

Study of the Essential Research Skills for Graduate Education

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาและเปรียบเทียบปัญหาและความต้องการสำหรับ“การใช้ทักษะทางการวิจัยสำหรับการเรียนในระดับบัณฑิตศึกษา” จำแนกตามเพศ อายุ ระดับการศึกษา ประเภทของมหาวิทยาลัย สาขาวิชาเอกและอาชีพ กลุ่มตัวอย่างของงานวิจัยซึ่งได้จากการสุ่มแบบแบ่งชั้นภูมิ (Stratified Random Sampling) ได้แก่ นิสิตนักศึกษา คณะศึกษาศาสตร์ทั้งมหาวิทยาลัยรัฐและเอกชนในเขตกรุงเทพมหานคร จำนวน 400 คน เครื่องมือที่ใช้ในการวิจัย ได้แก่ แบบสอบถาม สถิติที่ใช้ในการวิเคราะห์ข้อมูล ใช้สถิติเชิงพรรณนา (Descriptive Statistics) ได้แก่ ค่าความถี่ (Frequency) ค่าร้อยละ(Percentage) ค่าเฉลี่ย (Mean) และส่วนเบี่ยงเบนมาตรฐาน (Standard Deviation) และ สถิติเชิงอนุมาน (Inference Statistics) ได้แก่ t-test และ F-test ผลการวิจัยพบว่า 1) นิสิตนักศึกษาทั้งมหาวิทยาลัยรัฐและเอกชนมีปัญหาด้านการใช้ทักษะทางการวิจัยอยู่ในระดับต่ำ ค่าเฉลี่ย 2.32 ซึ่งพบว่า การวิเคราะห์และสังเคราะห์เอกสารและงานวิจัยที่เกี่ยวข้อง การสืบค้นข้อมูลเอกสารและงานวิจัยที่เกี่ยวข้อง และการรวบรวมข้อมูลจากเอกสาร มีปัญหามากที่สุดใน 3 อันดับแรก 2) นิสิตนักศึกษาทั้งมหาวิทยาลัยรัฐและเอกชนมีความต้องการด้านการใช้ทักษะทางการวิจัยอยู่ในระดับปานกลาง ค่าเฉลี่ย 2.79 ซึ่งพบว่า การวิเคราะห์และสังเคราะห์เอกสารและงานวิจัยที่เกี่ยวข้อง การวิเคราะห์สาเหตุของปัญหาการวิจัย และการตั้งชื่อเรื่องงานวิจัย มีความต้องการมากที่สุด 3 อันดับแรก 3) นิสิตนักศึกษาที่มีความแตกต่างทางด้านเพศ อายุ ระดับการศึกษา สาขาวิชาเอก และอาชีพ มีปัญหาและความต้องการใช้ทักษะทางการวิจัยที่ต่างกัน อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และนิสิตนักศึกษาที่อยู่ในประเภทของมหาวิทยาลัยแตกต่างกัน ไม่มีปัญหาและความต้องการใช้ทักษะทางการวิจัยที่ต่างกัน

คำสำคัญ: ทักษะทางการวิจัย บัณฑิตศึกษา

Abstract

The purposes of this research were 1) to study the problems and needs of research skills for graduate students studying in the faculty of education from public and private universities in Bangkok; and 2) to compare the level of problems and needs of research skills for graduate students studying in the faculty of education, classified by gender, age, levels of education, types of universities, majors of study and occupation. A sample of 400 graduate students was selected from the faculty of education of public and private universities in Bangkok, the Stratified Random Sampling to compare the university's type and Simple Random for the student's personal information. The instruments used in this research were the problems and needs questionnaires. The data were analyzed by using descriptive statistics: frequency, percentage, mean and standard deviation, and using inferential statistics: t-test and One-way analysis of variance (ANOVA).

