Developing a Pilot Test for an Empirical Research on Managerial Competency in Thailand's Public Health Sector

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Abstract

The aim of this paper is to show the process of conducting a pilot test on rural managers' managerial competency conducted in the primary healthcare units in Patthalung- a province in southern Thailand. This paper explains the justification process of developing the instrument prior to the main doctoral study. The instrument comprises five parts - personality, motivation, organizational culture, managerial competency, and respondent's personal background. The pilot testing process was divided into six steps respectively; firstly, the researcher asked one bilingual expert to translate the questionnaire from English to Thai language. Then, the managerial competency elements were cross-checked with the heads of department of the Provincial Public Health Office in Thailand's Songkhla Province. Next, five experts in healthcare industry were asked to critique the instrument. After that, three primary care unit managers were randomly selected to read and answer the full set of questions as well as to validate its content in line with the Thai culture. After that, the researcher asked another bilingual expert to translate the said questionnaire back from Thai into English. Finally, 110 questionnaires were mailed to public health managers in Patthalung province and they then were analyzed using the mean and percentage methods. The techniques that were used for developing the instrument were the Delphi technique, the small group technique, the forward translation, the back translation, the survey technique, and the telephone interview. Overall, the researchers believe that the pilot test had helped to improve the quality and the efficiency of the instrument in determining the managerial competencies of primary care unit managers.

Keywords: *healthcare sector, managerial competency, pilot test, primary care unit manager, Thailand*

INRODUCTION

The Public health sector is an important sector in the public service of any country as it contributes to the quality of life of its citizens. This sector is being run by health professionals namely the nurses, the medical specialists and the managers. These professionals require a high degree of competency to perform their duties. But many studies seem to focus on competencies of nurses and medical specialists only (Irvine, 2005; Joseph Harrison, 2005, Thom et al., 2006). Research on managerial competency of managers especially on those managers based in rural centres are few. Health managers are important to health organizations. For example in Thailand, primary care units' (PCUs) managers are one of the executive positions that are listed under the Thailand's Ministry of Public Health. These managers are based in the PCUs in the sub-districts of specific provinces. These managers can be considered as rural managers or those managers who are based outside of the headquarters of most organizations (Head offices are usually located in the cities or urban areas). There are few reports in the literature that mention their job specific competencies. But many literatures in Europe and in Australia had shown that there were studies made on health executive organizations. However, there was no clear evidence that the studies were about frontline or rural managers.

The primary care unit managers have been given a heavy responsibility of ensuring that quality health is provided to the rural public in Thailand. Thailand's Ministry of Public Health (TMPH) had introduced the quality evaluation system throughout its public health service in 2003. But very few PCUs were able to meet the quality service standard set by TMPH. The speculated reasons for this after making some analysis of the literature are found to be as follows: 1) there is no "competency assessment" available for managers in PCUs; 2) the competency model used for PCUs Managers is probably not effective; 3) there is no clear evidence whether the PCU managers know their roles and have the required skills, and 4) at present the

PCU managers are suspected to be unable to push PCUs up to an acceptable quality level. In order to enable the PCU managers to provide excellent services to the public, the health organizations need to have extensive knowledge in two areas: 1) knowing the managerial competencies of the PCU managers and 2) knowing the important factors that determine the competencies of these managers (Nirachon *et al*., 2007).

Before we indulge into full-scale research, we believe that a pilot study is extremely important to help us in preparation for the major study. The term 'pilot study' refers to a mini version of a full-scale study (also called 'feasibility' study), as well as the specific pre-testing of a particular research instrument such as a questionnaire or interview schedule (Teijlingen & Hundley, 2001). Pilot studies are a crucial element of a good study design. No doubt conducting a pilot study does not necessarily guarantee success in the main study, but it does increase the likelihood of its success. Pilot studies fulfill a range of important functions and can provide valuable insights for other researchers. There is a need for more discussion amongst researchers of both the process and outcomes of pilot studies (ibid). A well-conducted pilot study, giving a clear list of aims and objectives within a formal framework will encourage methodological rigor, ensure that the work is scientifically valid and publishable (Lancaster *et al*., 2004). This paper aims to show the process of conducting a pilot test on the primary care unit managers' managerial competency conducted in southern Thailand.

THE PROCESS OF DEVELOPING THE INSTRUMENT

The study began with translating the language of instrument. Subsequently other techniques were used such as the Delphi technique**,** a report of experts' work, a small group discussion, a back translation, a survey, and a telephone interview respectively**.** The sequence of the process is described below**.**

Step 1: Forward translation

The instrument comprises five parts - personality, motivation, organizational culture, managerial competency, and respondent's personal background. Altogether there are 210 items; personality - 44 items, motivation - 14 items, organizational culture - 20 items, managerial competency - 120 items, and respondent's personal background - 12 items. Firstly, the researcher asked one bilingual expert to translate the prepared English questionnaire into Thai. The objective of the forward translation is to ensure that the survey questionnaire in Thai conveys the intended meaning to the Thai respondents.

