

**DEVELOPMENT OF AN INSTRUCTIONAL MODEL
FOR ENHANCING GRADUATE STUDENTS'
DESIRABLE RESEARCHER CHARACTERISTICS: A CASE
STUDY IN SOCIAL SCIENCE**

Dr. Wasun Thongthai*

Abstract

The purpose of this research was to develop an instructional model for enhancing desirable researcher characteristics for graduate students in social science. A 3-step of research approach was used in this study: 1) an analysis of the current status and needs relative to desirable research characteristics; 2) an instructional model was designed; and 3) instructional model was implemented for evaluating effectiveness and improving it. Based on analysis, the optimal instructional model: a) Had the objective to improve graduate students' research characteristics: in terms of knowledge and understanding of the research subjects, language and computer abilities, thinking abilities, management and communication abilities, behavior, and code of conduct and personality; b) Had content consistent with curriculum and research science; c) Had learning activities that included: motivating, new learning, practice, presentations critiquing, learning reflection and applications; d) Had instructional media that were suitable with learning objectives and students' interests and, e) Evaluated students through authentic assessments. In sum, the instructional model was effective in developing desirable researcher characteristics.

Keywords: instructional model, desirable researcher characteristics

* Faculty of Education, Kasetsart University, Bangkok Thailand

Introduction

The main purposes of education are to develop and encourage students to be learning individuals. Instructional methods must support learners to be life-long and independent learners. Learning about research methods is one of the ways to achieve that goal because conducting the research requires applying a systematic logic and accepted method of acquiring knowledge. Research is a process of systematic inquiry that is designed to collect, analyze, interpret, and use data. Research is conducted for a variety of reasons, including to understand, describe, predict and control an educational or psychological phenomenon or to empower individuals in such contexts. (Mertens, D.M. 2010) Therefore, research can be applied by both individuals and organizations for problem solving. Knowledge obtained from research can be applied to clarify or address social troubles. (Fraenkel, J. R. and Wallen, N. E. 2003 ; Gall, J.P., Gall, M. D. and Borg, W.R. 2005)

It is essential to support students to be skilled in research and acquire good qualifications. As researchers acquire knowledge and ability, as well as the right qualifications, they will be able to think and criticize systematically which will help them all their lives. This plays an important role in developing new bodies of knowledge and in solving problems effectively. The support of graduates in acquiring and understanding research knowledge, including good qualifications, in any aspect such as good thinking skills , knowledge, attitude and code of conduct are researcher characteristics. (Fraenkel, J.R. and Wallen, N.E. 2003, Creswell, J.W. 2009). There has also been a focus on defining approaches into the integration of research, teaching and learning with general agreement on learning about others' research; learning to do research; learning through the research process; and pedagogic research. (Nancy, T., Wuetherick, B. and Healey, M., 2008) Improving the quality of education for all students requires researchers to focus on factors that potentially influence students' learning. (Schonweetter, D.J. , Clifton, R.A. and Perry, P.R. 2002) So, one of the most important missions in graduate level education is enhancing the researcher characteristics of students.

Developing students to learn about the research process in order to be a good researchers is an important task in graduate instruction. Researchers are people who conduct research. A good researcher can pinpoint issue arising early in a project; Worthiness of the project: Competence boundaries, Informed consent: Issues arising as the project develops: harm and risk, honesty and trust, privacy, intervention and advocacy; Issue arising later during or after the project: research integrity and quality, ownership of data an conclusions and use and misuse of results. (Punch, F. K. 2009)

For this study I want to conduct an instructional model which can be used to enhance graduate students' desirable researcher characteristics in social science. This research result will be useful for other teachers who can apply this instruction in their classrooms. It can support the students to be good researchers and independent and lifelong learners to promote a learning-based society which is a goal of education.

The research purpose

The purpose of this research was to develop an instructional model for enhancing desirable research characteristics for graduate students in social science.

The research procedure

The research procedure was composed in 3 steps as follows: 1) an analysis of the current status and needs relative to desirable research characteristics 2) an instructional model was designed; and 3) instructional model was implemented for evaluating effectiveness and then improved.

