

CHAPTER 5

Summary of Research Finding, Discussion, and Suggestion

This research is a research and development investigation. The objectives of the research are (1) to study the context and necessities in developing the personnel's competency for conducting research in the Physical Education Institutes in the North, (2) to develop a model for developing personnel's competency in the Physical Education Institutes in the North, and (3) to study the effectiveness of the model for developing personnel's competency for conducting research in the Physical Education Institutes in the North. The population of samples used in this research according to the first objective is 102 samples who are the faculty of Physical Education Institutes in the North. The sample is taken by the stratified random sampling from each of the campuses in the North. Afterwards, the samples from each campus are taken by the simple random sampling. The sample group of the objective number 2 is the sample groups of 46 people who are the experts, administrators, and faculty of Physical Education Institutes in the North. They are taken through the purposive sampling to study the quality of the model and the development of the sample group (trained faculty). The sample group is taken from the faculty of Physical Education Institute, Lampang Campus for the basic field test (some nine faculty members); these samples are taken by the purposive sampling to be used for developing the model. And the objective number 3, some 16 faculty of Physical Education Institutes in the North are taken through the purposive sampling. The tools are the achievement test, the evaluation form on attitude, and the evaluation form on research quality. The data is analyzed by analyzing the means and comparing them with the set criteria.

Summary of Research Findings

Objective number 1 : to study the context and the necessity in developing the personnel's competency for conducting research in the Physical Education Institutes in the North.

On the context: the research findings show the opinions of the faculty of Physical Education Institutes in the North on the context on aspects as a whole picture and per items in a moderate level. When considered per item, the data show that the aspect that has the highest average score is the "policy to promote research conduction." The aspect that shows the lowest average score is on the "amount of existing research reports in the campuses."

On the needs: The research findings reveal that the faculty of Physical Education Institutes in the North reveals the needs in all listed items. After the prioritizing or ranking the needs in developing the competency on research conduction of the faculty of Physical Education Institutes in the North on the knowledge, expected skill, and the real condition in conducting research of the faculty of Physical Education Institutes in the North, the data reveal that the index to arrange the priority of importance of needs in order (PNI_{modified}) is between 0.21 and 0.65. The list shows the three most pressing needs as "principle of writing up research report," "the model for writing up research report", and "data analysis through the computer program." From the comparison of the average scores on levels of knowledge, on expected skill in research conduction, and on real condition of the faculty of Physical Education Institutes in the North, the data show that the whole picture and per item are different with statistical significance at the level of $P < .05$. The data analysis shows that the average values for the level of knowledge and skill for research conduction at present are lower than the average value of the expected level of knowledge and skill in all items.

On problem and threats on research conduction: The research findings on the support and promotion reveal that the campuses lack promotion to develop the faculty to conduct research seriously, continuously, and systematically. On writing up research report, for example, the data shows clear lack of promotion on writing up scientific

articles. Data on the burdens or jobs shows that the faculty has lots of burden of work. Information on levels of knowledge and skill in research conduction shows that the faculty of Physical Education Institutes of the North lack knowledge and skill for research conduction. Data on publication of research work shows poor quantity of broadcast or publicized information or the publication sources for scientific articles.

On the model for participating in the training: The model that the faculty of Physical Education Institutes in the North has used to develop their research conduction skill is mostly focused on the training on knowledge and workshop.

The analysis result on the context through the process of SWOT: the results of analysis on internal factor show that the Physical Education Institutes in the North have strength to be brought into their guideline for developing the competency for research conduction among their faculty. These Institutes are having strong organization culture on subordinates' obeying the supervisors, having up to date equipment/sport science tools, having facilities for research conduction, having produced journals for research publication, and having organized the international academic meetings every year. The analysis of external factor of Physical Education Institutes in the North shows that they have opportunities that both facilitate strengths and avoid threats and weakness. The Institutes can seek for benefits quite a lot from the existing opportunities. For example, the promulgated roles and responsibilities for the faculty of Physical Education Institutes to conduct research, the educational quality assurance that demands evaluation on the research work, and the Educational Act that demands the development of instruction through research. The standards of the Higher Education also require the Institutes to produce research work. Conducting research is a mission of the Physical Education Institutes and a requirement for the faculty in the Higher Education Institute to gaining the official academic positions or ranks. From the existing situation, the Institutes can gain the highest advantage because they have the external opportunity and the strength of the Physical Education Institutes in the North. Therefore, knowing such data, the researcher uses the Strength and Opportunity (or SO Strategy) of the context of Physical Education Institutes as the guideline for developing the model for developing the competency for research conduction of the faculty of Physical Education Institutes in the North.