Step 2: A Delphi technique

Many techniques had been used in the past to identify competency in health organization. They were either based quantitative or qualitative methods as follows:

1) Quantitative methods are survey questions (Mcdougal *et al*., 2005; Scutchfield *et al*., 2002). Some surveys used fax or e-mail (Johnson & King, 2002).
2) Qualitative methods use group process, interview, and reviewed documents. Group process are such as focus group (Gebbie & Merrill, 2002; Kreitner *et al*., 2003; Mcdougal *et al*. 2005; Nelson *et al*., 1996; Scutchfield *et al*., 2002), nominal group technique or NGT (Mcdougal *et al*. 2005; Shewchuk *et al*., 2005; Wright, *et al*., 2000), a card-sorting task (Shewchuk *et al*., 2005), expert participation in session (Knox & Spivak, 2005), and Delphi technique (Decker *et al*., 2002; Hughes, 2004). Interviews are open-ended interviews (Robbins *et al*., 2001), and a telephone interview (Johnson & King, 2002). Reviewing documents that they were seen in a review of the published peer review literature, published research reports, monographs and textbooks (Robbins *et al*., 2001; Scutchfield *et al*., 2002; Wright, *et al*., 2000).

In the competency identification stage, the researcher had drafted the potential competencies based on the organizational literature and these draft competencies were validated and expanded using the Delphi technique. This process did not use the NGT and the focus group although they do have some potential benefits. But NGT and focus group can be time consuming, very difficult to establish priority, and to find closure or agreement (Mcdougal *et al*., 2005). Decisions from various people involved were difficult to

make and sustain. The deliberation process was often slow and dominated by the "tyranny of the urgent," so that discussions continued until deadlines for making decisions became imminent (ibid). The process for arriving at a recognized and implemented consensus required knowledgeable participants who could think about and respond clearly to the issues at hand, consider the viewpoints of others, have confidence in the group's ability to rise to the challenge and achieve consensus for the task at hand, and were willing to accept the prevailing collective wisdom of the group (ibid). While as the Delphi technique obtains the opinion of experts without necessarily bringing them together face to face (Stuter, 1996). Including researchers in health organization often used Delphi technique by sending the questionnaires to expert panels (Finstuen & Mangeisdorff, 2006; Gebbie & Merrill, 2002; Hudak *et al.*, 2000; Mcdougal *et al*., 2005; Sims, 1979). Although this method has advantages such as flexibility in data collecting process and the anonymity of experts and responses encourage true opinion that are not influenced by peer pressure or other extrinsic factors, it too has disadvantages namely it is time consuming (Tojib & Sugianto, 2006).

The researchers started by compiling the managerial competencies through an extensive review of the management and organizational literature. One hundred and twenty statements of competency were adopted from competency list found in "The Public Health Competency Handbook: Optimizing individual and Organization Performance for the Public's Health" (Nelson *et al*., 2002). The researchers believe that this competency list is suitable for application in the study of PCU managers in Thailand. The reasons are: 1) the instrument was a tested instrument with the public health agencies in district health (in the United States of America) 2) the American researchers had made distinct classifications such as technical, credentialed/supervisory and senior management, and 3) some competencies were found to be overlapping with the Thailand administration competencies (The Civil Service Commission, 2005) such as visionary leadership. The questionnaire was then given to one Thai bilingual expert to translate the questionnaire from English to Thai as mentioned in step one. After that, a staff who is in charge of the primary care unit quality development based at Songkhla Provincial Public Health Office was asked to read questionnaire (120 competencies), circled items which she could not understand, and discussed them with the researchers to improve the sentences in line with the Thai culture. The staff was responsible for planning, assessment, controlling, and training for all primary care units. The discussion was found to be useful in a practical way because it made the questionnaire clear before the Delphi technique was used.

Next is the Delphi process. The Delphi method is a qualitative research technique that uses a panel of experts who are surveyed on a subject in successive rounds of judgment and feedback to develop a consensus of opinion (Gebbie & Merrill, 2002). It is typically employed in a topic area in which there is little previously documented knowledge (ibid). Twelve senior health executives (heads of department) from Songkhla Provincial Public Health Office were invited to participate as they were deemed to be best qualified to determine baseline competencies for PCU managers. These heads of departments are the people who manage several health units in which are under jurisdiction of the Ministry of Public health and are located in urban or rural area. Their duties briefly (The Civil Service Commission, 1993) cover the setting and assessing health policy, planning, developing the information system, being supervisor. Their duties also include evaluating the performance of health implementation in line with the policy in administration, service and academic such as health promotion, control disease, environmental health, diagnosis, preserve, health recovery, doing research and finding solution in health administration such as to plan for training, and giving suggestions to change the practical regulation. They are in the best positions to evaluate the PCU managers' managerial competency because they are the supervisors to all PCU managers and they organize all jobs which are done in PCUs. On the other hand, PCU managers would do the jobs in every department of the provincial public health office and report their performance to the chiefs or heads of departments. Then, each chief's view could provide the big picture of the PCU manager's managerial competency.

