RIGOR IN QUALITATIVE RESEARCH: A COMPARATIVE STUDY OF QUALITATIVE DOCTORAL DISSERTATIONS SUBMITTED TO UNIVERSITIES IN THE USA AND THAILAND 2001-2010

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ABSTRACT

The objective of this study is to explore the current practices of an application of rigor strategy in qualitative research conducted by Ph.D. candidates in the USA and in Thailand. To guide the study three questions were posed: (1) has the researcher explicitly identified rigor issues in the research? (2) Is literature related to rigor reviewed and presented? (3) What rigor strategies are identified and applied? To answer these questions the concept of rigor, rigor strategies, and the application of rigor strategy in qualitative dissertations were reviewed. Ten qualitative dissertations each conducted by Ph.D. candidates from 2001-2010 in the USA and in Thailand were selected for review and evaluation. Discussions, conclusions and recommendations were then made. The findings of this study reveal that the conduct of qualitative research in the USA is more advanced than those conducted in Thailand in terms of rigor in qualitative research. At the same time major improvement is needed in the conduct of qualitative research in Thailand. This indicates that there is a lack of knowledge and understanding of the importance of rigor of research especially in qualitative research. There is also a lack of knowledge and understanding of rigor issues, rigor criteria and strategy and how to apply them in qualitative research. To improve the current situation in Thailand the following recommendations are made: (1) all research training courses should include the rigor issue; (2) university research courses should include rigor issues in research especially in qualitative research; (3) rigor of research awareness programs should be developed and implemented to create awareness of all research stakeholder groups.

Keywords :*Qualitative Research, Rigor, Rigor Criteria, Rigor Strategy, Qualitative Dissertation.*

INTRODUCTION

This paper is adapted and expanded from the original study of "Rigor Strategies Application in Qualitative Research: A Study of Qualitative Doctoral Dissertations Submitted to Universities in Thailand 2001-2010" (Joungtrakul *et al.* 2012). A study of rigor strategies application in qualitative research (QR) doctoral dissertations submitted to universities in the USA during 2001-2010 was made and added to this paper. It aims to understand the current practices of the application of rigor strategy in QR conducted by Ph.D. candidates in the USA and Thailand. To guide the study three questions were posed: (1) has the researcher explicitly identified rigor issues in the research? (2) Is literature related to rigor reviewed and presented? (3) What rigor strategies are identified and applied? To answer these questions the concept of rigor, rigor strategy, and the application of rigor strategy in QR dissertations were reviewed. The review of several concepts in this part is adapted from the original study by Joungtrakul, et al., 2012. Ten QR dissertations conducted by Ph.D. candidates from 2001-2010 in the USA were selected and evaluated against the three posed questions. A comparison of this study was made with the study of ten QR dissertations submitted to universities in Thailand made in the original study by Joungtrakul, et al. (2012), and similarities and differences were identified. Discussions, conclusions and recommendations were then made. The limitations of the study follow.

THE CONCEPT OF RIGOR

As described by Joungtrakul, *et al.*. (2012), Lincoln & Guba (1985) suggested that, to be asked to ensure the trustworthiness of their study, researchers should focus on the following questions: (1) how can the investigator establish confidence in the "truth" of the findings of a particular study?; (2) How can the investigator determine the extent to which the findings of the particular study have applicability in other contexts or with other participants?; (3) How can the investigator determine whether the findings of the study would be repeated if the study were replicated with the same or similar participants in the same or similar context?; and (4) how can the investigator establish the degree to which the findings of the study are determined by the participants and conditions of the study and not the biases, motivation, interests, or perspectives of the researchers? They further argued that trustworthiness is demonstrated through credibility, transferability, dependability, and confirmability. They suggested specific strategies be used to attain trustworthiness such as negative cases, peer debriefing, prolonged engagement and persistent observation, audit trails and member checks (Morse *et al.*, 2002).

