational objectives suggested by the Regional.

Commissions in agreement with the Regional Health Plans (30%)

Pharmacists in Great Britain are encouraged to ensure such professional competence using the CPD model, within which the practice of at least 30 hours of CE per annum should be incorporated **(24)**. First, the focus on CE had marginalized the significant learning and development that occur as we attend to day-to day practice activities, from finding solution to everyday problems, from following training pre registration trainees, technicians and assistants. Secondly, it had also neglected the contribution that the study of articles in The Pharmaceutical Journal and other professional and scientific journals made to our learning and development; this aspect was similarly neglected in respect of the self-directed study of relevant textbooks and reviews to publications. Other ways of learning and developing, such as shadowing another pharmacist or other health professionals, were not being recognized. With CE, the content and direction and the aims and objectives of the workshops, packages and courses were determined by the CE providers-albeit after consultation with practitioners. Although this met the general needs of many pharmacists, it was not tailored to individual pharmacists. Therefore, many found that the CE activities in which they engaged did not fully meet their requirements. Indeed, some of their needs to relevant CE activities were not available. Moreover, pharmacists who relied solely on the CE activities were often unaware of the gaps that exist in their knowledge and skill **(25)**. For other professional careers, such as doctors, several studies had shown a progressive decrease in the level of currently applicable knowledge after more than 10 years in practice **(26-29)**. These findings imply a need for physicians to undertake knowledge and skill development to ensure the continued relevance of their medical care to the changing health care environment. In USA, the recertification procedures set up by the board member board of the American Board of Medical Specialties aim to encourage doctors to continue learning and keep up to date, give recognition to doctors who continue to meet the specialty board's standard, and remove certification status from doctors holding time limited certificated who fail to apply for recertification. Most of the boards use a snapshot assessment of

knowledge, skill, and performance. Written examinations, usually in the form of multiple choice questions, were used by all boards and 11 require set credit hours of continuing medical education (CME), typically 50 hours a year in the three years before recertification. Performance was measured indirectly by report of licensure status, letters of recommendation from chiefs of healthcare organizations and hospitals, attendance at CME program, and independent assessment by peers and health professionals **(30)**. Dave showed that interactive CME session that enhance participant activity and provide the opportunity to practice skills could effect change in professional practice and, on occasion, health care outcome **(31)**.

In Australia, the Royal Australasian College of Physicians had led the way in incorporating recertification criteria that related more closely to doctors' performance than attendance at tradition CME courses. Participation in quality improvement initiatives such as audits of practice, as well as attendance of traditional CME courses, was required **(32)**. A pilot study in Canada showed that this method can provide reliable and meaningful assessments of doctors and peer assessment may become a mandatory requirement for licensure in the province of Alberta. In the United Kingdom, the royal colleges and specialist associations were piloting credit system that were similar to the Australian model except that participation was voluntary, not mandatory **(33)**. In 1998, Mr.Leonard, Harvery, President of the European Union of Medical Specialists surveyed the state of CME in Europe as the results showed in Table 3 **(34)**. Almost every European country did not want an examination based system. Only Netherlands had a system of recertification.

Table 3: Harvey's Survey of CME in Europe

COUNTRY	VOLUNTARY OR MANDATORY	CREDIT -BASE	EXTERNAL PEER REVIEW	EXAMINATION	RECERTIFICATION	SANCTION	TAX ALLOWABLE	FINANCE	ORGANIZATION OF CME
A	V	Y	Y	N	Y	N	Y	A	P
B	V	Y		N	Y	Y	Y		P
CH	M	Y		N	Y		Y	S	P
D	M		Y	N	Y	N	Y	S	P
DK	V	N	N	N	Y	N	Y	E	S
E	V	Y	N	N	Y	N	Y	E	PG
F	M	Y	N	N	Y	R	N	O	P
FIN	V	N		N	Y				P
GB	V	Y	N	N	Y	N	Y	E	P
GR	V			N	Y		Y		PG
I	M	N	Y	N	Y	N	Y	O	PG
L	V	N	N	N	Y	N	Y		P
N	M	Y	N	N	Y	Y			P
NL	M	Y	Y	N	Y	PR			P
P	V	N	N	N	N	N	Y	O	PG
S	V	N	GP	N	N	N	Y	A	P

Legend : A =Australia , B= Belgium , CH= Switzerland, D= Germany , Dk = Denmark ,E = Spain ,F =France, FIN= Finland, GB= Great Britain , GR= Greece , I =Italy , L=Luxembourg , N= Norway , NL= Nether land, P= Portugal , S= Sweden
A= self , employer, other, E= employer, GP = only for general practitioners, M= mandatory, N= no, O = Other, P= medical profession PG= medical profession + government, Pr= right to practice can be removed , R= reprimand , S = self-directed , V=voluntary, Y = yes.

Some problems in continuing medical education that exist the current structure of CME may be ineffective in altering physician performance with its distant, disconnected, and teacher-centered approach to education**(35)**. Evidence had shown that if the new knowledge was not directly relevant to the physician, then it was less likely that he or she would be able to integrate it **(36)**.

Continuing Education in Thailand

There are five health professional careers for continuing education in Thailand.

1Center Continuing Medical Education is founded in 2000 (www.ccme.or.th) **(37)** for physicians. And methods for learning have 4 parts;

Part I for updating knowledge for 7 areas of practice.

Part 2 for developing on patient-based learning activity has 7 categories.

Part 3 for self learning that can be separated to three categories;

3.1 For development quality of service and research consisting of 7 groups.

3.2 For Individual learning from media from criteria of CCME consisting of 2 groups.

3.3 For continuing professional development consisting of 9 groups.

Part 4 not in criteria of other parts.

2. Center Continuing Nursing Education (www.ccne.or.th) **(38)** for nurses.

The methods for learning contain 4 parts,

Part 1 with 7 activities,

Part 2 with 2 activities,

Part3 with 15 activities,

Part 4 with 2 activities.

3. Center Continuing Dental Education (www.cdec.or.th) **(39)** for dentists.

Methods for learning have 5 parts.

Part 1self learning has 11 groups

Part 2 update knowledge has 6 groups.

Part 3 quality service has 4 groups

Part 4 education for higher degree has 3 criteria for this group

Part 5 Not in criteria in other part

4. Center Continuing Medical Technology (www.cmtethai.or.th) **(40)** for medical technologist.

Methods for learning have 4Parts.

Part 1 was settled by center for continuing medical technology consisting of 7 groups.

Part 2 is focused on practical knowledge consisting of 5 groups.

Part 3 is self learning with 16 groups in this part

Part 4 Not in criteria in other part.

5. Center Continuing Pharmacy Education (www.ccpe.or.th) **(41)** for pharmacists.

Methods for learning have three methods; academic meeting, reading article from journals and reading article from website (www.thaicpe.org).**(42)**

Theoretical Framework

1.Theory of Reasoned Action and Theory of Planned Behavior

Fishbein and Ajzen proposed their Theory of Reasoned Action in 1975 and a Theory Planned Behavior in 1985. These theories of Reasoned Action and of Planned Behavior assume that people make rational decisions about their behavior based on information or beliefs about the behavior the target behavior **(43-44)**. The theories propose that the most important determinant and predictors of behavior were intensions and these intensions were a function of a person's attitude toward the behavior and the person's perceptions of social norm regarding the behavior. .Attitude toward the behavior and perceives social norm consisted of sets of beliefs about expected consequences and the important of those consequences. The theories also assume that the behaviors to be predicted were under the behaviors to be predicted are under the person's volitional control that the person could decide at would to perform or not perform the behaviors.

Attitude toward the behavior referred to the person's favorable /unfavorable evaluation of the behavior based on the expected consequences (outcome) of the behavior and the value or importance of those consequences (both fits and costs). Perceive social norms were believed about the probability that other people would or would not support or approve of the behavior in question. Perceive social norm consisted of normative beliefs –beliefs that salient others think the person should or should not engage in the behavior –and motivation to comply with those other's preferences. Thus, perceptions of

social norm included *e*xpectations about the reactions of the other people and the value or importance of those and their reactions. Both attitude toward the behavior and perceived social norms can be defined and measured in the common currency of outcome expectancy or means-end expectancies. And outcome value as defined in traditional expectancy – value theories of choice and behavior.

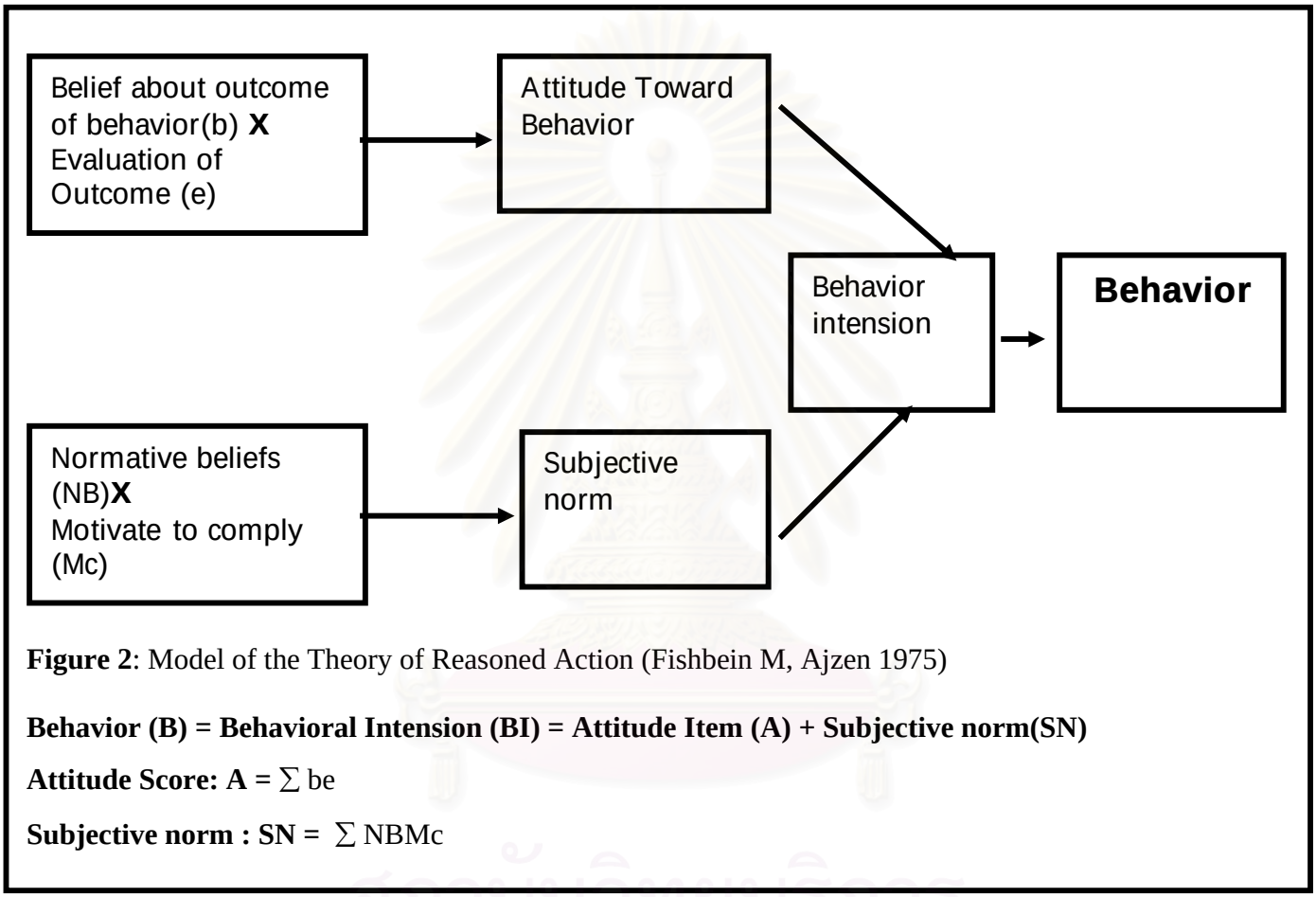


Figure 2: Model of the Theory of Reasoned Action (Fishbein M, Ajzen 1975)

Behavior (B) = Behavioral Intension (BI) = Attitude Item (A) + Subjective norm(SN)

Attitude Score: A = $\sum$ be

Subjective norm : SN = $\sum$ NBMc

Theory of Planned Behavior

An importance assumption of the theory of reasoned action as originally proposed its that the behavior to be predicted must be under volitional control. Because few behaviors were under complete volitional control, however, this assumption places serious limitations on the range of behaviors encompassed by the theory. To remedy this problem, Ajzen added a component concern with belief in volitional control over the

behavior in question, which he termed perceived behavior control and defined as the person's belief as to how easy or difficult performance of the behavior was likely to be. He named the revised theory the **theory of planned behavior (TPB).** According to this revised theory, perceived behavior control influences behavior both directly and through its influence on behavioral intention. The relative importance of intension and perceived behavioral control in the predictor of behavior was assumed to vary across situations and across behaviors. When the behavior or situation allowed a person complete control over the behavior, intention alone should predict behavior. The less the person's volitional control over a behavior, however, the greater would be the importance of perceived behavior control in the determining behavior. Perceived behavioral control was similar to perceived self-efficacy because it involved beliefs that one had both the resources and the opportunities to execute a behavior or attain a goal.