The senior health executives were requested to respond to a general question: "What are the behavioral competencies which PCU managers should be expected to possess today?" This question was adapted from the study of Sim (1979). The questionnaire asked respondents to rate, on a Likert-type format of 1 to 5 from most important to least important (Sim, 1979). The pilot test employed the Delphi technique in three rounds designed to pair the 120 competencies to the critical competencies. The competencies were analyzed for similarities, redundancies, and ambiguities. A mean score for each of 120 competencies was computed. The results kept the competencies with a mean range from 4.0 to 5.0. Although 4.5 mean rating indicated strong

agreement on study of McDougal *et al*. 2005, the researchers did not follow this because we had only obtained 32 items or less than with a score of 4.5 in each round. It was considered that the items were few for further analysis.

During the Delphi technique's Round 1, the 120 - items competency list was sent to the senior health executives. The outcomes were 19 competencies with ambiguity and 32 competencies with less than 4.0 mean score. Some items were modified, deleted, and added. Then, the feedback from Round 1 resulted in a revised consolidated list of 96 important competencies. In Delphi technique's Round 2, the 96 competencies resulting from the first round, along with the specific comments from each participant were distributed to all senior health executives for reconsideration. The outcomes were 16 competencies with ambiguity and 6 competencies with less than 4.0 mean score. Result of Round 2 remained 90 competencies. The third round resulted in a final set of managerial competencies for consideration and consensus. 90 competencies resulting from the second round was review. Only 8 competencies with scoring lower than 4.0 and not any competencies' ambiguity. It remained 82 competencies with scoring mean more than or equal 4.0. This number of competency was considered as a long questionnaire. Subsequently, some items were dropped. The researchers decided to keep the competencies with a scoring mean more than or equal to 4.25 because we could keep all perspectives (client, organization, and community) of the instrument from this point. Hence, the researchers then finalized that there should be 56 competencies. This step consumed the time about three months.

Step 3: The perspective of experts

Five academic experts in health business were invited to critique the instrument. Three of five experts were the directors of Thailand's health service unit who administer PCUs in the Ministry of Public Health, southern region, and district respectively. Their main role is to drive PCUs to achieve the highest goal of good service quality. The other two experts were from a local Thai university. One of them had some experience with community nursing and is the advisor in developing competencies on nurse and manager for PCU in Thailand while the other one is a contributor to various groups in identifying and developing competencies for public health workforce in the United States. It was the latter's research instrument which was used as a benchmark instrument by the researchers in this study.

The instrument was sent to the experts by surface mail and e-mail. It comprised five parts - 44 items of personality, 14 items of motivation, 20 items of organizational culture, 56 items of managerial competency, and 12 items of personal background. So, altogether there were 146 items. After one month, the researchers received all feedback. In addition, the researchers had in-depth discussions with an expert who could communicate directly and asked to clarify some issues which the researchers misunderstood. The expert had provided his opinion on the appropriateness and clarity of the items as suggested by Tojib and Sugianto (2006). All experts pointed out the weaknesses of the instrument. For example, the language of the personality items was either very positive or very negative. Many items were found to be not suitable in Thai culture because the original items were used in the Western context (United Stated and England) and in East Asia (Japan). The researchers needed a cross cultural instrument translation and not just a forward translation. Apart from that, the experts revised some Thai words which were easier to understand in relation to the items of personality, motivation, organizational culture, and personal background and had indicated that some items related to managerial competency were repetitious. For example, a number of managerial competency items could be combined. Two or three items could be combined into one item because the respondents might feel bored with many recurring or repeating items. Some items of those could be discarded altogether because they had similar meaning. Moreover, all questionnaires should be tested by asking the respondents before the full study. Finally, all feedback was gathered to adopt in the next step which remained on 137 items: 44 personality items, 14 motivation items, 20 organizational culture items, 47 managerial competency items, and 12 personal background items.

Step 4: A small group

After the researchers had considered all the experts' feedback, the task then was to determine whether the instrument was sound in the Thai culture as the questions were adopted from abroad. We now realized the