However, Morse, *et al.*. (2002) expressed their concerns that "there has been a tendency for qualitative researchers to focus on the tangible outcomes of the research… rather than demonstrating how verification strategies were used to shape and direct the research during its development." (p. 17). They further elaborated that "while strategies of trustworthiness may be useful in attempting to evaluate rigor, they do not in themselves ensure rigor. While standards are useful for evaluating relevance and utility, they do not in themselves ensure that the research will be relevance and useful." (p. 17). They argued that strategies for ensuring rigor must be built into the process of the qualitative research and proposed the following strategies: (1) investigator responsiveness; (2) methodological coherence; (3) theoretical sampling and sampling adequacy; (4) an active analytical stance; and (5) saturation. They argued that "these strategies, when used appropriately, force the researcher to correct both the

direction of the analysis and the development of the study as necessary, thus ensuring reliability and validity of the complete report" (p.17).

In addition, there are many approaches to qualitative research including those from the work of Glaser & Strauss (1967) on grounded theory, Yin (1994) on case study research, Miles & Huberman (1994) on qualitative data analysis, Patton (1990) on triangulation etc. These approaches have some differences of rigor consideration. For instance, a multiple-case design within the positivist tradition (Yin, 1994), has its basics in the natural sciences which takes an objective physical and social world that exists independent of humans. The major role of researchers is to discover this reality by crafting precise measures that will find out and measure those dimensions of reality that the researcher is interested in it. However, the critical point is the understanding of phenomena, a primary problem of modeling and measurement (Orlikowski & Baroudi, 1991). Therefore, it is necessary for the researcher to consider seriously in order to understand what is the real phenomenon including the entire context of that phenomenon to ensure validity and reliability of the results.

Lincoln & Guba (1985) summarize rigor strategies to be used for each criterion of credibility, transferability, dependability, and confirmability in Table 1.

TABLE 1: RIGOR STRATEGIES FOR QUALITATIVE RESEARCH

Criterion Area	Technique

Credibility	(1) activities in the field that increase the probability of high credibility
	    (a) prolonged engagement
	    (b) persistent observation
	    (c) triangulation (sources, methods, and investigators)
	(2) peer debriefing
	(3) negative case analysis
	(4) referential adequacy
	(5) member checks (in process and terminal)
	(6) thick description

Transferability Dependability	(7a) the dependability audit, including the audit trail
Comfirmability	(7b) the confirmability audit, including the audit trail
All of the above	(8) the reflexive journal

Source: Lincoln & Guba, 1985, p. 328.

To be the basis for further understanding of rigor strategy application in qualitative research a review is made on some rigor strategy for qualitative research in the following section.

RIGOR STRATEGY FOR QUALITATIVE RESEARCH

Rigor strategy refers to the measures that the researcher uses in controlling and enhancing the quality of qualitative research (Joungtrakul, et al., 2012). Miles & Huberman (1994) provide 26 tactics for drawing and for verifying conclusions. They classified the strategies into 13 groups: (1) checking for representativeness; (2) checking for researcher effects; (3) triangulating; (4) weighting the evidence; (5) checking the meaning of outliers; (6) using extreme cases; (7) following up surprises; (8) looking for negative evidence; (9) making if-then tests; (10) ruling out spurious relations; (11) replicating a finding; (12) checking out

rival explanations; and (13) getting feedback from informants. Some of the most frequently used strategies in these groups are triangulation, member checking and researcher as the research instrument. Creswell (2009) provides eight primary strategies, "organized from those most frequently used and easy to implement to those occasionally used and more difficult to implement" (p. 191). These include: (1) use triangulation techniques; (2) use member checking; (3) use rich, thick description; (4) clarify the bias the researcher brings to the study; (5) present negative or discrepant information; (6) spend prolonged time in the field; (7) use peer debriefing; and (8) use an external auditor. Seale (1999) suggests four major strategies: (1) triangulation; (2) member validation; (3) analytic induction; and (4) search for negative instances. Whiteley (cited in Joungtrakul, 2010) concentrates on four major strategies: (1) authenticity; (2) triangulation; (3) audit trail and (4) familiarization study.