The research findings showed that graduate students studying in the faculty of education from public and private universities in Bangkok had encountered 1) The problems with the research skills at low level ($\bar{X} = 2.32$): showing the top three problems with research skills were analyzing and synthesizing the literature review ($\bar{X} = 3.03$); Using the library and electronic resources for searching the related literature ($\bar{X} = 2.79$); and Collecting data from documents ($\bar{X} = 2.79$). 2) The needs

of research skills at medium level ($\bar{x} = 2.76$): showing the top three needs with research skills were analyzing and synthesizing the literature review ($\bar{x}=3.42$); analyzing a research problem ($\bar{x}=3.32$); and posing a research title ($\bar{x}=3.29$). 3) difference in gender, age, levels of education, majors of study and occupation play a significant difference in problems and needs of research skills at the level of .05 whereas types of universities play no significant difference in problems and needs of research skills.

Keywords: Research Skills, Graduate Education

INTRODUCTION

In the context of Thai graduate education, the graduate education is considered to be a higher education that plays a vital role in the regional grouping. It supports the role of the ASEAN university network (AUN), the SEAMEO Regional Centre for Higher Education and Development (SEAMEO RIHED), the University Mobility in Asia and the Pacific (UMAP) and develops towards the Integration of ASEAN Community in 2015 as well as learning experience from the Bologna process of the EU, Kanvong, A. (2013). Moreover, “The role of research in several fields of applied economics, whether related to business or to the economy as a whole, has greatly increased in modern times”, Kothari, C. R (2004). For this reason, Thailand Office of the Higher Education Commission (OHEC) is aware of the importance of the research and provides master’s and doctoral research scholarship in order to develop university staff and upgrade their qualifications in every discipline.

Apart from the graduate education, it provides graduates with an understanding of the conceptual and methodological tools for conducting valuable research. During graduate experience, over half of study require students to conduct a research, hence, the research becomes a principle of study. The most serious problem in generating the number of graduate students is that many students fail to complete their study. Even though the vast majority of students entering graduate programs most likely have the ability to complete a degree, high numbers of students fail to achieve that goal, Wendler, C. et al. (2010). Consequently, the lack of basic knowledge on research skills may cause students to feel inadequate or result in serious academic difficulties and not success in study.

Therefore, the researcher would like to conduct a research on problems and needs of research skills for graduate students, entitled “Study of Essential Research Skills for Graduate Education” in order to provide new insight on the preparation and development of the research skills for graduate students and graduate education in Thailand.

OBJECTIVES

1. To study the problems and needs of research skills for graduate students studying in the faculty of education from public and private universities in Bangkok.
2. To compare between the level of problems and needs of research skills for graduate students studying in the faculty of education from public and private universities in Bangkok, classified by gender, age, levels of education, types of universities, majors of study and occupation

RESEARCH METHODOLOGY

Population

Graduate students studying in the faculty of education from the public and private universities in Bangkok

Samples

The sample size is determined by using the table of Krejcie and Morgan (Krejcie and Morgan, 1970: 607-610). Each sample group had the size of 384 students to create a confidence level standard. The researcher selected 400 students for the sample group. After that Stratified Random Sampling is used for the types of universities and Simple Random is used for student's personal information. The sample group consisted of 219 students from public universities and 181 students from the private ones.

Research Instrument

1. Documents and books on essential research skills for graduate education.

2. The questionnaires for the sample group on the problems and needs of research skills needed for graduate education. The processes of questionnaires construction were;

1) The researcher studied and analyzed the related books, documents and online resources in order to design the questionnaire.

2) The researcher created the questionnaire on the essential research skills for graduate education.

3) The researcher proposed the questionnaire to the thesis advisory committees for quality verifying and improved it until reaching the perfection.

4) The researcher proposed the questionnaire to three experts with the quality verifying by the thesis advisory committees for the evaluation.

5) The researcher used the evaluation results of experts to improve the questionnaire and handed it to the thesis advisory committees for the last edition before using.

6) The researcher distributed the questionnaire improved to 40 graduate students who are not the sample group for trying-out.

7) The researcher calculated Cronbach's alpha coefficient for reliability and the reliability was 0.91.

Data Collection

1. The researcher officially contacted the university administrators of the sample group for data collection. The official letters asking for the permission to conduct the field research were forwarded. At the return date, the researcher gathered the questionnaires, checked for the completion of the data, and did the supplementary interview if there were some incomplete information.