importance of the translation procedure in the study which involves more than just a forward translation. Leplege and Verdier (1994) used back translation technique to develop and validate the measures across language and across culture. They proposed that cultural and conceptual equivalence are more important than a linguistic equivalence. The emphasis should be put on the production of a good and meaningful forward translation. Conceptual equivalence refers to whether the underlying construct assessed by the instrument has the same meaning in each culture (Mallinckrodt & Wang, 2004). Hence, we might conduct some procedure to add strength to the instrument and to incorporate the Thai style. The instrument has to include the language and culture-match to the group being studied. Then, the pilot was planned to include a small group discussion before using back translation. Kim and Lim (1999) adopted the small group discussion by using 4 psychology majors (students) in a Korean graduate school to ensure conceptual equivalence of source and target language versions. In addition, Teijlingen & Hundley (2001) stated that pilot study on a small group is the procedure that can help to prove the internal validity of a questionnaire. Two reasons are usually given for using small groups as a direct entry point to a change process: 1) specific features of group interaction can be utilized to produce the desired effect and 2) a small group may be a strategic point of attack in an attempt either to solve large organizational problems or to effect change in individuals (Back, 1974). Small groups have been important tools in many contexts, especially in religious ritual and some of the dramatic theater performances (ibid). Then, three PCU managers were invited to participate in the group to validate the instrument in Thai style. The random occurred at Muang district, Songkhla province in which the pilot participants were not included in main study. The response was face-to-face communication which according to the study of Lowry *et al.* (2006). Lowry *et al*. (2006) evaluated the impact of varying group size (3 and 6) and social presence on small-group. The results had indicated that smaller groups establish and maintain higher levels of communication quality (ibid). The group was administered to change some words appropriately with Thai culture and to change some questions which the managers do not understand. First, the managers were asked to respond 137 items after the researchers explained the objective of conducting the group discussion. The time consumed was about 30 – 40 minutes to complete each of the questionnaires. Next, the researchers asked the managers for feedback on each item. They were required to identify ambiguities and difficult questions. If the items were clear, the forward translation was assumed to be a good one. Some words in the items could be discarded as they were unnecessary or could be improved to make them easy and obvious. The outcomes were 16 of 44 personality's items, 2 of 14 motivation's items, and 3 of 12 personal background's items were revised but they still had the same meaning with the original. No change was made on the 20 organizational culture's items and 47 managerial competency's items. After that, all questions were translated back from Thai to the English version by another bilingual expert responsible for evaluating translation quality.

Step 5 Back translation

A procedure that is commonly used to test the accuracy of translation in a multicountry research is back translation (Brislin, 1970 cited in Douglas & Craig, 2007). Back translation was initially developed for situations in which a researcher was not familiar with the target language but wanted some assurance that respondents were indeed being asked the same question in that language (Harkness, 2003 cited in Douglas & Craig, 2007). In approaching any multicountry research translation, researchers may encounter two different situations. The first situation occurs when a new instrument is being developed in multiple languages, and the second situation occurs when an instrument has already been developed in one language and needs to be translated into another language or multiple languages (Douglas & Craig, 2007). Back translation is one method for evaluating translation quality, comparing the original English and the back-translated English (Sinaiko & Brislin, 1973). In the back-translation translated technique, the investigator asks one bilingual to translate from the original to the target language, and then he asks another bilingual to translate back from the target to the original (Sinaiko & Brislin, 1973). A weakness is the fact that any mistake in the back translation may be due either to the translator or to the back translator. Thus, even though we evaluate back translation to obtain insights about translation, a perfect translation can be misinterpreted by an incompetent back translator, or a good back translator can "correct" a poor translation (ibid).

Although Sinaiko and Brislin (1973) found that the analysis of back translation showed the frequency and types of translation errors that occurred, this method is still used currently by researchers such as the study on personality trait in Thailand (Smithikrai, 2007), and the German adaptation and standardization of the

Personality Assessment Inventory (Groves & Engel, 2007). This may be due to its advantage that was considered by researchers. For example, back translation is still the primary method used to check translation accuracy in marketing (Douglas & Craig, 2007). A review of the Journal of International Marketing since its inception (1993-2005) identified a total of 45 articles that report surveys that use multiple languages. Of these surveys, 17 were in European languages, 3 were in Russian and Kazakh, 1 was in Arabic, and 28 were in Asian languages (Japanese, Thai, Chinese, Vietnamese, and Korean). In 75% (34) of these, back translation was used (ibid). In addition, Back translation can improve the reliability and validity of research in different languages (Kim & Lim, 1999; Mallinckrodt & Wang, 2004). Study of Kim & Lim (1999) compared the effectiveness of three types of practices applied in Korea in enhancing the validity and equivalency of test instruments when cross- cultural adaptation of attitude measures is necessary. The three types of practices are: (1) translation and review (translation version) (2) translation, back translation, and review (back translation version), and (3) translation, back translation, review, and empirical validation study (validation version). Results showed that the back translation version is superior to the translation version in terms of its similarity to the validation version and construct-related evidence (ibid).

This research used the instruments which have already been developed in the English language such as The Big Five Inventory of John and Srivastava (1999), motivation questionnaire of Brislin *et al*. (2005), and Competing Values Framework instrument of Shortell *et al*. (1995). The three instruments need to be translated from Thai into English language after a small group discussion had been conducted. It was translated by another bilingual expert, not the first bilingual expert used in the forward translation. After that, the researchers compared the source version and the back translation version. The results showed that most of the words in both English versions had the same meaning even though they had not used the same word. For example, 'lazy' with 'idle', 'image of your job' with 'image from your work', and 'my primary care unit distributes rewards based on rank. The higher you are, the more you get' with 'my primary care unit rewards the members according to their levels, the higher level, the more rewards'. We found the error with one item from the back translation such as 'proper work equipment' with 'modern office equipment'. Not only that, one item of the personality dimension had used an excessive word. The source version showed the word used was 'disorganized'. The back translation version was shown as 'disorganized and unplanned'. Then 'and unplanned' was deleted by the researcher in later. It could be explained that the first translation from the original version to Thai version was mistaken. From this finding, the researchers agree with Sinaiko and Brislin's (1973) study.