Generally, most rigor strategies in qualitative research are based on the participants' theories which assist researchers to theorise about contexts (Whiteley, 2011), as Bashir, *et al* (2008) stated that "the qualitative researcher often goes to the site of the participant, enabling him or her to develop a level of details about the individual or place to be highly involved in actual experiences of the participants" (p. 38). In particular, the voice of the participant is utilized gratefully in the data analysis step, including following the data in terms of organizing it into concepts and constructs (Whiteley, 2011). Moreover, Bashir, *et al.*(2008) indicated that "in qualitative studies multi-method approaches has been employed by the researcher towards the generalizability of the research that is to enhance the reliability and validity of the research" (p. 41). However, they suggest that "researcher bias is able to be minimized if the researcher spends enough time in the field and employ multiple data collection strategies to corroborate the findings" (p. 41).

RIGOR STRATEGY APPLICATION IN QUALITATIVE RESEARCH

In practice rigor strategy is usually explicitly presented in a separate section of the dissertation proposal and the text of the final report. Literature related to rigor is presented followed with an identification of a specific rigor strategy to be used in the research along with the rationale justifying why the researcher selected such a rigor strategy to be applied in the research. For example, Hocking (2002) presents a rigor strategy section on authenticity in her dissertation as follows:

> Educative authenticity was achieved because all the respondents were familiar with research processes as the majority had university degrees and essentially the research was about gaining the respondent's understanding of their world. In addition the researcher attempted to clarify and answer questions that were posed by the respondents as openly as possible. Catalytic authenticity was ensured by an informed consent contract as it contained the usefulness of the research and its future application. Tactical authenticity was ensured because the ownership of the data will always lie with the respondents due to the confidentiality placed on their identity and of the organization (pp. 134-135).

Further discussions and examples of rigor strategy application in qualitative research can be found in Hocking (2002); Joungtrakul (2009); Nitimanop (2005); and Siriwaiprapan, (2000). The application of rigor strategy in QR dissertations conducted in the USA is presented next.

THE APPLICATION OF RIGOR STRATEGY IN QUALITATIVE RESEARCH DISSERTATIONS CONDUCTED IN USA

Ten qualitative dissertations conducted by Ph.D. candidates in the USA during 2001-2010 were selected based on the purposive and convenience techniques for review and evaluation. The data and information reviewed and evaluated is mostly based on the methodological and analytical parts of the studies. A summary of each study is illustrated in Table 2.

TABLE 2: THE APPLICATION OF RIGOR STRATEGY IN QUALITATIVE RESEARCH DISSERTATIONS CONDUCTED IN USA 2001-2010

Case	Rigor Issues Identified	Rigor Literature Presented	Rigor Strategy Applied	Remarks
Case 1	yes	yes	Triangulation, member checks, peer debriefing, and a reflective journal were applied to ensure rigor in the study. (pp.100-102)	An explanation of rigor strategy is clear in both reviewing literature and applying.
Case 2	yes	no	*Triangulation*, diverse types of documents and sources were reviewed for study to avoid the undue influence of any one source. (p.167) *Negative case sampling* was utilized for analysis, and units of analysis were drawn from a broad and varied number of documents selected *based on the authenticity and academic or journalistic standing* of the document and its source of publication. (p.167) To promote validity, data collection focused on *direct, verbatim quotations* and on information found in multiple sources. . (p.168) *Avoidance of personal prejudice*, using direct and verbatim quotations to add to the authenticity or realism of results and to serve to enhance the methodological quality of the work (p.169) Sources that had as their obvious aim *propaganda or defame the participant were either rejected* as unacceptably biased or were not trusted as the sole source of any one unit of analysis. (p.169) The study consisted of *a purposeful sample of persons* who were representative of the critical elements of the phenomena of interest. This match between participant variables and the central constructs of the study adds to its validity. (p.170)	An explanation of rigor strategy applying is clear. However, rigor literature review were presented only as references but did not explain thoroughly in the background and detail of those information.