Step 1) an analysis of the current status and needs relative to desirable research characteristics

In the first step, the characteristics of researcher from texts and research reports were analyzed and synthesized in order to answer the question, "What are the researcher characteristics?" The answer will be helpful in understanding the purpose of my teaching.

I used an in-depth interview with senior lecturers, experts and graduated officers. I applied a narrative-biography approach to explore good researcher characteristics. One case was an elementary teacher who was well known for carrying out action research in the classroom.

I asked my students to reflect on their knowledge, skills, attitude, ethics, planning, monitoring and awareness of researcher characteristics through the following questions: 1) What were desired researcher characteristics in their view point? And, to evaluate their level of desirable researcher characteristics. 2) What learning activities enhanced them to get the desirable characteristics of an educational researcher? And 3) How did they realize researcher characteristics? I told them that they could write on everything that they thought. Their answers were not judged in terms of being true or false and their scores would not affect their grade as well. Everything that they wrote was kept confidential. The information was

feedback I could use for reflecting and revising the action plans. Some points would be suggestions gotten from students in a one-on-one context.

It was found that the desired researcher characteristics from the students' viewpoints were 1) knowledge of methodology: defining research questions, sampling techniques, instrumental developing, data analysis, writing reports, research critique, and knowledge in content depending on their major field; 2) skills and abilities: language ability for communication through reading, writing, speaking and listening: data searching: using computer for typing and analyzing data and problem solving skills; 3) thinking: reasoning analyzing, decision making and creativity and 4) habits: self discipline, responsibility, honesty, relationships, keeping informants' secret, carefulness, respect for human rights, and benefit between researcher and informants.

All students evaluated themselves on the desired researcher characteristics level, and on which they realized they did not have many of the desired researcher characteristics. The students were at a fair level or higher. They were aware of desired researcher characteristics, and they wanted to acquire these characteristics for themselves. They recommended learning activities that could enhance characteristics for themselves, which were: learning theory from text, asking the teacher for explanations, asking experts, and learning from research examples.

All students said that the most effective learning activity was learning by doing. The students could assess themselves, revise their learning, and think about desired researcher characteristics. They relied on promoting desired researcher characteristics for themselves. And they know how to learn to enhance desired researcher characteristics for themselves, as well.

After I read the students' report I found that they paid a lot of attention and motivated themselves to write their report. They used a long time for monitoring themselves. One student told me that he was very proud to evaluate himself. He knew what he was, what he thought, what he should do. My students like learning by doing. I will design my next course as this following approaches: 1) the students study by reading texts, 2) the teacher explains the lesson, 3) the students learn from research reports, 4) the students do a mini-research project, and 5) the students learn by doing their research.

Additionally, I analyze the curriculum to look at the purposes and content of the research method course.

The findings show that desirable researcher characteristics could be promoted for graduate students in the field of society and education. In consideration of these qualities, 6 components could be identified:

1. In the aspect of knowledge and understanding in the research subjects – the researchers should have knowledge of the contents, various research, methodology, setting questions, research design, choosing population sample, development of tools, collection of data, and analyzing data.

2. In the aspect of language and computer programming - the researchers should have ability in the four skills in both English and Thai. The processed programs for data analyzing and presentation should be skilled by researchers.

3. In the aspect of thinking abilities –the researchers should have abilities in rational, analytic, creative, synthetic, and critical thinking.

4. In the aspect of management and communications – the researchers should have ability in management, systematic working, time, finance, and planning administration, as well as the ability to cooperate and give research presentation.

5. In terms of behavior and code of conduct – the researchers should be observant, curious, tolerant, open to different ideas. They should also not believe anything easily, but should be honest, sociable, brave to show findings, self-disciplined, responsible for their own actions and work, thoughtful, fair without prejudice, and finally respectful towards the dignity of others.

6. In the aspect of personality – the researchers should have good physical and mental health, be able to control their emotions, cooperate with others, have good social manners and personality.

Step 2 an instructional model was designed

After finding out about researcher characteristics and the research method course, the next question that I had to answer was, how I can teach my students to be good researchers and achieve the purpose of the course. I synthesized what I had learned from reading relevant literature such as teaching texts and research reports. I had been a teacher assistant in a research class and observed senior lecturers for 2 years and did collaborative teaching with the senior lecturers for 3 years., so I would be able to incorporate and apply what I had learned. I I also had a discussion and interview with an expert in the field of research

teaching. I analyzed and synthesized all the above experiences. Then I developed some research method teaching guidelines and used them in my classroom.