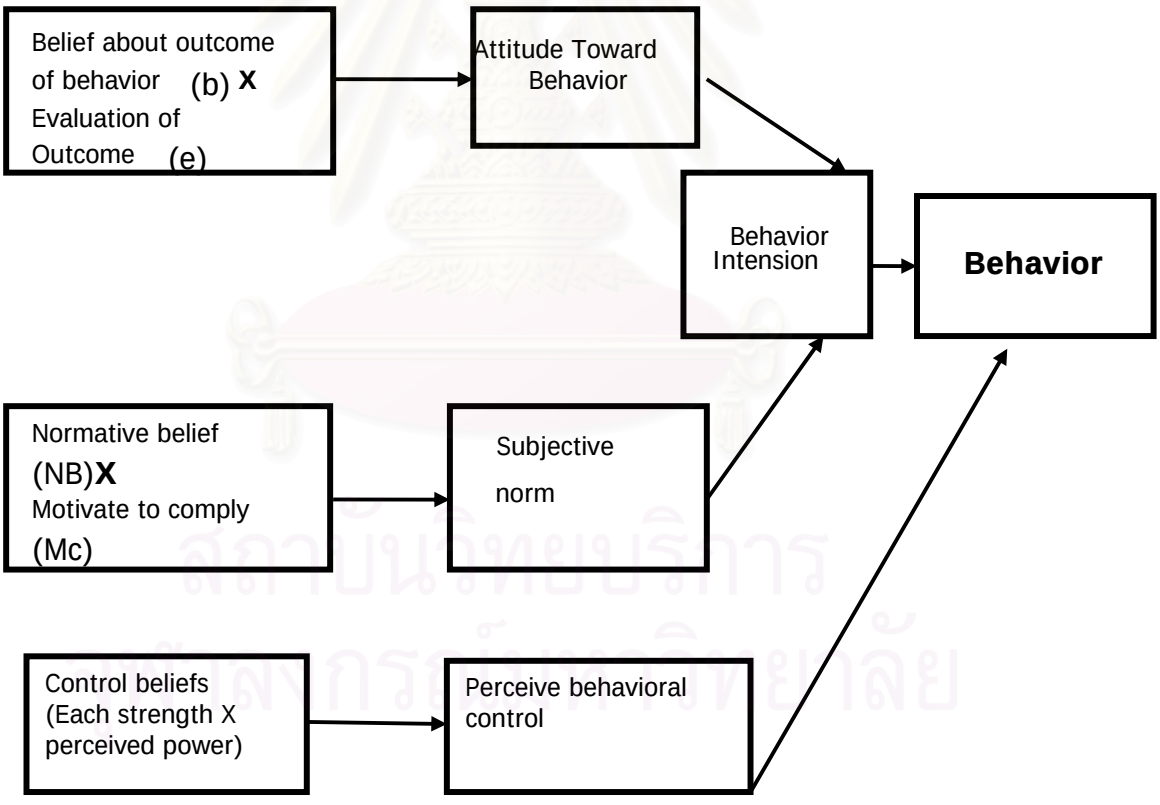


Figure 3: Model of the **Theory of Planned Behavior** (Ajzen 1986)

Research had strongly supported the predictive utility of perceived behavioral control. Much of this support was provided indirectly by the scores of studies that had shown that self-efficacy beliefs were powerful determinants of behavior. Support also had come from studies that specifically examined perceived behavioral control in the context of the TPB. For example, in the prediction of weight loss by Schifter and Ajzen, in 1985, attending college classes by Ajzen and Madden in1986, and course grade by Ajzen and Madden in 1986), perceived control added to the prediction of intention beyond that predicted by attitude and social norm. Intension predicted weight loss only in an interaction with perceived predicting weight loss only for people who indicated high perceived control. Perceived control did not add to the prediction of class attendance beyond that predicted by attitude and social norm, possibly because of the high degree of actual control people have over behavior (such as attending class) versus *goals* (such as losing weight) that are the result of many behaviors. Because losing weight was not a behavior but an outcome of the performance of a variety of behaviors, it should be much more difficult to predict from intensions. The TPB assumed that prediction of behavior from intensions would be improved as the measurement of intension and the opportunity for performance of the behavior are close in time. Consistent with this assumption, Ajzen and Madden found that perceived control assessed near the end of the semester instead of the beginning did not improve the prediction of course grades.

The reason why a Theory of Planned behavior was chosen.

Since 2001, The Thai pharmacy council announced for all pharmacists to attend continuing pharmaceutical education and obtain at least 20 credits for each year and obtain 100 credits for five years. Pharmacists could accomplish this task by a conference or reading articles from websites or journals. Despite The Pharmacy Council efforts to bolster pharmacy professional, some pharmacists had not adopted this method.

A theoretical framework to explain pharmacists' behavior is lacking. One possible framework to explain this phenomenon was the Theory of Planned Behavior postulated three conceptually independent determinants of intension attitude, subjective norm and perceived behavioral control. Attitude referred to the extent to which a person evaluated the behavior favorably or unfavorably.

A person would have a favorable attitude towards this behavior if he or she believed that doing it would have positive consequences. On the other hand, if a person perceived mostly negative outcome from performing the behavior, then he or she would view the behavior unfavorably. According to TPB, attitude toward CPE adoption was an additive function of the products of behavioral belief and outcome evaluation of that belief. Subjective norm referred to the perceived social pressure to, or not to, adopt CPE. It was determined by normative beliefs, which were concerned with the likelihood of important referent individual or group approving or disapproving of performing the behavior.

Subjective norm regarding CPE adoption was an additive function of the products of normative belief about each referent and motivation to comply with that referent. Perceive behavioral control referred to the perceived ease or difficulty of performing the behavior and was dependent on second- hand information, experiences of acquaintances and friends, and anticipated assistance and impediments. Specifically, an individual's perceived control increases as he or she perceived greater resources and opportunities, and anticipates fewer obstacles and impediments. Perceived behavioral control over CPE adoption was an additive function of the products of control belief and perceived power of that belief. In general, the more favorable the attitude and the subjective norm, and the greater the perceived behavior control, the stronger would be an individual's intention to adopt CPE. Thus, in this study intension doesn't measure because of actual behavior (Score of CPE credit) was investigated.

CHAPTER III

METHODOLOGY

The purpose of this study is to investigate; The CPE participation of Thai Pharmacists by various methods (Academic Conference, Reading articles from journals and Website) the view point of the predictors and barriers affecting their differences in CPE methods. This chapter was organized into 4 parts as following; This chapter was organized into 4 parts as following**;**

Part 1 Research Design

A quantitative study: a cross sectional mail survey was rendered with a self-administered questionnaire sending by mail to sample subjects of Thai pharmacists' population. The follow up of such questionnaires was conducted by sending the reminder postcard 14 days later on. The time for data collection was 8 weeks.

Development of a survey instrument (self-administered questionnaire)

Three methods including in this development were

1. An expert opinion
2. A pilot-test and
3. Administration of final version.

1. An expert opinion :

- Preparing the first draft of questionnaire that will relate to the objectives of the research study.
- Questionnaire revision as recommended by the experts who are the instructors of Social and Administrative Pharmacy, Faculty of Pharmaceutical Sciences, Chulalongkorn University.
- The first draft of a self-administered questionnaire for the survey questionnaire is constructed by the researcher. Such questionnaire was revised by the researcher as experts' suggestions and was pre-tested by group of 12 doctorate degree students in late October, 2004.

2. Pilot Test :

A pilot test was conducted in 20 volunteer Thai Pharmacists. An attempt was made to achieve equal representation of both genders. Pilot test participants were asked to

comment on the content and understandability of the questionnaire for subsequent use in the main study as well as to verify content validity of the survey.

3. Administration of final version

The adapted questionnaire from the pilot test was used in the main study for testing according to the study objectives. The follow up of returning back of such questionnaires was performed by the researcher using a reminder postcard after 14 days of the first distribution.

Part 2 Variables and Measurement

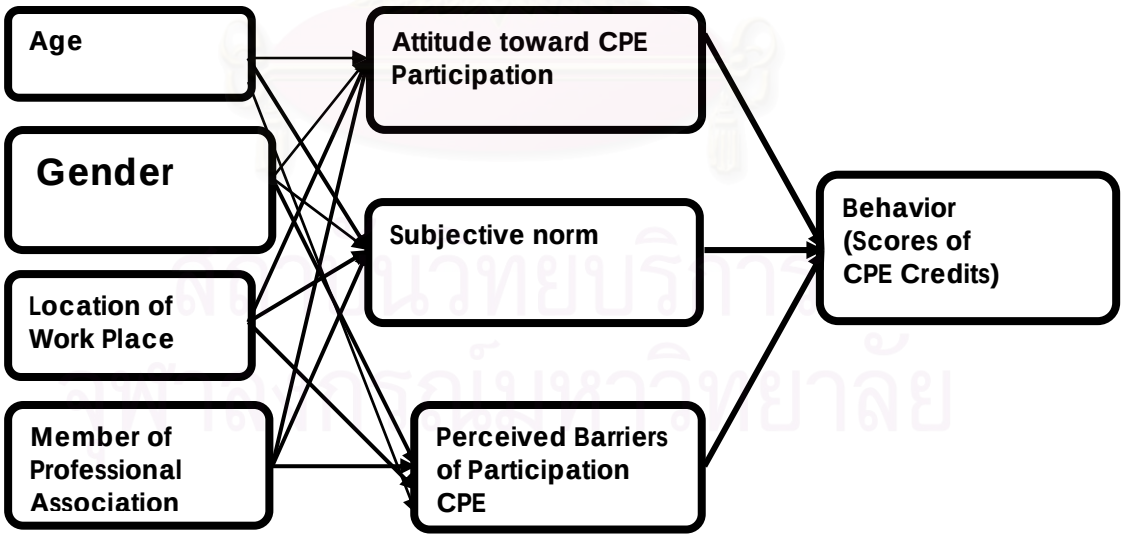
Based on the conceptual framework of this study, the study variables include 1. CPE Score as the dependent variable (DV) was CPE Score.

2 The independent variables (IVs) were attitude's respondent, subjective norm's respondent and barrier's respondent in accessing continuing pharmaceutical education.

CONCEPTUAL FRAMEWORK

Predictors of Thai Pharmacist in Accessing Continuing Pharmaceutical Education

Figure 4 Conceptual Framework Predictors of Thai Pharmacist in Accessing Continuing Pharmaceutical Education.



The operational definition of study variables and measurement were as following: **Dependent Variable Behavior in CPE participation** is represented by score of CPE credits of each pharmacist.

Independent Variables

2.1Attitude towards CPE Participation (X-1) is one's component to perform a behavior; scores of CPE. Five aspects in this variables were

Professionalism: the samples were asked whether CPE participation could improve image of the profession, and increase self confidence with patients and other health Professionals.

Gain Knowledge: the samples were asked whether CPE participation could increase and update knowledge and skill.

Social Meeting: the samples were asked whether CPE participation could help to meet the challenges of the changing role of the Pharmacist.

Professional career development: the samples were asked whether CPE participation could improve quality of pharmaceutical care, increase competence of pharmacists, gain their job and personal satisfaction, and develop weakness and identifying needs, offers more constructive training.

Note: These variables are adapted from Heather M..Bell, et.al in 2002.

Re-licensing prerequisite: the samples were asked whether CPE participation should be taken for the requirement of re-licensing prerequisite for pharmacy profession.

Note: This variable is adapted from Saowakon et.al in 2000.

2.2 Subjective norms (X-2) refer to the Thai pharmacists' perception that heir acquaintances think that whether they should be participated to CPE. The samples were asked whether the following people think that they should attend the CPE, such as

2.2.1Friends of pharmacists,

2.2.2CPE Provider was an institution to manage CPE.

2.2.3Pharmacists working place of pharmacist

2.2.4Boss's pharmacist

2.2.5Thai Pharmacy Council

2.2.6Perception of Patient

2.3Perceived Barriers of CPE Participation (X-3) are determined by factors that could influence pharmacists in the following aspects. The samples were asked whether " **Technology** Accessibility is a barrier for each CPE method?"

" **Time Limitation** is a barrier for each CPE method ?"

" **Geographic** Accessibility is a barrier for each CPE method?"

" **Information** Accessibility is a barrier for each CPE method?"

" **Economic** Accessibility is a barrier for each CPE method?"

" **Readability** is a barrier for each CPE method?"

3.An other Independent Variables

3.1Demographics include age, gender, and registered number of professional, year of graduate and location of work place.

3.2Personal profile will be asked for area of pharmaceutical practice, professional experiences, education level and methods of CPE participation. The variables such as demographics and personal profile affects indirectly to behavior through the predictors as stated in the model. Therefore, these two variables were not included in the model as direct predictors of behavior.