The analysis result of the model for developing through the focus group discussion: The findings show that most of the universities utilize training as the driven mechanism for the competency development on research conduction for the university staff. Various methods are used for developing the competency as the following: (1) training on knowledge on research conduction only, (2) training on knowledge on research conduction and training/practice to create skill without real implementation in research conduction, (3) training on knowledge on research conduction with real implementation in the training area and real research conduction without monitoring, consultation, and advisory during the research conduction, and (4) training to give knowledge on research conduction with training and conduct of real research and consultation and advisory during research conduction through a research clinic. The trained researchers seek for advice when facing problems in conducting research. From such models, the experience shows that types 1 and 2 have been the mostly used training model in competency development on research conduction because these development models are convenient for implementation. In training practice, types 3 and 4 appeared very seldom because these kinds of research conduction need uncontrollably longer time. Besides, they can not easily be implemented to completion in a single fiscal year that time becomes threats for using such models for developing the competency on research conduction.

The research units in the Physical Education Institutes typically apply the models to use and have been successful with the “Best Practice” from outside the organization in the development of their researchers. The development employs the models by allowing the “Central” to organize the training, to include budget for implementation, to identify the course of training, to identify contents and to set methods for the training by inviting external trainers. The main problem found in the training is that after the training the faculty members still fail to produce any research work. The Central organization is responsible for the expenses for the training, and each of the campuses reserves their rights by sending their personnel to attend the training. The past implementation to develop researchers of the Physical Education Institutes shows that Physical Education Institutes have not been successful in developing researchers in terms of quantity and quality. The result of evaluation on educational quality assurance

on the third round shows that the result of evaluating the indicator number 5 (on “research or creative work which get publication or published”) is in the quality of “urgently need improvement” (Office of National Education for Standard Quality Assurance, 2013). This is consistent with the evaluation report of the internal quality assurance at the institute level that reveals the low number of published research works or “low” level (Physical Education Institute, 2013).

On attitude toward research conduction: The evaluation results on attitude toward research conduction of the faculty of Physical Education Institutes in the North show that the faculty generally have positive attitude toward the research. Consideration per item shows the “high” level and the average highest score is recorded on the factor that producing research is a factor for progress in academic ranks.

Objective number 2 : To develop the model for developing personnel’s competency in the faculty of Physical Education Institutes in the North

Component of the model: In developing the competency of research conduction of the faculty of Physical education Institutes in the North, the researcher develops a model to be used as the guideline for developing this competency. Such model is composed of three components: (1) component of input, (2) component on process, and (3) component on driven mechanism. The details of each component are as the followings.

Component of Input: the component on input is on the resources that must be used in the implementation according to the Model. The model for developing competency on research conduction of the faculty of Physical Education Institutes is composed of the component of input which is the internal and external factors. The details are shown as the followings.

1. Internal factor is composed of the network for developing the researchers in Physical Education Institutes, the policy of the network for developing the researchers in Physical Education Institutes in the North, the context of Physical Education Institute in the North, and the training kit.

2. External factor is the factor that influences the development of competency for research conduction of faculty of Physical Education Institutes in the North which is the data derived from the SWOT Analysis. It is the external opportunity that influences the faculty the Higher Education Institute in producing research work such as The Civil Act for University Personnel in 2004 and (amendment number 2) of 2008 which requires that the faculty at the Higher Education level are responsible for teaching and conducting research. The National Education Act in 1999 (Amendment number 2) in 2002 and (Amendment number 3) in 2010 identifies that the National Education Act in 1999 (Amendment number 2) in 2002 (Amendment number 3) in 2010 Section 3 4 demands for the system for standard quality assurance in Higher Education and entering the academic standing of faculty of Higher Education Level (Announcement of General of the Civil Service Commission (CSC) Book no. 10, 2013).

Component of Process: The Model for developing the competency for research conduction of faculty of Physical Education Institutes has the process for implementing according to the Model. The process can be divided into three phases as the followings.