Case	Rigor Issues Identified	Rigor Literature Presented	Rigor Strategy Applied	Remarks
			The *use of published text* prevents reactivity effects in the sense that statements were not tailored to conform to the projected or assumed focus of this study. (p.170) *A second coder was recruited and trained to categorize verbatim and identical units of analysis sets* to promote or reinforce the reliability and validity of coding procedures. (p.170)	
Case 3	yes	no	A *field test* to check the validity and reliability of the researcher's interview instrument. (p.27) *Transcribing the results of the interviews in their entirety* to allow the reader to compare and contrast the answers to the questions contained in the interview instrument. (p.27)	An explanation of rigor strategy applying is not clear, just presenting about how to ensure the quality of instrument, interview questions and representation the real answering of participants with transcribing their explanation.
Case 4	yes	yes	*Incorporating secondary data collected through program documents* strengthened the internal validity of study outcomes. (p.56) *Piloting the interview process* promoted rigor and assured that the construction of questions and conversational techniques effectively yielded in-depth descriptive data. Participants' responses to the interview questions confirmed the viability of the interview format. (p.64) Several strategies were applied in the qualitative tradition, embedded processes contributed to validity (Yin, 2003), such as *protocols, triangulation, and data crosschecks throughout the research process minimized researcher bias and assured accurate and credible reporting* (pp.70-71) The use of an *interview Matrix* promoted consistency in the data gathering process (Yin, 2003). (p.71) *Semi structured interviewing* involved the consistency of thematic exploration through questions that framed general concepts according to the evaluation's purpose (Maxwell). (p.72)	An explanation of rigor strategy is clear. It is not in the section of validity, but is also explained in other research procedures. It is divided into two major parts of validity: internal validity and external validity.

Case	Rigor Issues Identified	Rigor Literature Presented	Rigor Strategy Applied	Remarks
			The issue of transferability addressed feasibility in applying the evaluation design and methodology to similar program settings (Yin, 2003). Transferability of the study's evaluation design to other formative evaluations is cogent with external validity. (p.72)	
Case 5	yes	yes	*Triangulation,* five triangulation techniques were employed. First, a triangulation technique was to evaluate alternative approaches to categorizing the data. Second, analytical triangulation was also used, four of the five participants met with the researcher to review the results of the analysis. The third technique employed was the use of multiple data sources. The sources included multiple participants, combining interview data with field notes, and observations. The fourth technique was the comparison of the results with the findings from Hill's (1993) study. The fifth triangulation method was that the researcher, having made the transition personally, was able to review the results and verify that they were valid based upon personal experience. (pp.75-76) *Test of credibility,* an external methodology review of this study was conducted, that the reviewer has a Ph.D. in Sociology and teaches graduate courses in qualitative research methods. (p.77) Using *the data directly from the source* when possible and *rich, detailed, and concrete descriptions of people and places were used* for understanding the phenomenon studied and drawn our own interpretations about meanings and significance. (p.78) *Using many participant quotes* allowed the participants in the study to speak for themselves and researchers *studying different topics* can consider the quotes from the framework of their research and better determine the transferability. (p.78)	An explanation of rigor strategy is clear.
Case 6	yes	yes	Data check transcribed interviews returned to respondents. (member checking) (p.67) Taking detailed notes of program participation, document participant interviews, and comments. (p.80) A second coder was trained in the coding process. (p.80) An initial intercoder reliability rate was used by following the formula recommended by Miles and Huberman	An explanation of rigor strategy is just a small part. Literature review was focused only on the importance of the data analysis step. Rigor section was presented in the topic of validity and