Part 3 Population and Sample size

1. **Population**s of this study were all registered pharmacists in Thailand up to December, 2003. By using database from Center Continuing Pharmaceutical Education. There are 17,903 pharmacists including both pharmacists who died or don't stay in Thailand. However, pharmacists who did not participate in continuing pharmaceutical education were excluded from this study.
2. **Sample size**

Yamane Taro's Table for sample size (1970) **(45)** at precision level ± 5 % will be used as reference in calculating the amounts of sample size for this study. According to such table, 390 pharmacists were needed as samples of population size 15,000. However, 20 % of 390 pharmacists will be included to compensate the excluded pharmacists who died or don't stay in Thailand. Consequently, 50 % of 390 pharmacists were added to balance the response rate. Finally, the sample size was 390+78+195 = **663 pharmacists.** And randomized pharmacists who had CPE score (total =13,479) by each level of licensure identification.

Table 4 Population and Sample

Licensure ID	Number	Probability	Sample
1.01-99	6	0.04	0
2.100-999	184	1.37	9
3.1000-1500	249	1.85	12
4.1500-2000	275	2.04	14
5.2000-2500	309	2.29	15
6.2500-3000	351	2.60	17
7.3000-3500	336	2.49	17
8.3500-4000	333	2.47	16
9.4000-4500	359	2.66	18
10.4500-5000	330	2.45	16
11.5000-5500	362	2.69	18
12.5500-6000	365	2.71	18
13.6000-6500	366	2.72	18
14.6500-7000	380	2.82	19
15.7000-7500	399	2.96	20
16.7500-8000	377	2.80	19
17.8000-8500	397	2.95	20
18.8500-9000	395	2.93	20
19.9000-9500	395	2.93	20
20.9501-10000	422	3.13	21
21.10000-10500	417	3.09	21
22.10500-11000	422	3.13	21
23.11000-11500	434	3.22	21
24.11500-12000	439	3.26	22
25.12000-12500	443	3.29	22
26.12500-13000	469	3.48	23
27.13000-13500	466	3.46	23
28.13500-14000	459	3.41	23

Table 4 Population and Sample

Licensure ID	Number	Probability	Sample
29.14000-14500	441	3.27	22
30.14500-15000	465	3.45	23
31.15000-15500	458	3.4	23
32.15500-16000	474	3.52	23
33.16000-16500	467	3.46	23
34.16500-17000	393	2.92	19
35.17000-17500	372	2.76	18
36.17500-18000	214	1.59	11
37.>18000	56	0.42	3
	13,479	100	666

Part 4 Statistical Analysis

1. **Analysis Procedure included** the following statistics for data analysis:

- **Descriptive statistic** was used to analyze general data of demographics and personal profile of pharmacists.
- **Correlation** analysis was used to determine the relationship of each variable and the CPE behavior.

Multiple Regression Analysis (MRA) was used to assess predictors or any variables (e.g. attitude, subjective norm and barriers of CPE) influencing the CPE behavior.

- **ANOVA** was used to compare the difference in mean of barriers of each CPE method.
- **Cronbach's coefficient alpha** values were calculated to measure **internal consistency** for the multi-item measures.

The data analysis was used the statistic package program SPSS for window version 13.All statistical tests were set at the level of significant of 0.05. A priori significant level of $p< 0.05$ was used in all statistical tests. Scores for attitudes towards CPE participation were calculated by summing for the respective items for these variables.

Human subjects' approval

This study is submitted for approval by the Ethical Committee of Pharmaceutical Sciences at Chulalongkorn University. Therefore, no informed consent was required of the study participants.

CHAPTER IV

RESULTS

This chapter was provided the results of the study according to the research methodology in chapter 3. It consisted of questionnaire responses, demographic characteristics of respondents, scale reliability, descriptive analyses, and also correlation.

4.1 Questionnaire Response Rate

Development Tool

The study instrument comprised of four sections:

1 respondent's demographics

2 the 18 items of attitude domain in accessing continuing pharmaceutical education.

3. the 13 item of barrier domain in accessing continuing pharmaceutical education.

During questionnaire development, the content validity was done by consulting with two experts who are the instructors of Social and Administrative Pharmacy, Faculty of Pharmaceutical Sciences, Chulalongkorn University, and pre-testing the questionair to the group of 12 doctorate degree students in late October, 2004. Then the pilot test was conducted by 20 Thai Pharmacists.

Data were collected for two months. The first mailed questionnaires were sent to all samples on March 8, 2005. Then, on March 24, the "reminder" postcards were sent to those who did not reply. Finally, on April 16, 2005 a repeated copy of the questionnaire were sent to non-respondents. The cut-off date, on which the last respondents were accepted, was May 10, 2005, resulting in the 42.03 % response rate.

Table 5 Response Rate of Respondents

Items	Frequency
Questionnaires mailed	663
Undeliverable	18
Incomplete answer	5
Adjusted sample frame	640
Unreturned Questionnaires	371
Effective respondents	269
Response rate (269 /640)	**42.03 %**

4.2 Demographic Data

Specific characteristics were presented in tables 6-7 .The population sample were female 188 (69.90 %) and male 81 (30.10%). Among different age groups, 38.70 % was 31 to 40 years old and 32.30 % was 21 to 30 years old. The largest educational subgroup was bachelor degree. Most respondents were hospital pharmacists 115 (42.80%) and lived in Bangkok 142(52.80%). The second occupations of the respondents were community pharmacists 33(12.20 %) and lived in Central region of Thailand 42 (15.6%).

Table6 Gender, Age and Level of Education of the Respondents

Demographic Data	No. of Respondents	Percent (%)
Gender		
Female	188	69.90
Male	81	30.10
Age Range (years)		
21-30	87	32.30
31-40	104	38.70
41-50	47	17.50
51-60	16	5.90
61-70	10	3.70
>71	5	1.90
Level of Education		
Bachelor	191	71.00
Master	65	24.10
Doctoral	13	4.90

Table 7 Location of Work place and Practice Area of Pharmacy of the Respondents

Demographic Data	No. of Respondents	Percent (%)
Location of Work Place		
Bangkok	142	52.80
Central	42	15.60
North	26	9.70
Northeast	25	9.30
South	19	7.10
East	15	5.60

Table 7 Location of Work place and Practice Area of Pharmacy of the Respondents

Demographic Data	No. of Respondents	Percent (%)
Practice Area of Pharmacy		
Hospital Pharmacy	115	42.8
Community Pharmacy	33	12.2
Regulatory Pharmacy	32	11.8
Industry Pharmacy	30	11.2
Marketing Pharmacy	23	8.6
Educational Pharmacy	14	5.1
Other	22	8.3

4.3 Continuing Pharmaceutical Education Scores and Professional Organizational Member Status

Most respondents were members of The Pharmaceutical of Thailand under Royal Patronage 111(41.30%) and The Association of Hospital Pharmacy 107 (39.80%). Respondents accessed continuing pharmaceutical education by academic conference 44.19 %, reading journal 31.46 % and reading journal via website 24.34%. Most respondents didn't know their CPE score 181 (68%). The average CPE score was 73.15 ± 46.07 among different categories of CPE score, 40.5% respondents got CPE score 50 to 99 and 24.5% got CPE score more than 100.

Table 8 Member of Association

Items	Frequency	Percent
Member of Association		
The Pharmaceutical of Thailand under Royal Patronage	111	41.30
The Association of Hospital Pharmacy	107	39.80
The Community of Pharmacy Association	62	23.30
The Marketing of Pharmacy Association	13	4.80
The Industrial of Pharmacy Association	9	3.30
Other	18	6.70

4.4: Were mean CPE scores among member of association different?

Ho. $\mu_{\text{Thai Pharmacy}} = \mu_{\text{Hospital}} = \mu_{\text{Community}} = \mu_{\text{Marketing}} = \mu_{\text{Pharmaceutical}}$

Table 9 Group Statistic member of The Pharmaceutical of Thailand under Royal Patronage

	Member of Profession	N	Mean	Std. Deviation	Std. Error Mean
CPE Score	The Pharmaceutical of Thailand under Royal Patronage	111.00	79.04	47.32	4.49
	No Member	158.00	69.01	44.87	3.57

Table 10 Independent Sample Test of Thai Pharmacy of Association

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
CPE Score	Equal variances assumed	0.17	0.68	1.76	267.00	0.08

In conclusion, there was no significant difference between member status of The Pharmaceutical of Thailand under Royal Patronage to accessing CPE ($p = 0.08$).

Table 11 Group Statistic member of The Association of Hospital Pharmacy

	Member of Profession	N	Mean	Std. Deviation	Std. Error Mean
CPE Score	The Association of Hospital Pharmacy	107.00	84.87	46.62	4.51
	No Member	162.00	65.41	44.17	3.47

Table 12 Independent Sample Test of the Association of Hospital Pharmacy

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
CPE Score	Equal variances assumed	0.02	0.89	3.46	267.00	**0.00**

There was significant difference between member status of The Association of Hospital Pharmacy to accessing CPE (p = 0.00).

Table 13 Group Statistic member of The Community of Pharmacy Association

	Member of Profession	N	Mean	Std. Deviation	Std. Error Mean
CPE Score	The Community of Pharmacy Association	62.00	95.97	56.37	7.16
	No Member	206.00	66.35	40.31	2.81

Table 14 Independent Sample Test of the Community of Pharmacy Association

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2tailed)
CPE Score	Equal variances assumed	10.81	0.00	4.59	266.00	**0.00**

There was significant difference between member status of The Community of Pharmacy Association to accessing CPE (p = 0.00).

Table 15 Group Statistic member of The Marketing of Pharmacy Association

	Member of Profession	N	Mean	Std. Deviation	Std. Error Mean
CPE Score	The Marketing of Pharmacy Association	13.00	62.31	44.58	12.36
	No Member	256.00	73.70	46.16	2.89

Table 16 Independent Sample Test of The Marketing of Pharmacy Association

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2tailed)
CPE Score	Equal variances assumed	0.04	0.85	-0.87	267.00	0.39

There was no significant difference between member status of The Marketing of Pharmacy Association to accessing CPE (p = 0.39).

Table 17 Group Statistic member of The Industrial of Pharmacy Association

	member of Profession	N	Mean	Std. Deviation	Std. Error Mean
CPE Score	The Industrial of Pharmacy Association	9.00	81.33	69.98	23.33
	No Member	260.00	72.87	45.20	2.80

Table 18 Independent Sample Test the Industrial of Pharmacy Association

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
CPE Score	Equal variances assumed	4.46	0.04	0.54	267.00	0.59

There was no significant difference between member status of The Industrial of Pharmacy Association to accessing CPE (p = 0.59).

Table 19 Main Accessing to CPE and CPE Score

Main Accessing to CPE	**Frequency**	**Percent**
Academic Conference	169	44.2
Reading Journals	57	31.5
Reading Journals via website	43	24.3
Known CPE Score		
Known	88	32
Unknown	181	68
Categories of CPE Score		
CPE Score 1 -49	94	34.9
CPE Score 50-99	109	40.5
CPE Score >100	66	24.5

4.5 The Relationship among Mean CPE Scores and Various Methods To Access CPE Ho.$\mu_{\text{academic meetingr}} = \mu_{\text{Journale}} = \mu_{\text{website}}$

Table 20 CPE Score by different channels

Descriptive	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
CPE Score						
Academic Conference	169.00	78.85	46.41	3.57	2.00	268.00
Journal	57.00	59.75	43.59	5.77	2.00	185.00
Website	43.00	68.51	44.71	6.82	2.00	163.00
Total	269.00	73.15	46.07	2.81	2.00	268.00

Most pharmacists accessed CPE by academic conference (n=169) and average CPE score was 78.85 ± 46.41. Most of the highest CPE score used channel to access CPE by academic meeting

Table 21 Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
.05	2	266	**0.96**

Table 22 ANOVA of accessing CPE by different channels

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16636.75	2	8318.38	4.00	0.02
Within Groups	552225.31	266	2076.04		
Total	568862.05	268			

Table 23 Post Hoc Tests of accessing CPE by different channels

Multiple Comparisons	(I) main Channel	(J) main Channel	Mean Difference (I-J)	Std. Error	Sig.
Bonferroni	Academic Conference	Journal	19.09*	6.98	**0.02**
		Website	10.33	7.78	0.56
	Journal	Academic Conference	-19.09*	6.98	0.02
		Website	-8.76	9.20	1.00
	Website	Academic Conference	-10.33	7.78	0.56
		Journal	8.76	9.20	1.00
*	The mean difference is significant at the .05 level.				

Average CPE score by academic conference was significantly higher than the average CPE score by reading journal (p=0.02).