1. Planning Phase
2. Training Phase
3. Evaluation Phase

1. Process of planning phase is the process on the preparation before the training.

2. Process of training phase is the training process that is divided into two phases as the followings. (1) The period to provide knowledge by training. It is the process, method, and training that is used for training. The techniques and methods for training will be used appropriately to the contents and objectives. (2) The research conduction phase is the time for training to develop the competency for research conduction of the faculty of physical Education Institute in the North. The researcher identifies the guideline for monitoring the research conduction of the faculty after the training. It is divided into three phases to monitor the progress of research and give

consultation for researchers. Such phase will not only develop the knowledge but also develop the proper attitude toward research conduction.

3. Process of evaluation phase is the phase of evaluating the efficiency of the development according to the learning objectives following the concept of Bloom B.S., et al. (1956). There are three aspects as the followings.

3.1 On knowledge (or Cognitive Domain) is the behavior on intellect, knowledge, thinking, and wit on research conduction.

3.2 On attitude (or Affective Domain) is the behavior on psychology, value, feeling, attitude, belief, interest in morality, and preference on research conduction.

3.3 On skill (or Psychomotor Domain) is the behavior that indicates the ability on efficient research conduction. In addition, the quality of research report is an indicator of the skill on research conduction of the researchers.

Component on Driven Mechanism

The driven mechanism of the model to the implementation is a very important step that will push the functioning of all mechanisms to achieve the set targets of the organization. The driven mechanism of the Model is to develop the competency of research conduction of the faculty of Physical Education Institutes in the North. The researcher applies the results from the context analysis of strength, uses the opportunities of Physical Education Institutes in the North, and attempts the concept of Power Base of Tosi Rizzo and Carroll (1986) to apply in the driving of the Model. The researcher asks for consultation and advice from the Dean and establishes the network for developing researchers at Physical Education Institutes in the North. The Dean is the Chairperson who provides consultation and agrees on the principle on the policy to develop competency for research conduction. The Vice Deans in each campus will be the vice chairpersons. The Dean is the highest executive at the Physical Education Institutes. Therefore, the announcement on policy on the guideline for developing the researchers enables the development process to be accepted and to create movement for developing the researchers. Each campus creates strategic plan, creates project, sets budget to support the project, and responds to the quality assurance on the issue of

having the system and mechanism for developing the research work. Besides, other Physical Education Institutes in other campuses are now facing problem in developing researchers, and producing research work is a common authentic problem.

Objective number 3 : To study the effectiveness of the model for developing personnel's competency for conducting research in the Physical Education Institutes in the North.

The result of evaluating the quality of the model: The quality evaluation of the Model for developing the competency for research conduction of faculty of Physical Education Institutes in the North involves these following aspects: (1) on the Feasibility of the model, (2) on the Appropriateness of the model, (3) on Adequacy, (4) on Utility, (5) on Agreement, and (6) on Propriety. The results of evaluation as the general picture and per aspect show that the quality of the model for developing the competency for research conduction of faculty of Physical Education Institutes in the North is in a high level. When considered per item the data shows that the average highest score is on the (Feasibility).

The evaluation of the efficiency of the model for developing competency for research conduction of the faculty of Physical Education Institutes in the North will be evaluated on three aspects which are on the evaluation on knowledge, evaluation on the attitude towards research conduction, and evaluation on the skill for research conduction. The step of evaluation is as what follows.

The evaluation result on knowledge: The evaluation results on knowledge on research conduction will be evaluated by using some tests. The tests show that the scores of the test on the knowledge on research conduction of the faculty of Physical Education Institute in the North before the training is in Moderate level and the score of the test on knowledge after the training is in Good level. When comparing the scores from the result of the test on knowledge on research conduction before and after the training, the test shows that the score after the training is higher than before the training with statistical significance at the level of $P < .05$.

The evaluation result on attitude: The evaluation results on attitude toward the research conduction, which are evaluated by using the evaluation form on attitude, reveal that the levels of positive attitude toward research conduction before the training is in Good level and the positive attitude toward research conduction after the training is in Very Good level. When compared, the level of positive attitude toward research before the training is lower than the level after the training with statistical significance at the level of $P < .05$.

The evaluation result on skill: The evaluation result on skill which is evaluated from the research conduction and the checking of the research quality by using the evaluation form on research quality (Office of the Education Council, 2009) . The findings reveal that the research quality of the faculty of Physical Education Institutes in the North is higher than the set criteria with statistical significance at the level of $P < .05$. The whole quality is in Moderate level and when considered per item, the data reveals that it is in relatively High level: two samples or 22.22 percent of the samples in Moderate Level and seven samples or 77.73 percent of the sample is High level.