Case	Rigor Issues Identified	Rigor Literature Presented	Rigor Strategy Applied	Remarks
			(1996, p. 64). The coefficient of reliability can be interpreted as the percentage of observed agreement between the coders. Reliability rates that fell within the range of the 70% and 90% agreement levels recommended by Miles and Huberman (1996, p. 64), and suggest that the coding schemes were valid as applied. (pp.80-81) *Triangulation*: using at least three methods of data collection, interviews, documents, observation and participation, and an auto-ethnographic essay.	reliability and it was calculated as the method of quantitative study. It does not indicate clearly in the rigor section for the triangulation technique, employed in the study.
Case 7	yes	yes	Pilot study (p. 78) Training Interpreters (p. 78) The methodology of *participant observation* was used to improve the validity of the data obtained from the interviews. It is as the mean of triangulation. (p.81, p.89) *The verbatim transcription* approach as "Rich Data" was used to improve the quality of the data. (pp.83-84) *Member checking*: A member check involves providing all or a portion of a final report to people who have served as participants on the project, that is, who are the members of the sample. (p.90)	An explanation of rigor strategy is clear. It is not only presented in the quality of data section but also explained in each step of research procedure, such as "Process of Conducting the Research" and "Analysis Strategy."
Case 8	yes	yes	Qualitative reliability is determined by *conducting identical interviews* with African-American human service employees *at different points in time*. (p.66)	Literature review is just the brief concept of validity and reliability, mostly shows only the picture of the quantitative approach. It is not presented clearly for rigor strategy of the qualitative approach both literature review and application. It is indicated as only a part of reliability.
Case 9	yes	yes	Validity was measured based upon *content, criterion-related, concurrent, predictive, and construct types*. Judgment of the content was both digital (software) and human interpretation (researcher). The criteria involved four qualities (relevance, freedom from bias, reliability, and availability) to preserve the validity of the data. The construct validity was derived	An explanation of rigor strategy is just small part, as validity and reliability. Similarly, literature review is just the brief concept of validity and reliability.

Case	Rigor Issues Identified	Rigor Literature Presented	Rigor Strategy Applied	Remarks
			from the common themes (thoughts and ideas derived from the interviews) found while utilizing the software. (p.86)	
Case 10	yes	yes	*Pilot test*: Using the protocols approved by the Institutional Review Board (IRB), it aims to assist the researcher in developing a more concise and relevant line of questioning. The pilot study results confirmed its goal, which was to ensure that the instrument and guide were understandable, concise, and viable. (pp. 57-58) *Reporting sufficient details about the process of data collection and analysis* to enable other researchers to assess the quality of research findings. (p.56), given *the phenomenon* of executive perceptions and experiences. (p.56) *Member-checking*, peer information, peer debriefing, external auditors, and clarifying bias were applied to this study. (p.56) Much of the trustworthiness that was achieved in this project was gained by the *use of the ATLAS/ti software package.* (P.57)	An explanation of rigor strategy is clear.

As shown in Table 2, most of QR dissertations conducted in the USA have provisions to deal with rigor issues although some of them did not explicitly identify the rigor section in the dissertations. Almost all of the QR dissertations reviewed identified ethical issues and presented rigor related literature and rigor strategy and its application in the dissertations. Only two (case 2 and 3) out of ten cases did not provide a literature review related to rigor. One important point is that although rigor issues were identified and literature was presented and rigor strategy and its application were present the presentation was made in terms of validity and reliability as in quantitative approach. The application of rigor strategy in QR dissertations conducted in Thailand is presented next for comparative purposes.

THE APPLICATION OF RIGOR STRATEGY IN QUALITATIVE RESEARCH DISSERTATIONS CONDUCTED IN THAILAND

Ten qualitative dissertations conducted by Ph.D. candidates in Thailand during 2001-2010 were selected based on the purposive and convenience techniques for review and evaluation. The data and information reviewed and evaluated is mostly based on the methodological and analytical parts of the studies. A summary of each study is indicated in Table 3.

TABLE 3: THE APPLICATION OF RIGOR STRATEGY IN QUALITATIVE RESEARCH DISSERTATIONS CONDUCTED IN THAILAND 2001-2010

Case	Rigor Issues Identified	Rigor Literature Presented	Rigor Strategy Applied	Remarks
Case 1	No	No	No	
Case 2	No	No	No	
Case 3	Yes	No	Triangulation	A short statement indicating rigor issue is made in the research procedure section (p. 92).
Case 4	Yes	No	Data examination through Delphi Technique.	A short statement indicating rigor issue is made in the research procedure section (p. 68).
Case 5	Yes	No	A general statement indicating that an examination of results with experts was made to ensure proper understanding with informants.	It is not clear what rigor strategy is being applied in this study.
Case 6	Yes	No	Methodological Triangulation.	An explanation of rigor strategy is not clear.
Case 7	No	No	A general statement indicating that the researcher takes the result of data analysis to present in a workshop conducted with key informants to ensure mutual understanding.	It is not clear what rigor strategy is being applied in this study.
Case 8	No	No	No	
Case 9	Yes	Yes	Triangulation	A brief statement making reference to literature on rigor is made.
Case 10	Yes	Yes	Triangulation	A brief statement making reference to literature on rigor is made.