4.5 Reliability of Questionair

Consistency of these scales was assessed for internal reliability with Cronbach's Alpha coefficient. The reliability coefficients, of Professionalism, Gain Knowledge, Social Meeting and Professional Career Development were 0.85; 0.31; 0.90; and 0.88 respectively (Table 24)

Table 24 Reliability of Questionnaire

Aspects	**Cronbach's Alpha**
Professionalism	0.85
Gain Knowledge	0.31
Social Meeting	0.90
Professionalism Career Development	0.88

4.6 Opinion on using CPE Score for Re-licensing:

Ho: $\rho_{\text{relicensing. CPE score}} = 0$

Table 25 Descriptive statistic re-licensing and CPE Score

CPE Score	N	Percent	Mean	Std. Deviation	Std. Error	Min	Max
Strongly Not Agree	21.00	7.80	40.95	30.50	6.65	2.00	106.00
Not Agree	38.00	14.10	66.92	50.22	8.15	2.00	189.00
Almost Not Agree	44.00	16.40	63.91	36.10	5.44	3.00	142.00
Almost Agree	89.00	33.10	74.24	37.79	4.01	2.00	192.00
agree	61.00	22.70	90.87	55.95	7.16	11.00	268.00
Strongly Agree	16.00	5.90	82.00	51.57	12.89	9.00	175.00
Total	269.00	100	73.15	46.07	2.81	2.00	268.00

Most pharmacists of 89 (33.10 %) almost agreed to use CPE score for professional re-licensing as shown in table 25.

Table 26 Correlations Re-licensing and CPE Score

Correlations				
			CPE Score	Re-licensing
Spearman's rho	CPE Score	Correlation Coefficient	1.00	0.24**
		Sig. (2-tailed)	.	**0.00**
		N	269.00	269.00
**	Correlation is significant at the 0.01 level (2-tailed).			

Our finding showed that there was significant relationship between re-licensing and CPE Score.

4.7 Homogeneity among re-licensing opinions on CPE scores

Ho. $\mu_{\text{stongly not agree}} = \mu_{\text{not agree}} = \mu_{\text{almost not agree}} = \mu_{\text{almost agree}} = \mu_{\text{agree}} = \mu_{\text{strongly agree}}$

Table 27 Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
4.280	5	263	**0.00**

Levene's test of Homogeneity of Variances was significant $p<0.05$.

Table 28 ANOVA of Re-licensing and CPE Score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	47511.70	5	9502.341	4.794	**0.00**
Within Groups	521350.35	263	1982.321		
Total	568862.05	268			

Average opinion of re-licensing and CPE score were significantly different ($p<0.05$)

Table 29 Multiple Comparisons CPE Score and Opinion of Re-licensing

Almost Agree	Strongly Not Agree	7.77	**0.00***
	Not Agree	9.08	1.00
	Almost Not Agree	6.76	0.86
	Agree	8.21	0.49
	Strongly Agree	13.50	1.00
Agree	Strongly Not Agree	9.78	**0.00**
	Not Agree	10.85	0.36
	Almost Not Agree	9.00	0.05
	Almost Agree	8.21	0.49
	Strongly Agree	14.75	1.00
Strongly Agree	Strongly Not Agree	14.51	0.12
	Not Agree	15.25	0.99
	Almost Not Agree	13.99	0.94
	Almost Agree	13.50	1.00
	Agree	14.75	1.00
Strongly Not Agree	Not Agree	10.52	0.21
	Almost Not Agree	8.60	0.14
	Almost Agree	7.77	**0.00***
	Agree	9.78	**0.00***
	Strongly Agree	14.51	0.12
Not Agree	Strongly Not Agree	10.52	0.21
	Almost Not Agree	9.80	1.00
	Almost Agree	9.08	1.00
	Agree	10.85	0.36
	Strongly Agree	15.25	0.99
Almost Not Agree	Strongly Not Agree	8.60	0.14
	Not Agree	9.80	1.00
	Almost Agree	6.76	0.86
	Agree	9.00	0.05
	Strongly Agree	13.99	0.94

***** The mean difference is significant at the .05 level

It was found that pharmacists' opinion in re-licensing by accessing CPE among strongly not agree, almost agree, and agree were significantly (p=0.00).

4.8 Predictors in CPE Participation

Parties that influencing the CPE Participation were work place (for example work place liked some hospitals had policy for supporting pharmacists continuing education), Pharmacy Council, and Institution that held the CPE.

Table 30 Persons that had influenced on respondents

	Frequency	Percent
Work Place	51	19.00
Pharmacy Council	47	17.50
CPE Provider	46	17.10
Other	45	16.70
Friend	41	15.20
Patient Influenced	22	8.20
Boss	17	6.30
Total	269	100

4.9 Barriers in the Accessibility to CPE

This part was asked to investigate barriers of accessing CPE such as technology accessibility, time limitation, geographic accessibility, information accessibility, economic accessibility, and readability. Most respondents thought readability accessibility was the barrier to accessing CPE (75.42± 15.43).

Table 31 Barriers to Accessing CPE

Barrier	Mean	Std. Deviation
Technology Accessibility	56.94	31.13
Time Limitation	66.86	25.92
Geographic Accessibility	68.42	26.78
Information Accessibility	69.07	24.76
Economic Accessibility	68.88	27.99
Readability	75.42	15.43
Other	60.72	19.18

4.10 Statistical Analysis

4.10.1 Gender and CPE scores

Ho.$\mu_{Male} = \mu_{Female}$

Table 32 Comparative CPE Mean Score between Male and Female

Group Statistics				
	Gender	N	Mean	Std. Deviation
CPE Score	Female	188	77.53	45.87
	Male	81	62.98	45.19

Table 32 Comparative CPE Mean Score between Male and Female

Independent Samples Test						
		Levene's Test		**t-test**		
		F	**Sig.**	**t**	**df**	**Sig. (2-tailed)**
CPE Score	Equal variances	0.18	0.67	2.4	267	0.02

Female obtained CPE Mean score significantly higher than male (p=0.02)

4.10.2 Age and CPE score

Ho: $\rho_{\text{Age. CPE score}} = 0$

Table 33 Correlations between CPE Score and Age

Correlations			
		CPE Score	**age of samples**
CPE Score	Pearson Correlation	1.00	-0.04
	Sig. (2-tailed)		0.55
	N	269.00	269.00

Age had negative correlation with CPE score (-0.04) but not significant (p=0.55).

4.10.3 Mean CPE scores and Level of Education

Ho$\mu_{\text{Bachelor}} = \mu_{\text{Master}} = \mu_{\text{Doctor}}$

Table 34 Descriptive CPE Score and Level of Education

Descriptive			
CPE Score			
	N	Mean	Std. Deviation
Bachelor Degree	191	70.32	42.21
Master Degree	65	80.87	50.23
Doctoral Degree	13	76.67	73.59
Total	268	72.73	45.65

Table 35 CPE Score and Level of Education

Levene Statistic	**df1**	**df2**	**Sig.**
3.57	2	265	0.03
6.44	2.00	266.00	0.00

Table 36 ANOVA CPE Score and Level of Education

CPE Score	Sum of Squares	df	Mean Square	F	Sig
Between Groups	4935.81	2	2467.91	1.17	0.31
Within Groups	551368.84	265	2080.64		
Total	556304.66	267			

Conclusion The Mean CPE Score of different level of education were not significantly different (p=0.31).

4.10.4Were mean CPE scores among location of work place different?

$$Ho.\mu_{Bangkok} = \mu_{Northern} = \mu_{Southern} = \mu_{Eastern} = \mu_{Northeastern} = \mu_{Central}$$

The mean CPE score of the different location of respondents were the following (Table 4.33) Tested of Homogeneity of Varian between CPE score and different location of work place there were no significant (p=0.76).

Table 37 Mean CPE Score and Different Region

Descriptive			
CPE Score			
	N	Mean	STD Deviation
Bangkok	142.00	68.42	45.06
Northern	25.00	85.44	53.93
Southern	19.00	83.74	35.08
Descriptive			
CPE Score			
	N	Mean	STD Deviation
Eastern	15.00	100.60	49.73
Northeastern	26.00	50.65	39.94
Central	41.00	82.85	43.25
Total	268.00	73.38	46.00

Table 38 Test of Homogeneity of Variances CPE Score and Region

Levene Statistic	df1	df2	Sig.
0.527	5	262	0.76

Conclusion Levene's test of Homogeneity of Variances was not significant p>0.05. There was equal variance in the group of different region.

Table 39 ANOVA CPE Score and Different Region of Work Place

ANOVA					
CPE Score and Location of Work Place					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	37386.08	5.00	7477.22	3.71	**0.00**
Within Groups	527599.10	262.00	2013.74		
Total	564985.18	267.00			

Conclusion Average CPE score from six regions of work place were significant (p=0.00)

Table 40 Multiple Comparisons CPE Score and Regions

Dependent Variable: CPE Score				
Tukey HSD				
(I) Region	**(J) Region**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**
Bangkok	Northern	-17.02	9.73	0.50
	Southern	-15.31	10.96	0.73
	Eastern	-32.18	12.18	0.09
	Northeastern	17.77	9.57	0.43
	Central	-14.43	7.96	0.46
Northern	Bangkok	17.02	9.73	0.50
	Southern	1.70	13.66	1.00
	Eastern	-15.16	14.66	0.91
	Northeastern	34.79	12.57	0.07
	Central	2.59	11.39	1.00
Southern	Bangkok	15.31	10.96	0.73
	Northern	-1.70	13.66	1.00
	Eastern	-16.86	15.50	0.89
	Northeastern	33.08	13.54	0.15
	Central	0.88	12.45	1.00
Eastern	Bangkok	32.18	12.18	0.09
	Northern	15.16	14.66	0.91
	Southern	16.86	15.50	0.89
	Northeastern	49.95	14.55	**0.01**
	Central	17.75	13.54	0.78
Northeastern	Bangkok	-17.77	9.57	0.43
	Northern	-34.79	12.57	0.07
	Southern	-33.08	13.54	0.15
	Eastern	-49.95	14.55	**0.01**

Table 40 Multiple Comparisons CPE Score and Regions

(I) Region	(J) Region	Mean Difference (I-J)	Std. Error	Sig.
	Central	-32.2	11.25	0.05
Central	Bangkok	14.43	7.96	0.46
	Northern	-2.59	11.39	1
	Southern	-0.88	12.45	1
	Eastern	-17.75	13.54	0.78
	Northeastern	32.2	11.25	0.05
*	The mean difference is significant at the .05 level.			

Conclusion Mean CPE score of respondents in eastern region was higher than mean CPE score of northeastern region were significant (p=0.01).

4.10.5 Were mean CPE scores among area of practice different?

$$Ho.\mu_{Hospital} = \mu_{Community} = \mu_{Regulatory} = \mu_{Industry} = \mu_{Marketing} = \mu_{Education}$$

Table 41 Descriptive CPE Score and Area of Practice Pharmacy

	CPE Score		
	N	**Mean**	**Std. Deviation**
Hospital Pharmacy	115	78.46	46.25
Community Pharmacy	33	75.82	50.67
Regulatory Pharmacy	32	74.88	46.48
Industry Pharmacy	30	72.10	45.79
Marketing Pharmacy	23	53.17	42.42
Educational Pharmacy	14	70.29	48.21
Other	22	63.00	37.90
Total	269	73.15	46.07

Table 42 Test of Homogeneity of Variances of CPE Score and Area of Practice Pharmacy

Levene Statistic	df1	df2	Sig.
0.42	6	262	**0.87**

Conclusion: Levene's test of Homogeneity of Variances was not significant p>0.05. There were equal variance in the group of different area of practice pharmacy.

Table 43 ANOVA CPE Score and Area of Practice Pharmacy

CPE Score					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15166.21	6.00	2527.70	1.20	**0.31**
Within Groups	553695.84	262.00	2113.34		

Conclusion: Mean of average CPE score among different area of practice were not significant (p= 0.31).

4.10.6 Did attitude predict CPE score?

Ho: $\rho_{\text{Attitude. CPE score}} = 0$

Table 44 Correlations between CPE Score and Attitude by Pearson Correlation

Pearson Correlation	CPE Score	Attitude
CPE Score	1	0.18(**)
Sig. (2-tailed)		**0.00**
N	269	269

****** Correlation is significant at the 0.01 level (2-tailed)**.**

Conclusion**:** Our findings showed that there was a relationship and significant between CPE score and attitude. Pearson's correlation r = 0.18 (p=0.00)

4.10.7 Did barrier predict CPE score?

Ho: $\rho_{\text{barrier. CPE score}} = 0$

Table 45 Pearson Correlations between CPE Score and Barrier

		CPE Score	Barrier
CPE Score	Pearson Correlation	1	-0.06
	Sig. (2-tailed)		0.35
	N	269	269

Conclusion Barrier had negative correlation with CPE score (-0.06) but not significant (p=0.35)

4.10.8Were means CPE scores among subjective norm different?

Ho.$\mu_{\text{friend}} = \mu_{\text{CPE Institute}} = \mu_{\text{Work Place}} = \mu_{\text{Boss}} = \mu_{\text{Customer}} = \mu_{\text{Pharmacy Council}} = \mu_{\text{Other}}$

Table 46 Descriptive CPE Score and Subjective Norm

Descriptive CPE Score			
	N	**Mean**	**Std. Deviation**
Friend	41	68.37	43.17
CPE Institute	46	90.15	52.35
Work Place	51	63.18	38.03
Boss	17	79.35	47.99
Customer	22	93.68	64.31
Pharmacy Council	47	73.81	38.87
Other	45	58.36	38.83
Total	269	73.15	46.07

Table 47 Test of Homogeneity of Variances of Subjective Norm

Test of Homogeneity of Variances			
CPE Score			
Levene Statistic	df1	df2	Sig.
2.71	6	262	**0.01**

Conclusion: Levene's test of Homogeneity of Variances was not significant $p<0.05$.