Apart from the previous instruments, the managerial competency questionnaire is also adopted from the study of Nelson *et al*. (2002). Here the researchers did not compare the translation with regard to the managerial competency items because some items were modified, deleted, and added when they did Delphi technique. The managerial competency items were just translated from Thai to English for presentation in the English version. Finally, all corrections were adapted for the survey in Patthalung province in which the number of item was 137 items comprising 44 personality items, 14 motivation items, 20 organizational culture items, 47 managerial competency items, and 12 personal background items.

Step 6 Survey

A pilot evaluation has several benefits as follows: we can determine whether responses seem appropriate, interview protocols can be tested to ensure that questions are clear and are eliciting intended responses, and surveys can be tested to see whether the questions are clearly written and the response options make sense (Development, 2004). Therefore, the survey was adapted in this study and this was followed by the telephone interview.

The researchers traveled to Patthalung Provincial Public Health Office to seek approval for data collection. The introductory letter from Universiti Utara Malaysia (UUM) was handed to the Provincial Deputy Chief Medical Officer. After that the approval had been obtained, the researchers were given the names and addresses of the PCUs through the email. The population for the pilot study was composed of PCU managers from 110 not-for-profit units which were established in nine community hospitals and 101 health centres of nine districts (Kong Ra, Khao Chaison, Tha mot, Khuan Khanun, Pak Phayun, Siban Phot, Pha Bon, Bang Kaeo, and Pa Phayom) and one sub-district (Srinagarindra) in Patthalung province. The sample

in this study equals the population. The data collection took place from February 2008 through March 2008. The questionnaire was mailed to each participant and was returned by mail to the researchers in self-addressed, stamped envelopes. A detailed cover letter was provided for each envelope. The cover letter provided participants with information about the researchers, as well as delineating the goals of the research project. The researchers ensured the confidentiality of the participant's responses. The researchers explained that the survey would help us to better understand PCU Managers' managerial competency. Forty-seven of the 110 participants completed the questionnaire giving a response rate of 42.7 percent. Only 45 questionnaires were used for the analysis because two un-targets were discarded as they were damaged.

From the findings of the survey, we found that the majority of the participants were females (62%), and married (78%). Majority of the respondents (53%) were between 41-50 years. 62% of participants held a bachelor's degree. All managers did not have similar bureaucratic positions in their PCUs. Some were designated as Public Health Administrative Officers (64%), Public Health Technical Officers (18%), Registered Nurses (11%), and Community Health Officers (7%).

The first part of the questionnaire contained 44 personality items. Participants were asked to indicate the extent to which they agree or disagree with the statement of characteristics, based on this scale; 1 = disagree strongly, 2 = disagree a little, 3 = neither agree nor disagree, 4 = agree a little, 5 = agree strongly. The alpha reliabilities of the personality range from 0.51 to 0.85. The second part of the questionnaire contained 14 personality items. Participants were asked to indicate the extent do they believe the factors of motivation are motivational or can cause they to be motivated at work, based on the following scale; 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = a great deal. The alpha reliability of the motivation is 0.88. The third part of the questionnaire contained 20 organizational culture items. Participants were asked to indicate the statements relate to what their organization's operation is like, based on the following scale; 1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, 5 = strongly agree. The alpha reliabilities of the organizational culture range from 0.27 to 0.78. The results showed that the alpha reliabilities of hierarchical and rational culture are unacceptable because the alpha value is less than 0.5 (George & Mallery, 2006). Hence, the researcher used a telephone interview to seek the problem in later.

The fourth part of the questionnaire contained all 47 managerial competencies. The participants were asked to indicate how often they demonstrate the listed competencies and evaluated them using a five-point scale ranging from 1 (very frequently) to 5 (never). Reliability coefficients for whole items (Cronbach Alpha) were 0.98. Internal consistencies for each scale were as follows: Visionary leadership (8 items; $\alpha = 0.91$), Communication (8 items; $\alpha = 0.91$), Information management (6 items; $\alpha = 0.89$), Assessment, planning, and evaluation (7 items; $\alpha = 0.94$), Partnership and collaboration (7 items; $\alpha = 0.94$), System thinking (4 items; $\alpha = 0.92$), and Promoting health and preventing disease (7 items; $\alpha = 0.94$). Alpha values greater than 0.8 are suggested as being good and values greater than 0.9 are suggested as being excellent for testing the reliability (George & Mallery, 2006). From the results obtained, it can be concluded that this instrument has high internal consistency and is therefore reliable.

Table 1 reports the scores of the managerial competency as mean responses for activity performed by primary care unit managers. The highest rated scales were those that dealt with clarifying own programs interact with others on visionary leadership (mean = 2.32), articulating about public health officer's mission and priorities on communication (mean = 2.07), showing the relationship of risk factors and individual behavior issues on information management (mean = 1.95), mobilizing multisector community participation in the process on assessment, planning, and evaluation (mean = 2.31), cooperating with other organizations sponsoring complementary health initiatives in the community on partnership and collaboration (mean = 2.31), identifying and assessing specific community health issues on system thinking (mean = 2.07), and acting as a preventive health champion in all interactions with organizations on promoting health and preventing disease (mean = 2.00).