I tried to find as much related literature as possible, particularly in teaching methodology. I read several texts and research reports, and asking experts. I found that the methodology I developed was based on my own experience as a teaching assistant to senior lecturers who taught Education Research Methods and Qualitative Research Education courses. I had observed how they taught, practiced, and managed the learning activities in their classrooms. I found that most of their students were good in terms of research knowledge, attitudes, skills and ethics. When I reflected on my experiences of their teaching methods, I found that they had the following steps in common:

Step 1 They motivated their students and revised their lessons.

Step 2 They presented lessons on research knowledge and methodology through reading research texts, teacher explanations and examples.

Step 3 They guided the students learning by helping them step-by-step to find and understand research articles, research journals, and research exercises.

Step 4 They shared their learning results to the others. They evaluated their work and their friends' work. The teacher commented on the students' work, too. The students kept learning journals and the teacher gave them feedback.

Step 5 They applied what they learned to new situations and their own research papers.

The instructional guidelines, for enhancing the desirable researcher characteristics that I found suitable with the learning objectives were:

1) Lectures, explanations, examples and text reading were suitable for improving research knowledge.

2) Practice, problem solving, and conducting research projects were suitable for improving research skills.

3) Examples, discussions, motivating, and positive, reinforcement were suitable for improving attitudes toward research and research ethics.

The authentic assessment for evaluating the students' learning outcomes that I applied in my classroom were: evaluating the students' research reports, research proposals, portfolios, observations, interviews, learning journals and testing.

Step 3) instructional model was implemented for evaluating effectiveness and improvement

A classroom action research approach was followed for this study in 2 cycles. The first cycle was in the first semester of 2009 and the second cycle was in the second semester of 2009.

The first cycle

The target population was 35 graduate students who enrolled in an educational research methods course in the first semester of 2009.

The second cycle

The target population was 15 graduate students who enrolled in an educational research methods course in the second semester of 2009.

Data collection

Data were collected as follows:

1. Preliminary data were gathered to find out the students research background, their researcher characteristics. The research instruments were questionnaires and a desired researcher characteristics inventory.
2. Formative assessment was used to create students' profile and reflection instruction. The research instruments were observation forms, students' learning journal that the student should reflect in their knowledge, attitude, skills and others.
3. Summative assessment was used to compare the students' desired researcher characteristics between the pretest and post-test by using desired researcher characteristics scales, and evaluation of their research proposals.

Data Analysis

Quantitative data were analyzed by using frequency, and qualitative data were analyzed by a content analysis.

The research result

The first implementation in the first semester: 15 weeks after the course ended, the students were asked to evaluate their researcher characteristics by comparing the pretest and post-test. I told them that their evaluations would not affect their grade or score, so they

should evaluate them themselves honestly. The data shown that an instructional model could develop the desirable researcher characteristics for my students. It was found that the teaching strategies: a) motivational preparation for learning a new research concept, b) learning about a concept, c) practice, critique, and application and d) authentic assessments can promote the students' researcher characteristics.

The research found that students' self-evaluations on researcher characteristics were upper than before studying. All students evaluated themselves that they were good at various research knowledge. Then they evaluated themselves able to think rationally, to set research questions, to do a research design and to collect data. This result was consistent with evaluation that their all research proposals were very good and were at good level.

On the other hand, there were some students evaluating themselves in some researcher characteristics: be strong/healthy, be mental stable, being constant and lower than before using an instructional model. It was congruent with observation the students' behavior and reading in the students' learning journals were strain because they sometime must do a lot of their homework. They didn't feel relaxed, taking care of their health or doing exercise.

I also analyzed my teaching from my teaching log and the students' learning outcome reflections and found that the teaching strategies suitable for my class overall: a) motivational preparation for learning new research concept, b) learning about a concept, c) practice, critique, and application and d) authentic assessments. I observed there were some students who were not interacting with class such as they did not talk and ask me questions. So I had to find a method that would foster good communication between my students and I. One activity that I wanted to include in my teaching activities was a learning journal for students wrote to reflect on their learning. After they sent it to me, I read and take feedback to my student one by one. I told the students that their learning journal was a good way to communicate with me. It was confidential, so the students could write anything to me. Sometimes, some students wrote that *"Today I don't understand on sampling topic. Can you repeat it?"* *"I was happy to change my idea to my friend."* All details in students' learning journals were valuable to me. I had to revise my teaching activities so they could be more suitable for my class.