Source: Joungtrakul, et al., 2012.

As shown in Table 3, Joungtrakul *et al.* (2012), there are six cases (Cases 3, 4, 5, 6, 9 and 10) out of ten qualitative dissertations reviewed indicated rigor issue in the report of study. However, explanation on the rigor issue is rather brief and insufficient to demonstrate that the researcher has a thorough knowledge and understanding of it in qualitative research. Four cases (Cases 1, 2, 7 and 8) make no mention about it at all. None of the studies reviewed and

presented literature related to rigor with the exception of two studies (Case 9 and 10) where the researchers made a brief statement referring to literature on rigor. However, the brief statement provided is not sufficient to demonstrate that the researcher has sufficient knowledge in the rigor issue in qualitative research and skills in application of it in qualitative research. There are seven cases (Cases 3, 4, 5, 6, 7, 9 and 10) identifying and indicating the application of rigor strategy. However, most of the rigor strategies identified were not clearly explained. Although triangulation was mentioned in four cases (Cases 3, 6, 9 and 10) no detailed explanation were made. There are three cases (Cases 1, 2 and 8) that make no mention about rigor strategy identification and application.

COMPARISON OF RIGOR STRATEGY APPLICATIONS IN QR DISSERTATIONS CONDUCTED IN THE USA AND THAILAND 2001-2010

Based on the review made in Tables 2 and 3, a comparison of the results was made based on the three questions posed. It was found that: (1) All of dissertations conducted in the USA identified rigor issues in the research, while there are only six dissertations conducted in Thailand during the same period which presented rigor issues in the research; (2) The text of the report of dissertations conducted in the USA explained rigor literature clearer than those dissertations conducted in Thailand; (3) Most of dissertations conducted in the USA explained the concept and theories of rigor in the report of the study. In contrast, those dissertations conducted in Thailand presented just a brief statement referring to rigor literature; (4) One similarity identified in this study is that triangulation is mostly used in dissertations conducted in the USA and Thailand; and (5) dissertations conducted in the USA described more detail about the application of rigor strategies in the report than those dissertations conducted in Thailand.

DISCUSSION

The discussion of the findings in this study first is made corresponding to the three questions posed. Having replied to the three questions a general discussion follows.

In replying to the first question of: (1) has the researcher explicitly identified rigor issues in the research? In the case of the studies conducted in the USA all studies identified rigor issues. In the case of the studies conducted in Thailand, it was found that from ten QR dissertations reviewed, there are only six studies which presented ethical issues.

In replying to the second question of: (2) Is literature related to rigor reviewed and presented? In the case of the studies conducted in the USA, it was found that there are only two out of ten cases that did not provide a literature review related to rigor. In the case of the studies conducted in Thailand, it was found that there are two studies where the researchers made a brief statement referring to literature on rigor. However, the brief statement provided is not sufficient to demonstrate that the researcher has sufficient knowledge in rigor issue in qualitative research and skills in application of rigor strategy. It is essential that the Ph.D. candidates express their rigor knowledge through the presentation of literature as many of them will become professional researchers when they have completed their Ph.Ds.

In replying to the third question of: (3) What rigor strategies are identified and applied? In the case of the studies conducted in the USA most studies identified rigor strategies. Several

rigor strategies were identified and applied in different studies including triangulation and negative cases identification. However, triangulation was the greatest rigor strategy identified and applied. In the case of the studies conducted in Thailand, it was found that there are seven cases which identified and indicated the application of rigor strategy. However, most of the rigor strategies identified were not clearly explained. Although triangulation was mentioned in four cases no detailed explanation was made. There are three cases that make no mention about rigor strategy identification and application. It should be noted that triangulation is the most well-known rigor strategy using in both the studies conducted in the USA and Thailand.