Table 1 Mean practice with the highest ranking in each competency

Managerial competencies	Statements	Mean
1. Visionary leadership	Clarifies how own programs interact with others to contribute to the mission.	2.32
2. Communication	Articulates the agency's mission and priorities.	2.18
3. Information management	Shows relationship of risk factors and individual behavior issues.	1.95
4. Assessment, planning, and evaluation	Mobilizes multisector community participation in the process.	2.31
5. Partnership and collaboration	Cooperates with other organizations sponsoring complementary health initiatives in the community.	2.31
6. System thinking	Identifies and assesses specific community health issues.	2.07
7. Promoting health and preventing disease	Acts as a preventive health champion in all interactions with organizations.	2.00

After the survey was finished, the research used a telephone interview to gather some information of the instrument from five participants' opinion such as difficulty of rating scale and items, correcting some word to easier understand, and the length of instrument. The interview could be completed in 5-10 minutes. The researcher asked only five people because the managers had given the same problem issues and we need to focus on some item which should be revised. Some researcher had previously used this method on competency study. For example, Johnson and King (2002) had studied the essential competencies for Human Resources/Industrial Relations (HR/IR) practitioners. Interviews were conducted with middle-to senior-level HR/IR practitioners to obtain ratings of the importance of the competencies identified via the literature review. Respondents were given the option of completing a telephone interview or responding to the survey via fax or e-mail (ibid). Wallick (2002) studied on healthcare Managers' roles, competencies, and outputs in Organizational performance improvement. The researcher had included the telephone interview to gather data about participants' perceptions of trainer roles (ibid).

Feedback on the telephone interview had shown that all the questions were not difficult to understand. The managers would rather spend their time mainly to read items on organizational culture. The reasons were that there were two or three sentences in each item and these needed some thinking before the respondent could respond. Some terms were unclear. Four questions of organizational culture were revised by the managers. The questions were still the same and had the same concept with the original version. In addition, even though the instrument looked like a long questionnaire (137 items) but there was not a problem for the unresponsive (42% response rate). Moreover, the format of instrument was changed slightly after the researchers had observed that there was a number of missing values which had occurred repeatedly with the same item of personality. Therefore, every item of personality now has single spaced.

LESSON LEARNT FROM THE PILOT STUDY AND CONCLUSIONS

Murphy's Law says that anything that can go wrong goes wrong. The reason that we run a pilot study is to ensure that the things that do go wrong, go wrong during the pilot study so we can fix them before we start the full study (Simon, 2008). Any pilot study can give many experiences to the researcher. For example, the Delphi technique is one of the good qualitative methods even though it is a somewhat time-consuming technique. The competencies that we found were the most consistent with managers as we can see the whole reliability (α=0.98) supports them. Moreover, we get the high reliability (α=0.92) with four items of system thinking and the least value is 0.89 of information management. It shows the acceptable instrument. In addition, we noted that not any changing of language after we did a small group and a telephone interview. Our participants said that these items were easy to understand. Moreover, this method is suitable to use at Provincial Public Health Office because not all chiefs of department have the same compatible

facilities or those who move away from their workplace. Thus, it is difficult to arrange a time that is comfortable for all experts.

Back translation is a suitable technique for our study. We found some mistakes in the back translator and the back translator can "correct" a poor translation. We agree that the emphasis should be put on the production of a good and meaningful forward translation. For a small group, we recommend to do at least two groups. The cause of four culture items was revised after we did the telephone interview. Perhaps if we compare the groups, our questions may be improved to be better because we can find this point before we surveyed. Then, if possible we should do it once again. In addition, the low reliability of organizational culture causes some confusion over the terms such as "production orientation", and "efficient, smooth operations". Also, Helfrich *et al*. (2007) had reported this problem. We had asked the participants to explain what the meaning of those words are in primary care unit and which Thai word would represent them as well. For example, the managers had explained to us that "something that happens because of the working focused on the indicators or the obligation" is their production orientation. Then, we used the term based on the PCU managers' suggestions. Helfrich *et al*. (2007) studied on assessing an organizational culture instrument based on the Competing Values Framework. The authors' instrument just used 14 items whereas our pilot test had used 20 items (the version of Shortell *et al*., 1995). Helfrich *et al*. (2007)' study had stated that six items were dropped after the pilot testing had indicated that the items contributed little to the scale reliability. In addition, Helfrich *et al*. (2007) did a factor analysis and this had revealed a two-factor solution - the humanistic culture and prescriptive culture. Therefore, we might drop the item which gives a low alpha value after we had improved the item and we could use factor analysis for further study to determine which culture is the most suitable for primary care unit managers in Thailand.