Table 48 ANOVA CPE Score and Subjective Norm

ANOVA					
CPE Score					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	39106.95	6.00	6517.83	3.22	**0.00**
Within Groups	529755.10	262.00	2021.97		
Total	568862.05	268.00			

Conclusion The mean CPE Score of different subjective norm were significantly different ($p=0.00$).

Table 49 Multiple Comparisons Dependent Variable CPE Score and Subjective Norm

Subjective Norm	**Subjective Norm**	**Mean Difference**	**Sig.**
Friend	CPE Provider	-21.79	0.35
	Work Place	5.19	1.00
	Boss	-10.99	0.98
	Patient	-25.32	0.65
	Pharmacy Council	-5.44	1.00
	Other	10.01	0.92
CPE Provider	Friend	21.79	0.35
	Work Place	26.98	0.07
	Pharmacy Council	16.34	0.61
	Other	31.80	**0.02**

Table 49 Multiple Comparisons Dependent Variable CPE Score and Subjective Norm

Subjective Norm	Subjective Norm	Mean Difference	Sig.
Work Place	CPE Provider	-26.98	0.07
	Boss	-16.18	0.86
	Patient	-30.51	0.39
	Pharmacy Council	-10.63	0.82
	Other	4.82	1
Boss	Friend	10.99	0.98
	CPE Provider	-10.8	0.99
	Work Place	16.18	0.86
	Patient	5.54	1
	Pharmacy Council	21	0.67
	Other	-14.33	0.98
Patient Influencing	Friend	25.32	0.65
	CPE Institute	3.53	1
	Work Place	30.51	0.39
	Boss	14.33	0.98
	Pharmacy Council	19.87	0.83
	Other	35.33	0.25
Pharmacy Council	Friend	5.44	1
	CPE Provider	-16.34	0.61
	Work Place	10.63	0.82
	Boss	-5.54	1
	Patient	-19.87	0.83
	Other	15.45	0.48
Other	Friend	-10.01	0.92
	CPE Provider	**-31.8**	**0.02**
	Work Place	-4.82	1
	Boss	-21	0.67
	Patient	-35.33	0.25
	Pharmacy Council	-15.45	0.48
*	The mean difference is significant at the .05 level.		

Conclusion: The mean CPE Score of CPE Provider had difference significant with other subjective norm at p=0.02.

4.10.9 Multiple Regression Analysis (MRA)

From Figure 4 Conceptual Framework Predictors of Thai Pharmacist in Accessing Continuing Pharmaceutical Education

Ho: = **CPE Score** = b_0+ b_1 Attitude+b_2 Barrier+b_3Patient+b_4 CPE Provider +b_5 Boss +b_6 Pharmacy Council+b_7 Work Place+ b_8 Other Subjective Norm+b_9 Age+b_{10} Gender+b_{11}Northern Region+b_{12} Southern Region +b_{13} Eastern Region+b_{14} Northeastern Region+b_{15} Central Region+b_{17} Member of The Association of Hospital Pharmacy +b_{18} The Community of Pharmacy Association + b_{19} The Marketing of Pharmacy Association + b_{20} The Industrial of Pharmacy Association.

Table 50 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error	Change Statistics			
					R Square Change	F Change	df1	Sig. F Change
1.00	0.42	0.17	0.14	42.82	0.17	4.91	11.00	0.00
2.00	0.46	0.21	0.15	42.52	0.04	1.46	8.00	0.17

From model 1, 10 independent variables gave R=0.42, R^2=0.17. It meant thath variance of them (Age, Gender, Northern Part, Southern Part , Eastern Part, Northeastern Part, Central Part, Member of the Association Hospital Pharmacy, the Community of Pharmacy Association, the Marketing of Pharmacy Association, the Industrial Pharmacy of Association) could explain 17% variance of CPE score. When added 8 more independent variables; Attitude, Barrier, Patient Influencing, CPE Provider, Boss, Pharmacy Council, Work Place, Other Subjective Norm; could explain 21 % variance of CPE score(R=0.46, R^2=0.21).Attitude had positive correlation with the CPE score. (R=0.17, p<0.01). More barrier had negativecorrelation with the CPE score (R=-0.16) but no significant. (p>0.0.5). Male had positive correlation with age (R =-0.19 p <0.01).

Barrier had negative correlation with age (R= - 0.27, p <0.01). The results were analyzed by Multiple Regression Analysis (MRA) used Hierarchical Stepwise Method as following in table 51.

		CPE Score	Male	Age	Northern	Southern	Eastern	Northeastern	Central	Hospital
Pearson Correlation	CPE Score									
	Male	**-0.15	1.00							
	Age	-0.03	**0.19	1.00						
	Northern	0.09	0.02	-0.04	1.00					
	Southern	0.07	0.08	-0.05	-0.09	1.00				
	Eastern	**0.15	-0.02	-0.09	-0.08	-0.07	1.00			
	Northeastern	**-0.16	0.09	-0.08	*-0.11	-0.09	-0.08	1.00		
	Central	0.08	-0.03	-0.02	*-0.14	*-0.12	-0.11	*-0.14	1.00	
	Hospital	**0.21	-0.02	*-0.11	*0.11	0.01	*0.13	-0.01	*-0.10	1.00
	Community	**0.22	-0.03	**0.16	*-0.11	-0.05	-0.06	*-0.14	-0.01	0.07
	Marketing	-0.05	**0.16	**0.19	-0.07	0.01	-0.06	-0.07	-0.10	*-0.11
	Industrial	0.03	0.02	**0.27	-0.06	-0.05	-0.05	-0.06	-0.02	*-0.11
	Attitude	**0.17	-0.02	-0.05	0.07	*0.11	**0.17	0.04	-0.08	**0.21
	Barrier	-0.06	0.00	**-0.27	0.02	0.03	-0.02	0.08	*-0.11	-0.03
	CPE Provider	**0.17	0.01	0.01	-0.01	-0.01	**0.15	-0.02	0.02	**0.16
	Work Place	*-0.11	0.05	*-0.13	0.01	-0.10	*-0.12	0.00	-0.08	0.02
	Boss	0.04	-0.03	*-0.14	0.02	**0.17	0.07	-0.03	-0.07	0.04
	Customer	*0.12	-0.01	0.07	0.00	*0.14	0.05	-0.10	0.06	-0.04
	Pharmacy Council	0.01	0.07	*0.11	**0.16	0.03	0.02	0.01	-0.06	*-0.11
	Other Subjective	-0.02	*-0.12	0.04	*-0.11	-0.09	-0.03	-0.05	0.08	-0.01
	Mean	72.92	0.30	37.26	0.09	0.07	0.06	0.10	0.16	0.40
	Std. Deviation	46.15	0.46	11.24	0.29	0.26	0.23	0.30	0.36	0.49

Table 51 Correlations Matrix

** Significant at level 0.01 and * Significant at level 0.05

	Community	Marketing	Industrial	Attitude	Barrier	CPE Provider	Work Place	Boss	Customer	Pharmacy Council	Other Subjective
CPE Score											
Male											
Age											
Northern											
Southern											
Eastern											
Northeastern											
Central											
Hospital											
Community	1.00										
Marketing	-0.08	1.00									
Pharmaceutical	-0.01	-0.04	1.00								
Attitude	0.01	-0.01	-0.01	1.00							
Barrier	***-0.13**	0.09	****-0.15**	0.01	1.00						
CPE Provider	0.05	-0.06	0.08	****0.15**	0.00	1.00					
Work Place	***-0.12**	-0.06	0.02	-0.05	0.07	****-0.22**	1.00				
Boss	-0.04	-0.06	-0.05	0.01	0.01	***-0.12**	***-0.13**	1.00			
Customer	0.07	0.06	0.02	****0.14**	-0.09	***-0.13**	***-0.14**	-0.08	1.00		
Pharmacy Council	-0.05	***0.12**	-0.03	-0.05	0.04	****-0.21**	****-0.22**	***-0.12**	***-0.14**	1.00	
Other Subjective	0.07	-0.06	-0.09	-0.04	0.01	-0.08	****-0.22**	***-0.12**	***-0.13**	****-0.21**	1.00
Mean	0.25	0.05	0.03	3.33	66.53	0.17	0.19	0.06	0.08	0.18	0.17
Std. Deviation	0.51	0.22	0.18	0.75	13.25	0.38	0.39	0.24	0.27	0.38	0.38

Table 51 Correlations Matrix

** Significant at level 0.01 And * Significant at level 0.05

Table 52 Model Summary CPE Score and Attitude, Barrier, Subjective Norm, Age, Gender, Location of Work Place and Member of Professional Association

	Model 1			**P**	**Model 2**			**P**
	B	Std. Error	Beta		B	Std. Error	Beta	
(Constant)	61.54	10.42		0.00	43.01	22.83		0.06
Male	-14.85	5.98	-0.15	0.01	-14.39	6.00	-0.14	**0.02**
Age	-0.14	0.26	-0.03	0.59	-0.20	0.27	-0.05	0.46
Northern	22.89	9.60	0.14	0.02	18.15	9.83	0.11	0.07
Southern	22.64	10.64	0.13	0.03	15.75	11.09	0.09	0.16
Eastern	34.02	11.91	0.17	0.00	23.76	12.39	0.12	0.06
Northeastern	-6.83	9.52	-0.04	0.47	-6.79	9.64	-0.04	0.48
Central	18.37	7.69	0.15	0.02	16.96	7.82	0.13	**0.03**
Hospital	16.19	5.55	0.17	0.00	14.09	5.69	0.15	**0.01**
Community	21.32	5.40	0.24	0.00	20.24	5.46	0.23	**0.00**
Marketing	10.56	13.00	0.05	0.42	8.91	13.20	0.04	0.50
Industrial	23.67	15.41	0.09	0.13	20.44	15.57	0.08	0.19
Attitude					4.90	3.70	0.08	0.19
Barrier					-0.07	0.21	-0.02	0.74
CPE Provider					21.76	8.65	0.18	**0.01**
Work Place					7.82	8.84	0.07	0.38
Boss					14.84	12.38	0.08	0.23
Patient Influencing					22.69	11.53	0.13	**0.05**
Pharmacy Council					16.27	8.95	0.13	0.07
Other Subjective					7.28	8.56	0.06	0.40
R	0.42				0.46			
R Square	**0.17**				**0.21**			
Adjusted R Square	0.14				0.15			
R Square Change	0.17				0.04			
F	4.91				3.50			
Sig.	0.00				0.00			

Conclusion: Total 21 .00 percent variance of CPE score can be explained by all independent variables (Attitude, Barrier, Subjective Norm, Age, Gender, Location of Work Place and Member of Professional Association) significantly p=0.00. Seven independent variables, namely attitude, barrier, age measured in ratio scale, subjective norm, location of work place and member of professional

associations were measured in nominal scale. Therefore, there were 16 dummy variables in this model. Subjective norm had 7 attributes i.e. friend, CPE provider, work place, boss, customer, Pharmacy Council and other subjective norm. Gender had 2 attributes i.e. male and female. Location of work place had six attributes i.e. regions such as Bangkok, northern region, southern region, eastern region, northeastern region and central region. Member of professional association had five attributes i.e. The Pharmaceutical of Thailand under Royal Patronage, The Association of Hospital Pharmacy, the Community of Pharmacy Association, The Marketing of Pharmacy Association and the Industrial Pharmacy Association. There were 19 independents variables in this model. Pharmacists who worked in Eastern region had largest positive correlation but no significant with CPE score. (β=23.76, p=0.06). Male had significant negative correlation with CPE score. (β= - 14.39, p=0.02). Age had negative correlation with CPE score but no significant. (β= - 0.02, p=0.46). Attitude to accessing CPE had positive correlation with CPE score and no significantly (β=4.90, p=0.19). Pharmacists who worked in northern region, southern region, northeastern region had correlation with CPE score (β= 18.15, 15.75,-6.79 respectively) but no significant (p=0.07, 0.16, 0.48 respectively) and pharmacists who worked in central region had significantly positive correlation. (β= 16.96, p=0.03). Pharmacists who were member of The Association of Hospital Pharmacy and Pharmacists who were member of The Community of Pharmacy Association had significantly positive correlation with CPE score (β= 14.09,p=0.01), (β=20.24, p=0.00) respectively. Pharmacists who were member of The Marketing of Pharmacy of Association and member of The Industrial Pharmacy of Association had correlation with CPE score (β= 8.91, p=0.50), (β= 20.44,p=0.19) respectively. Attitude in accessing CPE had correlation with CPE score (β= 4.90, p=0.19). Barrier had negative correlation with CPE score (β= -0.07, p=0.74). Social pressure (subjective norm) or someone had effect on pharmacists to accessing CPE that shown CPE providers had significantly correlation with CPE score (β= 21.76, p=0.01). Work place and boss of pharmacists had influencing and correlation with CPE score (β= 7.82, p=0.38), (β= 14.84, p=0.23). Patients influencing pharmacists to accessing CPE had significantly correlation (β= 22.69, p=0.05). Pharmacy Council and Other

subjective norm had correlation with CPE score (β= 16.27, p=0.07), (β= 7.28, p=0.40).