The second implementation in the second semester: During the first hour I explained to my student about the course syllabus and I told them about writing a learning journal. I explained what a learning journal is and how useful it can be for learning. Students get to practice writing skills by keeping a learning journal as well. Students were told to write only one page to reflect on my teaching, revise their learning outcomes, and maintain a good

relationship with teacher by communicating openly. The students sent the learning journal to me on the day after the class finished.

Based on my experience in first implementation, I adapted teaching strategies as follows: a) taking feedback from students' learning journal writing, b) motivational preparation for teaching new a research concept, c) learning about a concept, d) practice, critique, and application and e) authentic assessments.

I found that this teaching strategy was suitable for my class. My students had good learning outcomes in terms of knowledge, attitude, skills and good researcher characteristics. They told me everything that they wanted me to know. I was able to get to know them well through their learning journals and give them feedback.

Fifteen weeks after the course ended, I asked the students to evaluate their own researcher characteristics by comparing the pretest and post-test. I told them that their evaluations would not affect their grades or score, so they should evaluate them themselves honestly. The data would be useful for enhancing the desirable researcher characteristics for them. It was found that an instructional model could promote the students' researcher characteristics as detailed in Table 1

Table -1 : Number of the students evaluate themselves for each level by compare researcher characteristics of themselves between pretest and posttest

Statements	The first cycle			The second cycle		
	Number of the students evaluate themselves for each level (35 students)			Number of the students evaluate themselves for each level (15 students)		
	upper	constant	lower	upper	constant	lower
1. Have knowledge in the research subject	33	2	0	15	0	0
2. Have knowledge in various researches	35	0	0	15	0	0
3. Have knowledge in research methodology in the following:						
3.1 setting research questions	34	1	0	15	0	0
3.2 research design	34	1	0	15	0	0
3.3 determination of population sample	33	2	0	15	0	0

3.4 development of research tools	32	3	0	15	0	0
3.5 collecting data	34	1	0	15	0	0
3.6 analyzing data	30	5	0	15	0	0

Table -1 : (Continues)

Statements	The first cycle			The second cycle		
	Number of the students evaluate themselves for each level (35 students)			Number of the students evaluate themselves for each level (15 students)		
	upper	constant	lower	upper	constant	lower
4. Good at Thai in listening, speaking, reading, and writing	29	6	0	15	0	0
5. Good at English in listening, speaking, reading, and writing	20	15	0	15	0	0
6. Able to use computer program	15	20	0	15	0	0
7. Able to use data analyzing program	16	19	0	15	0	0
8. Able to use the presentation program	32	3	0	15	0	0
9. Able to think rationally	34	1	0	15	0	0
10. Able to think analytically	32	3	0	15	0	0
11. Able to think creatively	30	5	0	15	0	0
12. Able to think synthetically	31	4	0	15	0	0
13. Able to think critically	32	3	0	15	0	0
14. Able to solve problem	30	5	0	15	0	0
15. Able to work systematically	26	9	0	15	0	0
16. Able to manage time	25	10	0	15	0	0
17. Able to administrate budget	26	9	0	15	0	0
18. Able to plan conducting	28	7	0	15	0	0
19. Able to communicate / negotiate	30	5	0	15	0	0

20. Able to coordinate	31	4	0	15	0	0
21. Able to present research's result	33	2	0	15	0	0
22. Be curious, observant	26	9	0	15	0	0
23. Be patient to troubles	30	5	0	15	0	0
24. Open mind to others' opinions	25	10	0	15	0	0
25. Don't believe anything easily	20	15	0	15	0	0
26. Able to keep secret	26	9	0	15	0	0
27. Be honest	32	3	0	15	0	0
28. Be friendly, sociable	29	6	0	15	0	0

Table -1 : (Continues)