Before we did the pilot study, the problem that we faced was that we had a long questionnaire. It began with 210 items but we had reduced it to 137 items. The personality items (forty-four) could possibly be reduced some more through some method. Factor analysis has gained increasing acceptance and popularity over the past 40 years (George & Mallery, 2006) for this. A specific goal of factor is to reduce a large number of observed variables to a smaller number of factors (Tabachnick & Fidell, 2007). Our pilot did not do it because we had a small sample size (forty-five). Comrey and Lee (cited in Tabachnick & Fidell, 2007) give as a guide sample sizes of 50 as very poor, 100 as poor, 200 as fair, 300 as good, 500 as very good. As a general rule of thumb, it is comforting to have at least 300 cases for factor analysis (ibid). Under some circumstance 100-or even 50-cases are sufficient (Zeller cited in Tabachnick & Fidell, 2007). Thompson (2004) suggested that factors are each defined by four or more measured variables with structure coefficients each greater than 0.6, regardless of sample size. Then, we tested it and the result failed. We got three variables with Neuroticism and Openness although structure coefficients of both are acceptable (0.7 – 0.8) and the Kaiser-Meyer-Olkin (KMO) which indicates the correlation matrix is suitable for factor analysis equals 0.718. In addition, the study showed that 110 populations of Patthalung province are not enough. We got 42% response rate. Then, we should include other provinces into our pilot before we survey for the intention to reduce the variables. Hence, we suggest that any doctoral researcher should have a good plan with an appropriate sample size before the survey is conducted. This should include some thinking about the response rate too.

The pilot study helps the researchers to learn the justification process of developing the instrument prior to the main doctoral study. This is particularly important because a pilot study can be time-consuming, and frustrating with unanticipated problems, but it is better to deal with them before putting effort into the full study. Furthermore, both successful and failed pilot studies might be useful to others who are embarking on projects using similar methods and instruments.

REFERENCES

Back, K. W. (1974). Intervention techniques: small group. *Annual Review of Psychology,* 25, 367-387.

Brislin, R. W., Jr, F. K., MacNab, B., Zukis, B., & Worthley, R. (2005). Evolving Perceptions of Japanese Workplace Motivation: An Employee -Manager Comparison. *International Journal of Cross Cultural Management,* 5(1), 87-103.

Decker, P. J., Durand, R., Bruder, P., Love, D., & Walters, A. (2002). Competencies of Healthcare Administration. *Current Topics in Management,* 7, 235-251.

Development, E. t. I. o. L. (1/1/2004). *Designing and Conducting the Evaluation: pilot study is a good evaluation tool*. Accessed 12 April 2008 http://web.ebscohost.com.eserv.uum.edu.my

Douglas, S. P., & Craig, C. S. (2007). Collaborative and Iterative Translation: An Alternative Approach to Back Translation. *Journal of International Marketing,* 15(1), 30-43.

Finstuen, K., & Mangeisdorff, a. (2006). Executive competencies in healthcare administration: preceptors of the army-Baylor University Graduate Program. *The Journal of health administration education,* 23(2), 199-215.

Gebbie, K., & Merrill, J. (2002). Public Health Worker Competencies for Emergency Response. *Journal of Public Health Management and Practice,* 8(3), 73-81.

George, D., & Mallery, P. (2006). *SPSS for Windows step by step: a simple guide and reference, 13.0 update*. Boston: Pearson A and B.

Groves, J. A., & Engel, R. R. (2007). The German Adaptation and Standardization of the Personality Assessment Inventory (PAI). *Journal of Personality Assessment,* 88(1), 49-56.

Helfrich, C. D., Li, Y.-F., Mohr, D. C., Meterko, M., & Sales, A. E. (2007). Assessing an organizational culture instrument based on the Competing Values Framework: Exploratory and confirmatory factor analyses. *Implementation Science,* 2(13), 1-14.

Hudak, R., Brooke, P., & Finstuen, K. (2000). Identifying management competencies for health care executives: review of series of Delphi studies. *The Journal of health administration education,* 18(2), 213-249.

Hughes, R. (2004). Competencies for effective public health nutrition practice: a developing consensus. *Public Health Nutrition,* 7(5), 683-691.

Irvine, F. (2005). Exploring district nursing competencies in health promotion: the use of the Delphi technique. *Journal of Clinical Nursing*, 14(8), 965-975.

John, O. P., & Srivastava, S. (1999). *The Big-Five Trait Taxonomy: History, Measurement, and Theoretical Perspective*. Accessed 1 November 2007 http://www.uoregon.edu/~sanjay/pubs/bigfive.pdf

Johnson, C. D., & King, J. (2002). Are we properly training future HR/IR practitioners? A review of the curricula. *Human Resource Management Review,* 12(4), 539-554.

Joseph Harrison, J. (2005). *Future Personal Attributes and Job Competencies Needed by the Texas Department of State Health Services (DSHS), State Hospital Section, Registered Nurse Managers: A Delphi Study*. Unpublished Dissertation, Texas A&M University.

Kim, A., & Lim, E.-Y. (1999). *How critical is back translation in cross-cultural adaptation of attitude measures?* Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Quebec, Canada.

Knox, L. M., & Spivak, H. (2005). What Health Professionala Should Know: Core Competencies for Effective Practice in Youth Violence Prevention. *American Journal of Preventive Medicine,* 29(5), 191-199.

Kreitner, S., Leet, T. L., Baker, E. A., Maylahn, C., & Brownson, R. C. (2003). Assessing the Competencies and Training Needs for Public Health Professionals Managing Chronic Disease Prevention Programs. *Public Health Management Practice,* 9(4), 284-290.