2. The researcher collected the data by herself using the research tool and the survey results.

Data Analysis

The researcher analyzed the data using descriptive statistics: frequency, percentage, mean and standard deviation, and using inferential statistics: t-test and F-test as the following procedure:

1. The findings on the levels of problems and needs of research skills of graduate students studying in the faculty of education from public and private universities in Bangkok,

using the mean (\bar{x}) and standard deviation (S.D.), interpreting as the following scores range:

- 4.50 – 5.00 = the highest
- 3.50-4.49 = a high level
- 2.50-3.49 = medium level
- 1.50-2.49 = a low
- 1.00-1.49 = the lowest level

2. The problems and needs of research skills of graduate students studying in the faculty of education from the public and private universities in Bangkok compared and determined by their genders, levels of

education, types of universities and occupation using t-test, whereas, ages and majors of study using F-test, and the mean difference between groups by using LSD (The Least Significant Difference Method).

RESEARCH FINDINGS

1. The level of problems and needs of research skills of graduate students studying in the faculty of education from public and private universities in Bangkok as follow:

Table 1 The level of research skills problems of graduate students studying in the faculty of education from public and private universities in Bangkok determined by the mean (\bar{x}) and the standard deviation (S.D.)

Research skills	Level of problems of research skills		
	\bar{X}	S.D.	Level
1. Posing a researchtitle	2.62	1.10	medium
2. Analyzing a researchproblem	2.70	1.13	medium
3. Formulating a research question	2.52	1.13	medium
4. Defining a research objective	2.34	1.09	low
5. Establishing a researchhypothesis	2.30	1.11	low
6. Describing the assumptions or the limitations of the study	2.50	1.03	medium
7. Writing a scope of the research study	2.00	1.10	low
8. Identifying variables in the research	2.24	1.17	low
9. Designing a conceptual framework	2.11	1.10	low
10. Determining expected benefits of the research	1.87	1.03	low
11. Explaining specific terms	2.24	1.21	low
12. Using the library and electronic resources for searching the related literature	2.79	1.11	low
13. Analyzing and synthesizing the literature review	3.03	1.15	medium
14. Preparing the research design	2.57	1.27	medium
15. Specifying a population	1.98	1.10	low
16. Determining the sample size	2.07	1.05	low

Table 1 (Continued)

Research skills	Level of problems of research skills		
	\bar{X}	S.D.	Level
17. Identifying sampling	1.90	.97	low
18. Creating a test	2.16	1.14	low
19. Creating a questionnaire	2.13	1.10	low
20. Designing an interview form	1.91	1.05	low
21. Conducting an observation form	1.93	1.11	low
22. Collecting data from documents	2.79	1.08	low
23. Collecting data by testing	2.32	1.15	low
24. Collecting data through questionnaire	2.27	1.10	low
25. Collecting data by interviewing	2.20	1.07	low
26. Collecting data by observation	2.07	1.18	low
27. Evaluating the quality of test	2.14	1.05	low
28. Evaluating the quality of questionnaire	2.06	1.04	low
29. Evaluating the quality of interview	2.12	1.23	low
30. Evaluating the quality of observation	1.93	1.03	low
31. Interpreting and presenting the descriptive data	2.78	.98	medium
32. Concluding the research findings	2.76	1.09	medium
33. Discussing the research findings	2.34	1.25	low
34. Writing the suggestions from research finding	2.32	1.16	low
35. Writing the suggestions for future research	2.37	1.03	low
36. Writing a citation in text	2.41	1.23	low
37. Writing a bibliography	2.56	1.12	low
38. Writing a research report	2.46	1.26	low
39. Writing a research article	2.58	1.09	medium
40. Presenting a research report for academic conference, seminar, and symposium	2.58	1.04	medium
Total	2.32	.88	low

Table 1 shows that graduate students have problems of research skills at low level ($\bar{X}=2.32$). For each item of research skills, the top three problems of research skills are at low to medium level with an average of 2.79 -

3.03: analyzing and synthesizing the literature review ($\bar{X}=3.03$), using the library and electronic resources for searching the related literature ($\bar{X}=2.79$) and collecting data from documents ($\bar{X}=2.79$).

Table 2 The level of research skill needs of graduate students studying in the faculty of education from public and private universities in Bangkok determined by the mean (\bar{x}) and standard deviation (S.D.)