Statements	The first cycle			The second cycle		
	Number of the students evaluate themselves for each level (35 students)			Number of the students evaluate themselves for each level (15 students)		
	upper	constant	lower	upper	constant	lower
29. Brave in presenting the right things	26	9	0	15	0	0
30. Be self-disciplined	25	10	0	15	0	0
31. Be responsible for one's own doing	32	3	0	15	0	0
32. Be careful	29	6	0	15	0	0
33. Be fair/ without bias	31	4	0	15	0	0
34. Respect others	32	3	3	0	0	0
35. Be strong/healthy	0	31	4	15	0	0
36. Be mental stable	12	21	2	15	0	0
37. Be able to control emotions	30	5	0	15	0	0
38. Able to work with others	29	6	0	15	0	0
39. Behave appropriately	24	11	0	15	0	0
40. Have good personality	33	2	0	15	0	0

The research revealed that almost all students self-evaluation themselves on researcher characteristics were upper than before studying. All students believed that they know various research, are able to think rationally, set research questions, do research design and collect

data. These results are consistent with the outcomes of their research proposals, which were very good and were at a high level of achievement.

On the other hand, there were some students who evaluated themselves in some researcher characteristics being constant and lower than before studying: be strong/healthy and be mentally stable. It was congruent with observation the students' behavior and reading in the students' learning journals were strenuous because they sometimes had to do a lot of homework. They didn't feel relaxed or took care of their health or exercised.

Knowledge from this research

From this research, I can contribute the following knowledge on teaching strategies.

To design a good learning activity, I must take steps as follows: the first step is to describe what is that I want my students to understand or to learn. The second step is selecting content or teaching topic that will be a suitable vehicle for helping the students to gain the understanding that is described in my learning outcomes. The third step deciding how to create a learning environment that will support and encourage the students learning. Within this supportive environment, I have to enable students to review, challenge, reshape, and expand. The fourth step in teaching for understanding is to give students opportunities to publicly demonstrate their developing understanding. This has two main functions; the first is that it allows students to test their understanding by applying it in some way; the second is that it enables the teacher to judge the extent to which students have achieved the learning outcomes. (Killen, R. 2007)

For students to learn worthwhile topics, their learning experiences must help them to investigate important knowledge. I must consider the following: 1) that the main purpose of teaching is to help my students develop deep understanding of important knowledge. 2) they are readiness for learning. 3) how I interact with the content 4) how I interact with the learners 5) how my students interact with the content.

The learning environment affected my students' learning. I had to become aware of creating a good learning environment. It was safe and comfortable both physically and psychologically. In any learning environment, truly engaged learners are behaviorally, intellectually and emotionally involve in their learning tasks. (Tan, L. , Wang, M. and Xiao, J. 2010).

One of the greatest teaching challenges is to develop students' desire to learn; to motivate them. Motivation was one of the preaching to the students about learning and

benefits they would derive from being motivated as well. I used feedback as a motivator to students: praise, disclosure of their results and their learning journal. Positive feedback will be timely.

Teacher must be mentors, effective subject matter experts, counselors and social psychologists. Teachers must learn to use time effectively to maximize learning. Moreover effective teachers must 1) engage in qualitative planning and preparation 2) prepare positive classroom environment, 3) use proven instructional techniques and 4) exhibit professional behavior. (Moore K.D. 2005)

Motivation directs and sustains students' behavior toward learning. Feedback can be motivating when it provides students with information about their increasing competence because it satisfies their need to know how they are progressing. Feedback gives by the teacher. Interest theory pertains to motivating students and states that it is key to find activities that are aligned with students' personal interests. If students are personality interested in a certain activity or topic, they will direct their energy toward learning which in turn should result in higher performance. (Moreno, R. 2010) The support motivation: holding students accountable, providing appropriate homework, having clear goals and expectations, using cooperative learning, having difficult tasks that students can do, monitoring students' works, providing positive encouragement. (Arends R.T. 2009) Positive feedback increases responses. Many students do not respond because they are afraid of giving an incorrect reply and receiving a negative teacher reaction. Positive feedback from the teacher will motivate students to try again.