The above findings reveal that improvement is needed in conducting QR in Thailand. This study reviews ten QR Ph.D. dissertations conducted by ten candidates. As elaborated in the original study by Joungtrakul *et al.*. (2012) that the major objective of the Ph.D. process is to produce professional researchers it is the comprehensive training in which its final product is a Ph.D. dissertation (Phillips & Pugh, 1994). Thus the Ph.D. must be an authority of both methodology and subject matter of the dissertation (IUBMB, 2006; Phillips & Pugh, 1994). Since rigor is one of the most important components of QR they must have thorough knowledge of rigor issues and strategies and be able to apply them in conducting research properly. In addition, one of the functions of the Ph.D. is to learn to teach, so it is very important that they teach especially the teaching of undertaking research properly both in terms of subject matter, content and methodology. If they do not understand and do not realize the importance of rigor in research it will be very difficult to expect them to teach rigor and the application of rigor strategies in research. This is a serious problem that needs early resolution as Morse, et al. (2002) argued that "without rigor, research is worthless, becomes fiction, and loses its utility" (p. 14). So, "all research must respond to canons of quality-criteria against which the trustworthiness of the project can be evaluated" (Marshall & Rossman, 1999, p.191). It was argued that "unless you can show your audience the procedures you used to ensure that your methods were reliable and your conclusions valid, there is little point in aiming to conclude a research dissertation" (Silverman, 2000, p.175).

One of the major causes of this situation might be that we have been concentrating on teaching quantitative research in Thailand (Joungtrakul *et al.*, 2012; Joungtrakul, 2010; Joungtrakul, 2007; Joungtrakul, Aticomsuwan, & Someran, 2011). Although rigor is important to all kinds of research, however, due to its nature, qualitative research requires more attention to rigor issues. The Association of Researchers plays a key role in research training but rigor issues are not emphasized. Joungtrakul (2010) points out ten stakeholder groups of QR in Thailand requiring more knowledge and understanding of QR and rigor issues in QR. They are: (1) educational institutions who design curricula and produce professional researchers; (2) faculty members who teach research; (3) supervisors who supervise theses and dissertations; (4) students who are conducting research for their theses or dissertations; (5) professional researchers who conduct research for their clients; (6) funding organizations who support research projects; (7) experts or peers who review research papers or reports; (8) users of research; (9) the research community; and (10) the general public. Awareness of all stakeholder groups of the importance of rigor in research especially in QR would help improve the current situation and that rigor should be included in all phases of research from the beginning of identifying the needs for research to the conclusion of the research process (Joungtrakul, 2009, 2010; Joungtrakul *et al.* 2012; Whiteley, 2002).

CONCLUSIONS AND RECOMMENDATIONS

The findings of this study reveal that samples of qualitative studies conducted in the USA are more advanced than those conducted in Thailand in terms of rigor in qualitative research. At the same time major improvement is needed in the conduct of QR in Thailand. It indicates that there is a lack of knowledge and understanding of the importance of rigor issues in conducting research especially in QR. There is also a lack of knowledge and understanding of rigor issues, rigor strategies, and how to apply them (Joungtrakul, et al., 2012).

To improve the current situation in Thailand the following recommendations are made: (1) all research training courses should include rigor issues; (2) university research courses should be revised to include rigor issues; (3) rigor in research awareness programs should be developed and implemented to create awareness of all research stakeholder groups (Joungtrakul, et al., 2012).

LIMITATION OF THE STUDY

Although this study indicates some critical issues in rigor in qualitative research conducted in the USA and in Thailand there are some limitations. This study reviewed ten QR studies conducted by Ph.D. candidates in Thailand and another ten conducted in the USA during 2001-2010. These studies were selected based on the purposive and convenience techniques. It cannot be claimed that these studies represent all QR dissertations conducted in Thailand or the USA. In addition the ten Thai studies selected are written in Thai language. Those dissertations submitted by Ph.D. candidates in English in Thailand or in international programs are not included. At the same time the selection of ten QR dissertations conducted in the USA were also made based on the purposive and convenience techniques. It cannot be claimed that these studies represent all QR dissertations conducted in the USA. In addition the data and information reviewed and evaluated is mostly based on the methodological and analytical parts of the studies. A more rigorous study should be conducted for generalization purposes.

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