Research Skills	Level of needs of research skills		
	\bar{X}	S.D.	Level
1. Posing a research title	3.29	1.10	medium
2. Analyzing a research problem	3.32	1.09	medium
3. Formulating a research question	3.03	1.05	medium
4. Defining a research objective	2.94	1.07	medium
5. Establishing a research hypothesis	2.78	1.18	medium
6. Describing the assumptions or the limitations of the study	2.83	1.20	medium
7. Writing a scope of the research study	2.45	1.24	low
8. Identifying variables in the research	2.69	1.24	medium
9. Designing a conceptual framework	2.65	1.26	medium
10. Determining expected benefits of the research	2.43	1.27	low
11. Explaining specific terms	2.60	1.24	medium
12. Using the library and electronic resources for searching the related literature	2.99	1.23	medium
13. Analyzing and synthesizing the literature review	3.42	1.11	medium
14. Preparing the research design	2.90	1.16	medium
15. Specifying a population	2.39	1.30	low
16. Determining the sample size	2.40	1.27	low
17. Identifying sampling	2.41	1.20	low
18. Creating a test	2.62	1.13	medium
19. Creating a questionnaire	2.58	1.15	medium
20. Designing an interview form	2.44	1.25	low
21. Conducting an observation form	2.33	1.24	low
22. Collecting data from documents	2.99	1.19	medium
23. Collecting data by testing	2.68	1.18	medium
24. Collecting data through questionnaire	2.54	1.21	medium
25. Collecting data by interviewing	2.47	1.25	low
26. Collecting data by observation	2.52	1.35	medium
27. Evaluating the quality of test	2.68	1.22	medium
28. Evaluating the quality of questionnaire	2.60	1.21	medium
29. Evaluating the quality of interview	2.42	1.22	low
30. Evaluating the quality of observation	2.38	1.24	low

Table 2 (Continued)

Research Skills	Level of needs of research skills		
	\bar{X}	S.D.	Level
31. Interpreting and presenting the descriptive data	3.10	1.05	medium
32. Concluding the research findings	3.18	1.23	medium
33. Discussing the research findings	2.93	1.21	medium
34. Writing the suggestions from research finding	2.73	1.45	medium
35. Writing the suggestions for future research	2.87	1.26	medium
36. Writing a citation in text	2.83	1.28	medium
37. Writing a bibliography	2.79	1.25	medium
38. Writing a research report	2.96	1.21	medium
39. Writing a research article	3.23	1.11	medium
40. Presenting a research report for academic conference, seminar, and symposium	3.07	1.15	medium
Total	2.76	.99	medium

Table 2 presents that graduate students have the needs of research skills at medium level ($\bar{X}=2.76$). For each item of research skills, the top three needs of research skills are at medium level with an average of 3.29- 3.42: analyzing and synthesizing the literature review ($\bar{X}=3.42$), analyzing a research problem ($\bar{X}=3.32$), and posing a research title ($\bar{X}=3.29$).

2. The problems and needs of research skills of graduate students studying in the faculty of education from the public and private universities in Bangkok compared and determined by their genders, age, levels of education, types of universities, majors of study and occupation.

The difference in gender, ages, levels of education, majors of study and occupation play a significant difference in problems and needs of research skills at the level of .05, whereas, the types of university plays no significant difference in problems and needs of research skills.

DISCUSSION

1 The level of problems and needs of research skills of graduate students studying in the faculty of education from public and private universities in Bangkok.

After analyzing the finding on the level of research skills problems and needs of graduate students studying in the faculty of education from public and private universities in Bangkok, using the mean (\bar{X}) and standard deviation (S.D.), the results should be discussed below:

1.1 The graduate students have problems of research skills at low level. Due to the graduate students had experience in conducting the research at undergraduate degree, they had low level of problems of research skills. However, 10 research skills were reported medium level of problems. The top three problems of research skills are at low to medium level: analyzing and synthesizing the

literature review, using the library and electronic resources for searching the related literature and collecting data from documents.

As the research of Kaewmanee, S. (2008) in “Problems in Conducting Master of Arts Thesis of Graduate Students in Faculty of Humanities and Social Sciences, Prince of Songkla University” presented that the top 3 problems of the graduate students’ academic competence and performance were 1) research experience, 2) data analysis and 3) searching for relevant literature.