Lancaster, G. A., Dodd, S., & Williamson, P. R. (2004). Design and analysis of pilot studies: recommendations for good practice. *Journal of Evaluation in Clinical Practice,* 10(2), 307-312.

Leplege, A., & Verdier, A. (1994). *Importance of back-translations in trans-cultural adaption of health status measures for international medical technology assessment - a discussion of the main approaches*. Accessed 21 January 2008 http://gateway.nlm.nih.gov/MeetingAbstracts/102211680.html

Lowry, P. B., Roberts, T. L., Romano Jr., N. C., Cheney, P. D., & Hightower, R. T. (2006). The Impact of Group Size and Social Presence on Small-Group Communication. *Small Group Research,* 37(6), 631-661.

Mallinckrodt, B., & Wang, C.-C. (2004). Quantitative methods for verifying semantic equivalence of translated research instruments: A Chinese version of the experiences in close relationships scale. *Journal of Counseling Psychology,* 51(3), 368-379.

Mcdougal, J. A., Brooks, C. M., & Albanese, M. (2005). Achieving consensus on leadership competencies and outcome measures. *Evaluation and the Health Professions,* 28(4), 428-446.

Nelson, J. C., Essien, J. D. K., Latoff, J. S., Wiesner, P. J., Sanders, L. L., Rumph, F. M., et al. (1996). *Empowering the Public Health Workforce: Developing Organizational Competencies for the Future*, American Public Health Association, Health Administration Section, New York.

Nelson, J., Essien, J., Loudermilk, R., & Cohen, D. (2002). *The Public Health Competency Handbook: Optimizing individual and Organization Performance for the Public's Health*. Atlanta: GA: Center for Public Health Practice of the Rollins school of Public Health.

Nirachon, C., Mohmad Yazam, S. & Faridahwati, M. S. (2007). Determinants of Managerial Competencies in The Public Health Sector. Paper presented at Asian Academy of Management, Universiti Saints Malaysia, Penang, 21-25 May.

Robbins, C., Bradley, E., & Spicer, M. (2001). Developing leadership in healthcare administration: a competency assessment tool. *Journal Healthcare Management*, 46(3), 188-202.

Scutchfield, F. D., Beaulieu, L., Ireson, C., & Buege, A. (2002). Public Health Competencies Required by Managed Cared Organizations. *Public Health Management Practice,* 8(5), 22-29.

Shewchuk, R. M., O'Connor, S. J., & Fine., D. J. (2005). Building an Understanding of the Competencies Needed for Health Administration Practice. *HealthCare Management*, 50(1), 32-47.

Shortell, S. M., O'Brien, J. L., Carman, J. M., Foster, R. W., Hughes, E. F. X., Boerstler, H., et al. (1995). Assessing the Impact of Continuous Quality Improvement/Total Quality Management: Concept versus Implementation. *HSR: Health Services Research,* 30(2), 377-401.

Simon, S. (01/11/2008). *Designing a pilot study*. Retrieved 11 February, 2008, from http://www.childrens-mercy.org/stats/plan/pilot.asp

Sims, L. S. (1979). Identification and Evaluation of Competency of Public Health Nutrition. *AJPH,* 69(11), 1099-1105.

Sinaiko, H. W., & Brislin, R. W. (1973). Evaluating language translations: experiments on three assessment methods. *Journal of Applied Psychology,* 57(3), 328-334.

Smithikrai, C. (2007). Personality Traits and Job Success: An investigation in a Thai sample. *International Journal of Selection and Assessment,* 15(1), 134-138.

Stuter, L. M. (1996, March). *The Delphi Technique- What is it?* Accessed 1 August 2007 http://www.learn-usa.com/transformation_process/~consensus.htm

Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics*. Boston: Pearson Education, Inc.

Teijlingen, E. R. v., & Hundley, V. (2001). The importance of pilot studies. *Social research UPDATE* (35), 1-4.

The Civil Service Commission, T. o. (1993). *Standard of assigned position: letter at nr0707.3/v 7 (June 9, 1993).* Accessed 26 February 2008 www.dtam.moph.go.th/FileUpload/9003/xk-49.doc

Thom, D. H., Tirado, M. D., Woon, T. L., & McBride, M. R. (2006). Development and evaluation of a cultural competency training curriculum. *BMC Medical Education*, 6(38), 1-9.

Thompson, B. (2004). *Exploratory and confirmatory factor analysis: understanding concepts and applications*. Washington, DC: American Psychological Association.

Tojib, D. R., & Sugianto, L.-F. (2006). Content validity of instruments in IS research. *Journal of Information Technology Theory and Application,* 8(3), 31-56.

Wallick, W. G. (2002). Healthcare managers' roles, competencies, and outputs in organizational performance improvement. *Journal of Healthcare Management,* 47(6), 390-402.

Wright, K., Rowitz, L., Merkle, A., Reid, w. M., Robinson, G., Herzog, B., et al. (2000). Competency Development in Public Health Leadership. *American Journal of Public Health*, 90(8), 1202-1207.