Conclusion: The most influence predictor and significant in model were male, Pharmacists worked in Central part, pharmacists who were member of Hospital Pharmacy Association, pharmacists who were member of Community Pharmacy Association, CPE providers who managed CPE and patient influencing pharmacists to accessing CPE. So, the equation was predicted CPE score that was shown as follow;

CPE Score = 43.05 -14.39 Male +16.96 Central Part +14.09 Member of The Association of Hospital Pharmacy +20.04 Member of the Community of Pharmacy Association + 21.76 CPE Provider+ 22.69Patient influencing.

Z score =0.13 Central Part -0.14 Male +0.15Member of The Association of Hospital Pharmacy +0.23 the Community of Pharmacy Association +0.18 CPE Provider +0.13 Patient Influencing.

From table 24 Reliability of Research Tool. It showed Cronbach's Alpha of attribute gain knowledge very low (0.31) differ from other attribute. So, the following model it cut off attribute gain knowledge in variable namely attitude.

Table 53 Model Summary **without gain knowledge** in variable Attitude

Model Summary							
Model	R	R Square	Adjusted R Square	Change Statistics			
				R Square Change	F Change	df1	Sig. F Change
1	0.41	0.17	0.13	0.17	4.74	11.00	0.00
2	0.46	0.21	0.15	0.04	1.68	8.00	0.10

From model 1, 10 independent variables gave $R=0.41$, $R^2=0.17$.It meant that the variance of them (Age, Gender, Northern Part, Southern Part , Eastern Part, Northeastern Part, Central Part, Member of the Association of Hospital Pharmacy, The Community of Pharmacy Association, the Marketing of Pharmacy Association, the Industrial of Pharmacy Association) could explain 17% variance of CPE score. When added 8 more independent variables; Attitude, Barrier, Patient Influencing, CPE Provider, Boss, Pharmacy Council, Work Place, Other Subjective Norm; could explain 21 % variance of CPE score.($R=0.46$, $R^2=0.21$).

Attitude no gain knowledge had positive correlation with the CPE score. ($R=0.20$, $p<0.01$).More barrier had negative correlation with the CPE score ($R=-0.04$) but no significant. ($p>0.0.5$) Male had positive correlation with age ($R=-0.15$ $p<0.01$). Barrier had negative correlation with age ($R= - 0.27$, $p <0.01$) The results were analyzed by Multiple Regression Analysis (MRA) used Hierarchical Stepwise method as following in table 53

Correlations											
		CPE Score	Male	Age	Northern	Southern	Eastern	Northeastern	Central	Thai Pharmacy	Community
Pearson Correlation	CPE Score										
	Male	**-0.15									
	Age	-0.04	**0.18								
	Northern	0.09	0.01	-0.04							
	Southern	0.06	0.07	-0.05	-0.09						
	Eastern	**0.15	-0.02	-0.09	-0.08	-0.07					
	Northeastern	**-0.16	0.09	-0.08	*-0.10	-0.09	-0.08				
	Central	0.07	-0.04	-0.02	*-0.14	*-0.12	*-0.10	*-0.14			
	Thai Pharmacy	*0.11	0.09	**0.41	-0.03	0.00	-0.01	-0.02	-0.03		
	Community	**0.21	-0.03	**0.17	*-0.11	-0.05	-0.06	*-0.13	-0.01	**0.18	
	Marketing	-0.05	**0.15	**0.19	-0.07	0.01	-0.05	-0.07	-0.10	*0.13	-0.08
	Pharmaceutical	0.03	0.01	**0.27	-0.06	-0.05	-0.05	-0.06	-0.02	0.10	*-0.01
	Barrier	-0.04	0.01	**-0.27	0.00	0.04	-0.02	0.03	-0.11	**-0.19	-0.12
	Other Subjective	-0.02	*-0.13	0.04	*-0.11	-0.09	-0.02	-0.05	0.08	0.04	0.07
	CPE Provider	**0.17	0.00	0.02	-0.01	-0.01	**0.15	-0.01	0.02	0.08	0.05
	Work Place	*-0.10	0.05	*-0.13	0.01	-0.10	*-0.12	0.00	-0.08	-0.02	*-0.12
	Boss	0.04	-0.04	*-0.13	0.02	**0.17	0.07	-0.03	-0.07	*-0.12	-0.04
	Customer	*0.13	0.01	0.06	0.00	*0.13	0.05	-0.10	0.06	*0.11	0.07
	Pharmacy Council	0.01	0.06	*0.11	**0.16	0.03	*0.02	0.02	-0.06	0.03	-0.05
	Attitude No Gain knowledge	**0.20	-0.01	0.00	0.04	*0.11	**0.18	0.05	-0.08	0.09	0.03
	Mean	73.15	0.30	37.19	0.09	0.07	0.06	0.10	0.16	0.41	0.25
	Std. Deviation	46.07	0.46	11.24	0.29	0.26	0.23	0.30	0.36	0.49	0.51

Table 54 Correlations Matrix no gain knowledge

** Significant at level 0.01 And * Significant at level 0.05

	Community	Marketing	Pharmaceutical	Barrier	Other_Sub	CPE	Work Place	Boss	Customer	Pharmacy Council	Att_No_G
CPE Score											
Male											
Age											
Northern											
Southern											
Eastern											
Northeastern											
Central											
Thai Pharmacy											
Community											
Marketing	-0.08										
Pharmaceutical	*-0.01	-0.04									
Barrier	-0.12	0.08	**-0.16								
Other Subjective	0.07	-0.06	-0.08	0.00	1.00						
CPE Provider	0.05	-0.06	0.08	-0.01	-0.08	1.00					
Work Place	*-0.12	-0.06	0.02	0.09	-0.22	-0.22	1.00				
Boss	-0.04	-0.06	-0.05	0.00	-0.12	-0.12	-0.13	1.00			
Customer	0.07	0.06	0.02	-0.07	-0.14	-0.14	-0.14	-0.08	1.00		
Pharmacy Council	-0.05	*0.12	-0.03	0.04	-0.21	-0.21	-0.22	-0.12	-0.14	1.00	
Attitude No Gain knowledge	0.03	-0.01	0.01	0.06	-0.02	0.16	-0.11	0.00	0.16	-0.03	1.00
Mean	0.25	0.05	0.03	3.41	0.17	0.17	0.19	0.06	0.08	0.17	3.15
Std. Deviation	0.51	0.21	0.18	0.64	0.38	0.38	0.39	0.24	0.27	0.38	0.78

Table 54 Correlations Matrix no gain knowledge

** Significant at level 0.01 And * Significant at level 0.05

Table 55 Model Summary without gain knowledge in variable Attitude

	Model 1			Model 2			
	B	Std. Error	Beta	B	Std. Error	Beta	Sig.
(Constant)	63.55	10.35		41.49	22.31		0.06
Male	-13.20	5.91	-0.13	-12.93	5.92	**-0.13**	**0.03**
Age	-0.18	0.26	-0.04	-0.24	0.27	-0.06	0.37
Northern	21.67	9.59	0.14	17.24	9.76	0.11	0.08
Southern	21.36	10.63	0.12	13.95	11.01	0.08	0.21
Eastern	32.79	11.91	0.16	22.03	12.33	0.11	0.08
Northeastern	-8.24	9.50	-0.05	-8.40	9.61	-0.05	0.38
Central	17.44	7.69	0.14	16.26	7.79	**0.13**	**0.04**
Hospital	16.44	5.53	0.17	13.82	5.66	**0.15**	**0.02**
Community	20.84	5.40	0.23	19.64	5.45	**0.22**	**0.00**
Marketing	9.49	13.01	0.04	7.66	13.15	0.04	0.56
Industrial	23.42	15.44	0.09	19.74	15.55	0.08	0.21
Barrier				-0.05	0.21	-0.02	0.80
CPE Provider				21.30	8.64	**0.17**	**0.01**
Work Place				8.67	8.79	0.07	0.32
Boss				14.76	12.36	0.08	0.23
Patient Influencing				24.26	11.31	**0.14**	**0.03**
Pharmacy Council				16.06	8.94	0.13	0.07
Other Subjective				7.02	8.55	0.06	0.41
Attitude No Gain				6.05	3.60	0.10	0.09
R	0.41			0.46			
R Square	0.17			0.21			
Adjusted R Square	0.13			0.15			
R Square Change	0.17			0.04			
F	4.74			3.51			
Sig.	0.00			0.00			

Conclusion: The most influence predictor and significant in model (without gain knowledge in variable namely attitude) were male, pharmacists worked in Central region, pharmacists who were member of The Association of Hospital Pharmacy, pharmacists who were member of The Community of Pharmacy Association ,CPE providers who managed CPE and patient influencing pharmacists to accessing CPE. It was not different from model that included gain knowledge in variable namely attribute. So, the equation was predict CPE score that was shown as follow

CPE Score without gain knowledge = 41.49 -12.93 Male +16.26 Central region+13.82 Member of The Association of Hospital Pharmacy +19.64 Member of The Community of Pharmacy Association+ 21.30 CPE Provider+ 24.26Patient influencing.

Z Score = 0.13Central region-0.13 Male+0.15 Member of The Association of Hospital Pharmacy +0.22 Member of The Community of Pharmacy Association+ 0.17 CPE Provider+ 0.14Patient influencing.

Chapter 5

DISCUSSION AND CONCLUSION

The response rate obtained in this study was (42.03 %) nearly for other questionnaire surveys performed in Thailand such as; Pharmacist's Satisfaction toward the Continuing Education Process (Rapeephan and Warunee, 2003), Survey of Thai Pharmacist's Acceptance and Opinion Regarding Continuing Education (Patcharapon and Venus, 2003) and Attitude's Pharmacist toward Licensure Professional Pharmacy (Saowakon , Savat and Siriquan,2000) was 45%, 31.32 % and 42 % respectively.

However, none of these studies have used an established Theory of Planned Behavior to predict in accessing continuing pharmaceutical education. Total of 21 percent variance of CPE score can be explained by all independent variables of Attitude, Barrier, and Subjective Norm. Some modification of the Theory of Planned Behavior was done in this study. Age, gender, location of work place, and member of Professional Association were added in the model. There were 19 independents variables in this model to predict CPE score. Our results showed that barrier is not a significant predictor of intension to access CPE ($p=0.74$). Subjective norm–what others think about accessing CPE–there were patient and CPE influencing pharmacists to access CPE significant predictors. Attitude towards accessing CPE was not significant predictor. From our study, the variables that can predict significantly CPE score were gender, pharmacists who worked in Central region, pharmacist who were member of The Association of Hospital Pharmacy, member of The Community Pharmacy Association; CPE provided continuing pharmaceutical education for pharmacists and patients influencing pharmacists to access CPE. (Table 50)

Table 50 Model Summary CPE Score and Attitude, Barrier, Subjective Norm, Age, Gender, Location of Work Place and Member of Professional Association

	Model 1			**P**	**Model 2**			**P**
	B	Std. Error	Beta		B	Std. Error	Beta	
(Constant)	61.54	10.42		0.00	43.01	22.83		0.06
Male	-14.85	5.98	-0.15	0.01	-14.39	6.00	-0.14	**0.02**
Age	-0.14	0.26	-0.03	0.59	-0.20	0.27	-0.05	0.46
Northern	22.89	9.60	0.14	0.02	18.15	9.83	0.11	0.07
Southern	22.64	10.64	0.13	0.03	15.75	11.09	0.09	0.16
Eastern	34.02	11.91	0.17	0.00	23.76	12.39	0.12	0.06
Northeastern	-6.83	9.52	-0.04	0.47	-6.79	9.64	-0.04	0.48
Central	18.37	7.69	0.15	0.02	16.96	7.82	0.13	**0.03**
Hospital	16.19	5.55	0.17	0.00	14.09	5.69	0.15	**0.01**
Community	21.32	5.40	0.24	0.00	20.24	5.46	0.23	**0.00**
Marketing	10.56	13.00	0.05	0.42	8.91	13.20	0.04	0.50
Industrial	23.67	15.41	0.09	0.13	20.44	15.57	0.08	0.19
Attitude					4.90	3.70	0.08	0.19
Barrier					-0.07	0.21	-0.02	0.74
CPE Provider					21.76	8.65	0.18	**0.01**
Work Place					7.82	8.84	0.07	0.38
Boss					14.84	12.38	0.08	0.23
Patient Influencing					22.69	11.53	0.13	**0.05**
Pharmacy Council					16.27	8.95	0.13	0.07
Other Subjective					7.28	8.56	0.06	0.40
R	0.42				0.46			
R Square	**0.17**				**0.21**			

Table 50 Model Summary CPE Score and Attitude, Barrier, Subjective Norm, Age, Gender, Location of Work Place and Member of Professional Association

	Model 1			**P**	**Model 2**			**P**
	B	Std. Error	Beta		B	Std. Error	Beta	
Adjusted R Square	0.14				0.15			
R Square Change	0.17				0.04			
F	4.91				3.5			
Sig.	0				0			

Dependent Variable: CPE Score

Overall, the results in this study showed that respondents with higher attitude intentions had accessing CPE similar attitude were observed in a study investigating pharmacists (93%) needed continuing education in the same way pharmacists (65%) concerned that Faculty of Pharmaceutical Science should organized CPE. (Saowakon , Savat and Siriquan,2000).