1.2 The graduate students have the needs of research skills at medium level. Despite low level of problems of research skills in overall, the need of research skills was given medium level. Since the research skills are indispensable not only for academic but also for professional career.

According to Peacock, N. (2013) mentions in “Using Research Skills Outside Academia” that very few jobs outside academia require the high-level literature reviewing skills but in areas of central or local government requires high-level literature reviewing skills in order to read between the lines of policy documents and to understand the thinking behind the development of such policies. Regarding sales, market research, and product development need the experience in qualitative research (getting information from interviews and/or focus groups) for finding out information from customers. The experience in quantitative research (finding patterns, correlations and causal relationships in data) is useful in the analysis of seismic data for oil companies, financial data for banks. Additionally, many jobs require academic writing skills and oral

communications which are developed from writing research paper, article and journal, and research presentation during graduate education.

The top three needs of research skills are at medium level: analyzing and synthesizing the literature review, analyzing a research problem and posing a research title. For Analyzing and synthesizing the literature review, it became the top problems of research skills. Therefore graduates need this skill the most.

2 The problems and needs of research skills of graduate students studying in the faculty of education from the public and private universities in Bangkok compared and determined by their genders, age, levels of education, types of universities, majors of study and occupation. The results should be discussed below:

2.1 The comparison between male and female graduate students showed that there was a significant difference in problems of research skills. Males had more problems and needs than females. Since females are more likely to be hard-working, reflective and diligent, they can learn effectively. In content of the classroom, generally, female students are assigned to be leader as a head of classroom and group, and a coordinator with teacher. The female group concentrates on work and learning rather than the male group. For this reason, males need the research skills rather than females.

Referring to Dayioglu, M. and Türüt-Aşık, S. (2004) argued that “Amidst the gender inequality in much of the public life in Turkey, higher course grades achieved by female students are encouraging”. As well as Ismail

N. and Othman A. (2006) cited that the gender considered as one of the influential factors play important roles in influencing the Cumulative Grade Point Average (CGPA). Apart from entry points, female students are found to have better results than their male counterparts in Faculty of Business and Accountancy (FBA) and Faculty of Arts and Social Sciences (FASS) of University Malaya in Malaysia. Commonly, female students again perform better than male counterparts.

2.2 The comparison between master's and doctoral degree graduate students showed that there was a significant difference in research skills problems and needs. The master's degree graduate students had more research skills problems than those of the doctoral degree ones in all items. The master's degree graduate students, hence, needs more research skills than the doctoral degree for among the 40 skills preferences, especially Analyzing and synthesizing the literature review.

Due to doctoral student used to conduct the research at master's level, there are many skills they gain from research experience as well as work experience. Consequently, the result showed that doctoral student have advanced levels of research skills rather than master' student. Furthermore, the many work experiences can develop their research skills. In accordance with College of Graduate Studies and Research, University of Saskatchewan. 2014 pointed out that student of doctoral programs have to complete a master's degree prior to admission and will operate at a professional level either within the academic profession, or in related, applied contexts. For doctoral programs, it requires varying amounts of

coursework; written and oral exams in relevant or essential aspects of the discipline; an internship; and satisfactory defense of an original contribution to knowledge presented in the form of a dissertation or acceptable substitute at a level commensurate with professional work in the area of study. While master's programs are designed so that graduates will have learned about the value of and gained experience in conducting research, and they will be conversant in the current state of a given field of study.

2.3 The comparison between teaching career and non-teaching career presented that the difference in occupation plays a significant difference in problems and needs of research skills. Teaching career had more research skills problems than those of non-teaching career. This result can confirm that even through teachers had experience in classroom action research, they lack of experiences in academic research. Sihapong, S. and Jamornman, U. (2001) recited that classroom action research that is conducted at classroom level and school level aims to improve the learning process of the learners. Classroom action research focuses on the scope of problems or develop the students in the class, school or the environment related to students, classrooms and schools.