Discussion

From the research findings, the discussion is as the followings.

On the context: The analysis on results of data collection shows that the sample group of faculty of Physical Education Institutes in the North express their opinion on the context on research conduction as the whole picture and per item in Moderate level. Such finding is consistent with the result of external educational quality assurance in the third round evaluation which gives the suggestion on the development of the context to facilitate the research conduction (Office of ONESQA, 2013). From such condition, it is clear that the arrangement of the context of the Physical Education Institutes in the North does not facilitate the research conduction of the faculty as it should be because of the context or the environment will inevitably influence the research conduction. The evaluation on the context is consistent with the new discovery that reveals that Physical Education Institutes in the North lack promotion and encouragement to the faculty to conduct research seriously, continuously and systematically. The faculty's burden is known to be heavy, and the Institutes have insufficient amount of budget, with no

network to support research conduction, and with out of date and poor data source. Such context influences heavily the research conduction of the faculty of Physical Education Institutes in the North. This trend is consistent with the research findings of Thippawan Sriprom (2011). Her study entitled “the Causal Factor Analysis that Influences the Motivation of Research Conduction of the Faculty of Rajabhat University in Upper Northern Campus” reveals that the most direct factor in the Model that affects the variable on motivation or incentive to conduct research is the variable on the environment. This is similar to the research finding of Rungnapa Inpuwa (2008) who studied the motivation in research conduction of the faculty of Ramkamhaeng University and found that the general environment of the university is the motivational factor for research conduction. This finding is consistent with the findings of Lathasak Phraesaithong (2005: Abstract) who studied the guideline for promoting classroom research conduction of the teachers in Basic Education School in Photharam District, Ratchaburi Province. This research reported that the guideline for promoting the classroom research conduction among teachers in basic education schools is to identify the policy to support, promote and supervise, monitor and evaluate the research conduction in the classroom continuously. Similarly, the research of Supisara Suwannachart, Rampai Munsraket and Apiradee Sooksangdow (2008) who studied the problems and threats in research conduction of the faculty of Boromrajachonani College of Nursing, Nakhonratchasima revealed that the environment affects the research conduction of the faculty. It is consistent with the research findings of Udomporn Ponphoonga (2007) who conducted the research entitled “the Quality of Research of the Government Teachers who have Academic Standing at Mahasarakham Educational Service Area.” The findings show the important factors that support research conduction of the teachers with academic standing: policy on research conduction, readiness on materials, equipment used in research, budget, compensation, family, and colleagues. Such context of the Physical Education Institutes in the North influences the faculty to fail to produce a research work according to the roles of faculty in the Higher Education Institute (Office of Higher Education Commission, 2004) and cannot produce a quality research according to the standards of educational quality evaluation. Similarly, the results of the third round external evaluation show that the Physical Education Institutes in the North have the evaluation results on publication of the

research work and creative work in the equality criteria of “urgently need improvement” (Office of ONESQA, 2013). It is similar to the report of evaluation of internal educational quality in the institute level that shows that the number of research that get published have the evaluation results in low level (Physical Education Institute, 2013). Therefore, in the development of competency on research conduction of the faculty of Physical Education Institutes in the North, the context is considered important to promote and support the development of researchers in Physical Education Institutes in the North. There should be adjustment on the context and policies that facilitate research conduction consistently with the faculty of Physical Education Institutes in the North by establishing the network to promote and support research conduction of the faculty and announcing the policy on research such as supporting the budget to launch research.

On the need for developing competency on research conduction: the findings show that the faculty members of Physical Education Institutes in the North have the needs in all listed items. The evaluation on the expected average scores on levels of knowledge, skills for research conduction, and the real condition of the faculty of Physical Education Institutes in the North shows that the general picture and per item analysis have differences with statistical significance at the level of $P < 0.05$. The data analysis shows that the average value of the knowledge and skill in research conduction at present condition is lower than that of the expected level of knowledge and skill in research conduction in all items. Such findings are consistent with the context of Physical Education Institutes in the North because knowledge and skill on research conduction are important factors that influence the research conduction of the faculty of Physical Education Institutes in the North. Similarly, the research of Rungnapa Inpuwa (2008) whose study is entitled “the Study of Motivation in Research Conduction of Personnel of Ramkhamhaeng University” reported that the first thing that gives personnel motivation in research conduction is developing knowledge and skill for researchers (in High level). This is consistent with the research findings of Supisara Suwannachart, Rampai Munsraket and Apiradee Sooksangdow (2008) who study the problems in research conduction of faculty at Boromrajachonani College of Nursing, Nakhonratchasima. This research finds that the problems/threats on knowledge and skill, and experience in research conduction are obstacles for research conduction. This