Licensure for pharmacists in our study we founded that almost agree 89 (33.10%) to accessing CPE for licensure prerequisite as the same results of the previous study. (Patcharapon, and Venus, 2003). Although, Ajzen and Fishbein have suggested that demographic variables only indirectly predict behavior are not included in this model as direct predictors of behavior. We founded that female CPE Mean score was significantly higher than male CPE score(p=0.02) and age had negative correlation with CPE score (0.04) but not significant (p=0.55) as the approach way of the study. Patcharapon and Venus have showed that age and gender have effect on regarding CPE. Saowakon, Savat and Siriquan have showed that age and different area of practice were the factors of accept CPE.

In our study, we founded that CPE score and area of practice pharmacy were not significant (p= 0.87). Our study showed that pharmacists who worked in Eastern region and Northeast region were significant to access CPE at p= 0.01.

Although barrier to access CPE was not significant predictor of CPE score. The results showed that readability was the highest score in this attribute. From the opened end answering to investigate barrier to access CPE, pharmacists thought interesting topic

of CPE and variety of topic of CPE for area of practice (n=23) articles in website should be update and set web board to answer question via internet and more reading articles from journals. Four opinions thought Pharmacy Council should set other channel such as study in higher degree, duty on their jobs, specialist in diabetes mellitus or academic conference with other profession. In the study of Pharmacist's Satisfaction toward the Continuing Education (Rapeephan and Warunee,2003) have reported that if Pharmacy council enforced the expiration of the pharmacy license through CPE, it must be assured that the education process are easy to access and effective. And pharmacists (40.4%) have attitude for CPE should be improve quality of education and increasing activities of CPE.

Most pharmacists have got CPE score 50-99 and didn't know their CPE score (68 %) because they didn't access the continuing pharmaceutical education website. but at the present time center continuing pharmaceutical education has changed method for checking CPE score easily only use registered professional identification, so it will be motivate pharmacists to accessing continuing pharmaceutical education. And moreover communication for pharmacists who got CPE score more than 100 was announced to persuade pharmacists in accessing continuing pharmaceutical education.

Limitation of this study

1.In this study, the accessing continuing pharmaceutical education was assess from pharmacists who had CPE score so barrier might be different from pharmacists who have no CPE score.

2. The adequacy of the reliability and validity of the questionnaire developed for this study, and the constructs measured therein. We developed the questionnaire based on literature. The multi-item scale in the questionnaire exhibited satisfactory internal consistency reliability, so the measurement error was minimized in this study

Recommendations

The study confirmed that if Pharmacy Council wanted pharmacists to have CPE score they must stimulate pharmacists' attitude on continuing pharmaceutical education. To increase CPE score Pharmacy Council should decrease barrier by updating new knowledge and technology of the articles published for this matter. For subjective norm, CPE provider was significant so Pharmacy Council should urge all institutes to manage

CPE because it had high influence (Beta=0.18). Pharmacy Council should emphasize pharmacists knowing that the persons had influenced pharmacists to accessing CPE was patients by communication through accredited drugstore. Pharmacists who were member of profession association had high CPE score because of their activities in the association or well management in an organization. Though, Pharmacy Council should encourage pharmacists to be a member of profession association such as the Association of Hospital Pharmacy or the Community of Pharmacy Association. The study found that CPE providers had influenced pharmacists to access CPE. Further study should investigate why did pharmacists access. CPE based on their recognition of the institution or their relationship with CPE provider. The finding about the barrier to accessing CPE related to the need of pharmacists should be disseminated in journals of Pharmacy Council or Newsletter of Pharmacy.

REFERENCE

1. Houle, Cyril. O. Lengthened Line. Perspectives in Biology and Medicine 1967(9): 37.
2. Hutchison, Dorothy. J. The Process of Planning Programs of Continuing Education Health for Manpower. Fostering the Growing Need to Learn 1973(74): 137.
3. Kirk, Robert. J. Building Quality into Adult Continuing Education: A Guide to Lifelong Learning. CE Educenter 1981(38): 5.
4. Boissoneau, Robert. Continuing Education in the Health Professions. 7. Aspen Systems Corporation, 1980.
5. Houle, Cyril. O. Continuing Learning in the Professions. Continuing Learning in the Professions 1980(47): 75.
6. Jack, R. Arndt, and Stephen Joel. Coons. Continuing Education in Pharmacy 1987(14):4.
7. Klus, John. P. Continuing Engineering Education. The Military Engineer 1979(71):178.
8.สภาเภสัชกรรม.[Online].Available from: http: //www.pharmacycouncil.org[2004, Sep 1]
9. จุฑามณี, สุทธิสีสังข์. ความก้าวหน้าของศูนย์การศึกษาต่อเนื่องทางเภสัชศาสตร์ : การเก็บสะสมหน่วยกิตการศึกษาต่อเนื่องเพื่อการต่อใบอนุญาตประกอบวิชาชีพ. Pharmatime 2(14): 18.
10. เสาวคนธ, รัตนวิจิตราศิลป์. และคณะ. การต่ออายุใบอนุญาตประกอบวิชาชีพ: เภสัชกรพร้อมหรือยัง. Thai J. Pharm.Sci 2000(23): 162
11. Rapeepan, Chalongsook.., and et.al. Pharmacist's Satisfaction towards the Continuing Education Process. Thai J Hosp Pharm 2003(13): 219.
12. Patcharaporn Yeamsavad., and Venus, Chutimanitskul. Survey of Thai Pharmacist's Acceptance and Opinion regarding Continuing Education. Bachelor Degree Pharmaceutical Science. Faculty of Pharmacy Mahidol University. 2003.
13. House, Richard. M., Standard s of Practice in Continuing Education, Silver Springs, MD: Council on the Continuing Education Unit, 1983: 1.
14. Francke, Donald. E. Let's Separate Pharmacies and Drug Stores. America Journal of Pharmacy 1969(141): 166.
15. Pellegrino, Edmund. D. Continuing Education in Health Professions. America Journal of Pharmaceutical Education (33) 1969: 712.

16. AACP/APhA. The Continuing Competence of Pharmacists. Journal of the American Pharmaceutical Association 15(1975): 432.

17. Schweer,Jean. E. Foreward in Puetz. Continuing Education for Nurse 1981: 20.

18. Laxdal,O.E. Needs Assessment in Continuing Medical Education: A Practical Guide. Journal of Medical Education 57(1982): 827-834.

19. David, S. Gochman. Handbook of Behavior Research I: Personal and Social Determinants. New York. 1997.

20. American Council on Pharmaceutical Education. Status report on Continuing Pharmaceutical Education Chicago. American Council 1986: 1-6.

21. Austin, Z., Crotean D., Marini A., and Violato C. Continuing professional development: the Ontario experience in professional self –regulation through quality assurance and peer review. Am J Pharm Educ 67(2003): 56-63.

22. Achieving excellence in pharmacy through clinical governance. Royal Pharmaceutical Society in Scotland's policy on clinical governance Edinburgh: the Society.2000: 4.

23. Mayer, W. D. Continuing Education of Physicians: Conclusions and Recommendations. Journal of Medical Education 55(1980): 149-150.

24. Continuing professional development. Pilot scheme documentation London: royal Pharmaceutical Society education division 1999: 1-2.

25. Myers, Maven. J. Continuing Education for Pharmacists: A Concept Whose Time Has Come. Guideline to Professional Pharmacy 6(1979): 3-4.

26. Gonell, Davina. J. The Impact of Continuing Education on Nursing Practice. The Twenty-first Annual Adult Education Research Conference 1980: 7-9.

27. Mitsunaga, Betty, and Shores, Louise. Evaluation in Continuing Education: Is it Practical? The Journal of Continuing Education in Nursing 8(1977): 7-14.

28. Ann, Arbor. MI. Report of the Study Commission on Pharmacy, Study Commission on Pharmacy. Pharmacists for the Future 1975: 58.

29. Mckay, Alan. B, and et al. The Provision of Management CAI through Commercially Available Pharmacy Computer System. American Journal of Pharmaceutical Education 11(1984): 48.

30. Flesher, Daniel. S. Priorities and Data Bases: Their Relationship to Continuing Education in Charters. Fostering the Growing Need to Learn 74(1973): 210.

31. Dave, Davi. Impact of Formal Continuing Medical education. JAMA 282(1999): 867-874.

32. Ajzen, I., and Fishbein, M. Understanding attitudes and predicting social behavior Englewood Cliffs,NJ,Prentice : Hall,Inc, 1980.

33. Ajzen, I., and Maden, TJ. Prediction of goal-directed behavior: Attitudes, Intentions and Perceived behavioral control. J Experi Soc Psychol 22(1986): 453-74.

34. Bandura, A. Social foundations of thought and action. New York: Prentice –Hall, 1986.

35. Maddux, J. and Brawley, L. Self-Efficacy, Adaptation, and Adjustment:Theory, Reseach, and Adaptation. James Maddux: Plenum Press, New York. 1995.

36. Schifter, D B.and Ajzen,.I. Intension, perceived control, and weight loss: An application of the theory of planned behavior. Journal of Personality and Social Psychology 45(1985): 45.

37.ศูนย์การศึกษาต่อเนื่องทางแพทย์ศาสตร์.[On line] Available from: http://www.ccme.or.th[2004, Sep 14].

38.ศูนย์การศึกษาต่อเนื่องสาขาพยาบาลศาสตร์ [Online].Available from: http://www.ccne.or.th[2004, Sep 14]

39.ศูนย์ การศึกษาต่อเนื่องของทันตแพทย์.[Online].Available from: http://www.cdec.or.th[2004, Sep 14]

40.ศูนย์การศึกษาต่อเนื่องของเทคนิคการแพทย์ .[Online].Available from: http://www.cmtethai.or.th[2004, Sep 14]

41.ศูนย์การศึกษาต่อเนื่องทางเภสัชศาสตร์.[Online]. Available from: http://www.ccpe.or.th[2004, Sep 14]

42. ศูนย์ทดสอบเพื่อการศึกษาทางเภสัชศาสตร์.[Online].Available from: http://www.thaicpe.org[2004, Sep 14]

43. Ajzen, I., and Fishbein, M. Understanding attitudes and predicting social behavior Englewood Cliffs,NJ,Prentice : Hall,Inc, 1980.

44. Ajzen, I., and Maden, TJ. Prediction of goal-directed behavior: Attitudes, Intentions and Perceived behavioral control. J Experi Soc Psychol 22(1986): 453-74.

45. Taro, Yamane. Statistics an Introductory Analysis. Third Edition. Harper and Row, New York: John Weather Hill Inc, 1973.

APPENDICE

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แบบสอบถาม เรื่อง ปัจจัยทำนายการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์ของเภสัชกรในประเทศไทย

.....

เรียน เภสัชกรที่ได้รับการคัดเลือกเป็นกลุ่มตัวอย่าง

แบบสอบถามนี้เป็นส่วนหนึ่งของการทำวิทยานิพนธ์ของ นางสาว พรรณนภา เนียมพลอย นิสิตปริญญาโท สาขาบริหารเภสัชกิจ คณะเภสัชศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย โดยมี ดร. อนุชัย ธีระเรืองชัยศรี เป็นอาจารย์ที่ปรึกษา โดยมีวัตถุประสงค์เพื่อ ศึกษาตัวทำนายการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์ของ เภสัชกรในประเทศไทย และหาอุปสรรคในการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์ของเภสัชกรในประเทศไทย ข้อมูลที่ได้จาการศึกษาครั้งนี้จะใช้เป็นข้อมูลพื้นฐาน เพื่อการพัฒนาระบบการศึกษาต่อเนื่องทางเภสัชศาสตร์ต่อไป

ด้วยเหตุผลดังกล่าวมาแล้วนั้น ดิฉันจึงใคร่ขอความกรุณาจากท่านได้โปรดกรอกลงข้อมูลให้ด้วย จักเป็นพระคุณอย่างยิ่ง โดย

แบบสอบถามนี้มีจำนวน 5 หน้า และแบ่งเป็น 4 ส่วน ดังนี้

ส่วนที่ 1 ข้อมูลส่วนตัวของเภสัชกร

ส่วนที่ 2 ทัศนคติต่อการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์

ส่วนที่ 3 ผลของคนรอบข้างที่ทำให้ท่านเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์

ส่วนที่ 4 ปัจจัยที่มีผลต่อการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์

<u>คำจำกัดความ</u>

การศึกษาต่อเนื่องทางเภสัชศาสตร์ หมายถึง การศึกษาทางเภสัชศาสตร์ที่ศูนย์การศึกษาต่อเนื่องทางเภสัชศาสตร์ให้การรับรองเช่น การศึกษาโดยวิธีการเข้าร่วมสัมมนา การอ่านบทความทางวารสารและ Website

กรุณาส่งแบบสอบถามใส่ซองที่ผู้วิจัยได้ติดแสตมป์มาพร้อมในซองแบบสอบถามนี้ ภายใน วันที่ 30 เมษายน 2548ค่ะ

.....