Authentic assessment refers to meaningful performance in the real world. It can more closely capture the richness of what students understand and how they can apply this knowledge by testing it in bits and pieces. In performance assessment, students demonstrate that they can perform particular tasks, such as writing, presenting. Portfolios are collection of students' work, which is required performance in context. (Arends R.T. 2009) At the heart of a teacher's job is students' growing competence and success in learning. Therefore, perhaps the most important kind of classroom assessments I will engage in is that of formative assessment- ongoing assessment to monitor my students' progress and providing feedback to them. Summative assessment is an overview of previous learning. I assess the students learning outcomes of knowledge and conceptual understanding, thinking, skills, attitude, researchers' personality and ethics.

Formative feedback illustrates the gap between what the students currently know and understand and what the teachers' expectations and understanding are for this knowledge. To

achieve the full benefit of feedback, students must ultimately hold the same understanding of the standard done by the teacher. Moreover, the students should be able to assess their individual work and apply a variety of self monitoring strategies to revise and enhance their work relative to the standard. The Formative assessment that I use in my class has many methods such as questioning, peer assessment, and learning journals.

Summary

Developing students to be good researchers is very important so I hope that my paper has helpful guidelines that the other teachers can adapt for their classrooms in terms of both teaching and evaluating methods. In the future, I will conduct more action research on my teaching. I want to know: 1) How I can continue to develop these suitable teaching methods in my future classroom? and 2) How will it be in my future classrooms?

Acknowledgment

I would like to extend my thanks to the Department of Education, Faculty of Education, Kasetsart University, Thailand Research Fund and Office of Higher Education Commission, Thailand for the opportunity and the research funds.

References

- Arends, R.T. 2009. **Learning to Teach**. 8th ed. New York: McGraw Hill.
- Creswell, J.W. 2009. **Research Design Qualitative, Quantitative, and Mixed Methods Approaches**. 3rd ed. Los Angeles: SAGE.
- Fraenkel, J.R. and Wallen, N.E. 2003. **How to Design and Evaluate Research in Education**. 5th ed. Boston: McGraw Hill.
- Gall, J.P. Gall M.D. and Borg, W.R. 2005. **Applying Educational Research**. 5th ed. Boston: Pearson.
- Killen, R. 2007. **Effective Teaching Strategies**. 4th ed. United State: Thomson.
- Koshy, V. 2005. **Action Research for Improving Practice A Practice Guide**. London: Paul Chapman Publishing.
- Mertens, D.M. 2010. **Research and Evaluation in Education and Psychology**. Los Angelis: SAGE.

Moore K.D. 2005. **Effective Instructional Strategies from Theory to Practice**. California: SAGE.

Moreno, R. 2010. **Educational Psychology**. United State of America: Wiley.

Nancy, T. , Wuetherick, B., and Healey, M. 2008. “International Perspectives on Student Awareness, Experiences and Perceptions of Research Based Teaching and Learning”. **International Journal for Academic Development**. 13 (3) : 199 – 211.

Orlich, C.D and Others. 2010. **Teaching Strategies A Guide to Effective Instruction**. 9th ed. Boston: Wadsworth.

Punch, F. K. 2009. **Introduction to Research methods in Education**. Los Angelis: SAGE.

Reijo, B. and others. 2009. “Educating Inquiry-Oriented Teachers : Students’ Attitudes and Experiences towards Research-based Teacher Education”. **Educational Research and Evaluation**. 15(1) : 79 -92.

Reijo, B., B. and others. “Educating Inquiry-Oriented Teachers : Students’ Attitudes and Experiences towards Research-based Teacher Education”. **Educational Research and Evaluation**. Vol.15 (2009) : p.79 -92.

Schmuck, R.A. 1997. **Practical Action Research**. California: Corwin Press.

Schonweetter, D.J. , Clifton, R.A. and Perry, P.R. 2002. “Content Familiarity: Differential Impact of Effective Teaching on Student Achievement Outcomes”. **Research in Higher Education**. 46(6) December 2002. P 625- 655.

Stringer, E. 2008. **Action Research in Education**. 2nd ed. New Jersey: Pearson.

Tan, L., Wang, M. and Xiao, J. 2010. “Best Practice in Teaching Online or Hybrid Course: A Synthesis of Principle”. **Springer-Verlag Berlin Heidelberg**. 6248. P 117-126.