Furthermore' Wongwanich, s. (2003) illustrated the characteristic of classroom action research as follows: [1] small scale research 2) aim at seeking answers about solving problems in the classroom 3) the process does not take too long in the making to avoid affected teaching 4) conducting as part of the regular teaching as a process of trial new strategies of teaching in order to achieve the most effective teaching, and 5)

must not do research in only one subject and neglect other problems]. It involves doing research to solve the problems of the students in the classroom or school environment. Moreover, it can develop a teacher professional for finding an effective way in teaching and achieving the quality of education.

Regarding academic research, it relates to education or based on educational problems. The process of academic research includes specifying a research problem; the related research, research design (defining population and sample, creating research tools, collecting data, analyzing data, concluding and discussing research findings). While the classroom action research process involves cyclical with four stages: PAOR plan, act, observe, and reflect. It does not focus on the conceptual framework but the experience of teachers and the results are applied immediately in classroom. Apart from academic research, it bases on a research method and theory and the results may not apply into actual practice but use for academic publishing.

2.4 The comparison by ages presented that there was a significant difference among the three groups of different ages: over 30 years old, 30-39 years old and over 40 years old. Moreover, that the age group over 30 years old had the most research skills problems and needs, and then the age group 30-39 years old and over the age of 40 years old had the least problems.

Since adults often have a highly specialized or even expert knowledge base via extensive past learning activity, some researchers speculate that slowing of new information may occur because of a large

knowledge base (Berg, C.A. and R.J. Sternberg. 1992). As well as Crawford, D. (2004) described that adults are very capable of learning well into their seventies which is a good reason to accept lifelong learning as more than just a pleasant mantra. While older adults are not as quick to learn as are younger people, they can often make up for this through a wealth of experiences that tend to support superior reasoning and judgment abilities if given time to think and reflect on the learning activity.

2.5 The comparison by majors of study presented that that the difference in ages plays a significant difference in research skills problems and needs.

Regarding to the mean difference in research skills problems, there was no significant difference between groups of the three majors: Education Administration, Educational Technology and Education Psychology but the graduate students majoring in Instruction had a significant difference with the rest of the three majors.

A side from the mean difference in research skills needs, it found that the graduate students majoring in Education Administrator had a significant difference between groups with the graduate students majoring in Educational Technology and Instruction but they had no significant difference with the graduate students majoring in Education Psychology. Additionally, the graduate students majoring in Educational Technology major had a significant difference with the graduate students majoring in Instruction but they had no significant difference with the graduate students majoring in Education Psychology.

Furthermore, the graduate students majoring in Instruction had the most research

skills problems and needs and then Education Administrator major, Education Psychology major and Educational Technology major, respectively.

Most of respondents of Instruction major are teacher, thus, they have the most level of problems and needs of research skills. In accord with Sihapong, S. and Jamornman, U. (2001), and Wongwanich, S. (2003) describe that classroom action research that is conducted at classroom level and school level aims to improve the learning process of the learners. Classroom action research focuses on the scope of problems or develops the students in the class, school or the environment related to students, classrooms and schools. While, academic research relates to education or based on educational problems. The process of academic research require more research skills than classroom action research such as specifying a research problem; study the related research, research design (define population and sample, create research tools, collect data, analyze data, conclude and discuss research findings). For this reason, Instruction major group had the most problems of research skills as well as the needs of research skills.

CONCLUSION AND RECOMMENDATIONS

After studying, the researcher knows research methodology and can create the research tool as a questionnaire which meets the need analysis and analyze the data collection. For the recommendation as follows:

1 The educational system of Thailand should focuses on research learning and teaching in every level of education (kindergarten to higher education) for preparing students to reach research skills and work in the future.

2 The master's program should be designed for student who has inadequate research skills for example, offering research course preparation before moving on the required research course. Moreover, the master's program should more provide research workshops and activities during the master's experience.

3 The department of instruction should more design academic research course for develop student's research skills, not only classroom action research course

4 The group of age less than 30 years old should learn more research process and develop research skills in different research activities to be more effective and success in graduate experience and professional life.

5 Schools should offer more academic research training and workshop for teachers in order to support academic research conducting.

Additionally, this study should add more questions in a part of personal information about job position, grade or study-record and program of education (regular or international) to study and compare the difference of problems and needs of research skills.

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