(นส. พรรณนภา เนียมพลอย)

.....

(อ. ดร. อนุชัย ธีระเรืองชัยศรี)

อาจารย์ที่ปรึกษา

แบบสอบถาม เรื่อง ปัจจัยทำนายการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์ของเภสัชกรในประเทศไทย

ส่วนที่ 1 ข้อมูลส่วนตัวของเภสัชกร

คำชี้แจง กรุณาทำเครื่องหมาย √ ในช่อง ☐ ที่ต้องการ และเติมข้อความในช่องว่างที่กำหนด

1.เพศ ☐ ชาย ☐ หญิง

2.อายุ ..... ปี

3. ปีที่จบการศึกษาปริญญาตรีทางเภสัชศาสตร์. **พศ**.....

4.ระดับการศึกษาสูงสุดทางเภสัชศาสตร์

☐ ปริญญาตรี ☐ ปริญญาโทหรือเทียบเท่า ☐ Doctor of Pharmacy (Pharm D.)

☐ กำลังศึกษาปริญญาโท ☐ ปริญญาเอก ☐ กำลังศึกษาปริญญาเอก

5.ปัจจุบันท่านได้ปฏิบัติงานในสาขาวิชาชีพใด (เลือกตอบเฉพาะงานหลักเพียงข้อเดียว)

☐. เภสัชกรประจำโรงพยาบาลรัฐบาล ☐เภสัชกรประจำโรงพยาบาลเอกชน☐เภสัชกรประจำศูนย์บริการสาธารณสุข

☐. เภสัชกรประจำร้านขายยาเป็นเจ้าของกิจการ ☐เภสัชกรประจำร้านขายยา ☐ เภสัชกรประจำโรงงาน

☐ เภสัชกรทางการตลาด ☐. เภสัชกรขึ้นทะเบียนตำรับ ☐เภสัชกรสถาบันการศึกษา

☐เภสัชกรคุ้มครองผู้บริโภค เช่น สสจ. อย ☐.เภสัชกรสาขาอื่นๆโปรด ระบุ.....

6.**สถานที่ทำงานหลัก**ของท่าน ตั้งอยู่ที่ ใด

☐ กรุงเทพมหานคร ☐ เชียงใหม่ ☐ ขอนแก่น ☐ สงขลา ☐ พิษณุโลก

☐ อุบลราชธานี ☐ **อื่น ๆ โปรดระบุ**.....

7. ท่านได้เข้าร่วมเป็นสมาชิก / กรรมการขององค์กรวิชาชีพใดบ้างตอบได้มากกว่า 1 ข้อ

☐ สภาเภสัชกรรม ☐ เภสัชสมาคมแห่งประเทศไทย ☐ สมาคมเภสัชกรรมโรงพยาบาล

☐ สมาคมเภสัชกรรมชุมชน ☐ กลุ่มเภสัชกรการตลาด ☐ กลุ่มเภสัชกรการอุตสาหกรรม

☐ **อื่นๆ ระบุ**.....

8.ท่านได้เข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์ผ่านช่องทางใดบ้างและคิดเป็นสัดส่วนเท่าไรในแต่ละช่องทาง

โดยรวมทั้งสิ้นเป็น 100 %

7.1 การเข้าร่วมประชุมวิชาการ = ... หรือ ประมาณ ..... ครั้ง

7.2 การอ่านบทความทางวารสารวิชาการ =..... หรือ ประมาณ ..... ครั้ง

7.3การอ่านบทความจาก Website (www.cpethai.org) =.....หรือ ประมาณ ..... ครั้ง

รวมทั้งสิ้น = 100 %

9. ท่านทราบจำนวนหน่วยกิต การศึกษาต่อเนื่องทางเภสัชศาสตร์ของท่านหรือไม่

☐ ทราบ โดยเก็บสะสมไว้ได้.....หน่วยกิต ☐ ไม่ทราบ

ส่วนที่ 2 : แบบสอบถามเกี่ยวกับทัศนคติต่อการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์

คำชี้แจง กรุณาทำเครื่องหมาย *√ ในช่อง □ ที่ต้องการ*

คำถาม **ท่านคิดว่าการศึกษาต่อเนื่องทางเภสัชศาสตร์**	**เห็นด้วยอย่างยิ่ง**	**เห็นด้วย**	**ค่อนข้างเห็นด้วย**	**ค่อนข้างไม่เห็นด้วย**	**ไม่เห็นด้วย**	**ไม่เห็นด้วยอย่างยิ่ง**
1.จะสามารถทำให้ท่านยกระดับความเป็นวิชาชีพ						
2จะทำให้ท่านได้รับความรู้						
3จะทำให้ท่านมีโอกาสแลกเปลี่ยนประสบการณ์ในเพื่อนร่วมวิชาชีพ						
4จะทำให้ท่านได้ติดตามแนวโน้มใหม่ของวิชาชีพ						
5.จะทำให้ท่านได้พัฒนาความรู้						
6. จะทำให้ท่านได้รู้จักเพื่อนร่วมวิชาชีพมากขึ้น						
7.จะทำให้ท่านเกิดความมั่นใจในการประกอบวิชาชีพที่ดี						
8.จะทำให้ท่านมีความก้าวหน้าในตำแหน่งหน้าที่การงาน						
9.จะทำให้ท่านเกิดความสัมพันธ์อันดีกับเพื่อนร่วมวิชาชีพ						
10.จะทำให้ท่านเกิดความภาคภูมิใจและพึงพอใจในการปฏิบัติวิชาชีพ						
11.จะทำให้ท่านสามารถนำความรู้ไปประยุกต์ใช้ในการทำงานได้						
12จะทำให้ท่านมีความก้าวหน้าทัดเทียมวิชาชีพอื่นๆ						
13.จะทำให้ท่านเกิดการประสานงานกับเพื่อนร่วมวิชาชีพ						
14.จะทำให้ท่านได้เพิ่มพูนความรู้ตรงตามวัตถุประสงค์ของท่าน						
15.จะทำให้ท่านสามารถกำหนดแผนการฝึกอบรมในการพัฒนางานของท่านได้						
16.จะทำให้ท่านสามารถพัฒนาบทบาทและหน้าที่ได้ตรงตามสาขาวิชาชีพของท่าน						
17.จะทำให้ท่านบรรลุเป้าหมายในการทำงานตามวิชาชีพเภสัชกรรม						

คำชี้แจง กรุณาทำเครื่องหมาย √ ในช่อง ☐ ที่ต้องการ

คำถาม	เห็นด้วยอย่างยิ่ง	เห็นด้วย	ค่อนข้างเห็นด้วย	ค่อนข้างไม่เห็นด้วย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
ท่านเห็นด้วยกับการต่อใบอนุญาตวิชาชีพโดยการใช้การศึกษาต่อเนื่องเป็นตัวกำหนด						

ส่วนที่ 3 : **แบบสอบถามผลของคนรอบข้างที่ทำให้ท่านในการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์**

ท่านคิดว่า**<u>บุคคล / สิ่งเหล่านี้มีอิทธิพลต่อท่าน</u>**ในการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์**มากที่สุด**

<u>โปรดเลือกเพียงข้อเดียว</u>

☐ **เพื่อนของท่าน** ☐ **สถาบันการศึกษาที่จัดการศึกษาต่อเนื่อง** ☐ **สถานที่ทำงานของท่าน**

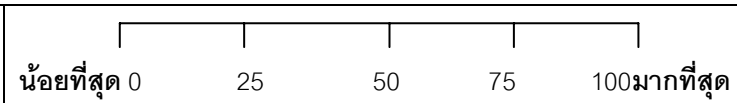
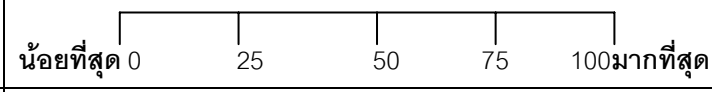
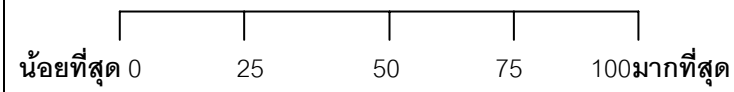
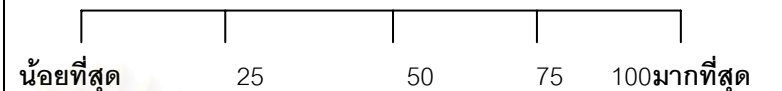
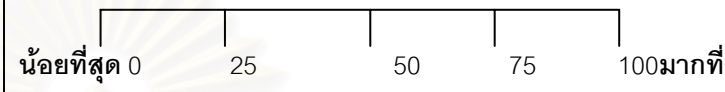
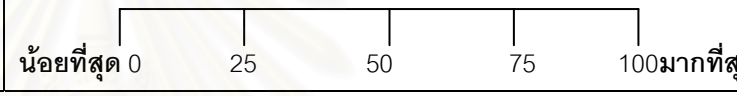
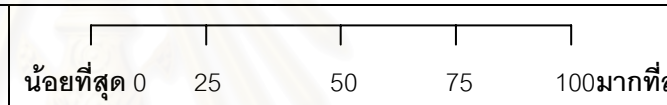
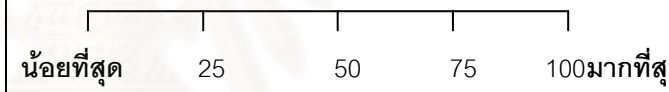
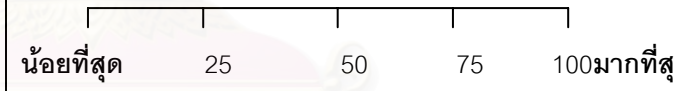
☐ **ผู้บังคับบัญชาของท่าน** ☐ **ผู้รับบริการ** ☐ **สภาเภสัชกรรม** ☐ **อื่น ๆ โปรดระบุ**.....

ส่วนที่ 4 : **แบบสอบถามเกี่ยวกับปัจจัยที่มีผลต่อท่านในการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์**

ท่านคิดว่า **<u>ปัจจัย/สิ่งเหล่านี้มีผล</u>** ต่อท่านมากน้อยเพียงใดต่อการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์

โปรดกา X ลงบนตัวเลขที่ตรงกับความคิดเห็นของท่าน

1.เทคโนโลยีที่ใช้ในการเข้าร่วมการศึกษาต่อเนื่องทางเภสัชศาสตร์โดยผ่านทางwww.cpethai.org)	**น้อยที่สุด** 0 25 50 75 100 **มากที่สุด**
2. ช่วงเวลาในการเข้าร่วมการศึกษาต่อเนื่อง	**น้อยที่สุด** 0 25 50 75 100**มากที่สุด**
3. จำนวนวันที่ที่ใช้ในการจัดเข้าการศึกษาต่อเนื่องทางเภสัชสาสตร์	**น้อยที่สุด** 0 25 50 75 100**มากที่สุด**
4.การที่หน่วยงานที่ทำงานอยู่ส่งเสริม / สนับสนุนให้เข้าร่วม การศึกษาต่อเนื่อง โดยไม่นับเป็นวันลา หรือสนับสนุนด้านค่าใช้จ่าย	**น้อยที่สุด** 0 25 50 75 100**มากที่สุด**
5. ความสะดวกในการเดินทางไปยังสถานที่จัดการศึกษาต่อเนื่องทางเภสัชศาสตร์	**น้อยที่สุด** 0 25 50 75 100**มากที่สุด**
6. หัวข้อการจัดการศึกษาต่อเนื่องทางเภสัชศาสตร์	**น้อยที่สุด** 0 25 50 75 100**มากที่สุด**

7. อัตรากำลังคนของหน่วยงาน	
8. การได้รับข้อมูล ข่าวสารของการศึกษาต่อเนื่องทางเภสัชศาสตร์อย่างต่อเนื่อง จูงใจให้ท่านเข้าร่วม	
9. ค่าใช้จ่ายในการเข้าร่วมการศึกษาต่อเนื่อง	
10.ความทันสมัยของเนื้อหา	
11.สถานที่ในการประชุมและ ความพร้อมของการจัดประชุม	
12.ความหลายหลากของเนื้อหาที่น่าสนใจในการอ่านบทความ	
13.ความยากง่ายของบทความ	
14. อื่นๆโปรด ระบุ……..	
15. อื่นๆโปรดระบุ ……..	
16. อื่นๆโปรดระบุ ……..	

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BIOGRAPHY

Miss Pannapa Niamploy was born November, 29 in 1970 at Bangkok. Province, Thailand. .I graduated from Bachelor of Science in Pharmaceutical Science, Chiang Mai University in 1993. I was a graduate student in Master of Sciences in Social and Administrative Pharmacy at Chullongkorn University in 2002. I worked at private hospital in Bangkok.