is similar to the findings of Kesorn Kunamai (2006: Abstract) who studied the factors that influence the implementation of classroom research of the teachers in the basic education level, Phayao Educational Service Area Office 1. The findings show that the individual factors that drive the implementation of the classroom research of the teachers are the knowledge of the research model and the research planning. Similarly, the research of Warisa Saenphet (2005) who studied the condition of classroom research of teachers in primary schools in Li District, Office of Lamphun Educational Service Area 2 showed that teachers lack knowledge and clear understanding about classroom research conduction. Therefore, the competency development on research conduction of faculty of Physical Education Institutes in the North on knowledge and on skill in research conduction is a component that should be promoted and developed for the faculty in Physical Education Institute in the North.

On attitude toward research: The evaluation on attitude toward research of the faculty of Physical Education Institutes in the North shows that they have the attitude level as the whole and per item in high level. When considered per item, the results show that the items with the highest average score are the research and the factor of progress in academic ranks. The attitude toward research conduction as a competency influences the research conduction. That result is conflicting with the empirical data on the faculty of Physical Education Institutes in the North who have produced low quantity of research with substandard quality compared to the evaluation criteria of educational quality. Consistently, the results of the third round external evaluation show that the Physical Education Institutes in the North have the evaluation results in publication and dissemination of research and creative work in quality criteria of “urgently need improvement” (Office of ONESQA 2013) . This is parallel with the reports of evaluation of internal quality in the institute level which show that the number of research work that get published have been little (Physical Education Institute, 2013). Such context shows that the attitude toward research conduction only is not sufficient for the faculty of Physical Education Institutes in the North to produce research work. The data of the studies show that the competency in research conduction is composed of knowledge, skill, attitude, and other factors related to the context of research, which influence the production of research work. Therefore, production of

research work should be composed of knowledge, skills, attitude and the context that facilitates or supports the research conduction and other related factors. This is consistent with the findings of research work of Samrej Tienthong (2005: Abstract) whose study entitled “the Factors that Influence the Production of Research Work of the Nursing Faculty under Boromratchanok Institute, Ministry of Public Health in the Northeast.” The research findings show that the factors that facilitate research conduction which can predict the production of research of the nursing faculty is statistically significant at the level of $P < .05$. These factors are the highest educational degree, the time for research conduction, work experience after the completion of highest education, the burden of work that facilitates research conduction, and the scientific attitude and the personal habits or characters that facilitate research conduction. It is the same findings as those of the research work of Udomporn Ponphoonga (2007: Abstract) whose study is entitled “the Production of Research Work of the Government Teachers who Have Academic Standing under Mahasarakham Educational Service Area.” The findings show that the most important factors that support the research of the teachers with academic standing are policy and research, readiness on material equipment used for research conduction, budget, compensation, family, colleague, data source, and advisers for research conduction. Therefore, the conduction of research work of the faculty must be integrated with the other factors to create a climate that influences the research production process such as personal or individual characters, knowledge, skill, attitude and the context that supports the research conduction.

The results of constructing the model for developing competency on research conduction: In developing the model for developing competency on research conduction of the faculty of Physical Education Institutes in the North, the researcher applies the data from review of literature to integrate with the data gathered from the study on the context of the Physical Education Institutes in the North to develop the model for developing competency for research conduction of their faculty with quality in terms of feasibility, appropriateness, adequacy, utility, agreement, and propriety. This is consistent with the context and the needs of the faculty of Physical Education Institutes in the North. The evaluation of the results of quality of the model shows that

the model has quality in a high level. Such model is composed of three components as the followings.

1. Input component is composed of internal and external factors. The component of input is the preparation of resource that passes the systematic judgment or consideration and then brought into process. Such component is developed from the results of studying the context of the Physical Education Institutes in the North. The findings show that the context on research conduction of education institute in the North is not really facilitating the research conduction as it should be. As a result, such component is developed on the context on research conduction so that context facilitates the development and production of research work of faculty of Physical Education Institutes in the North. For example, there is the establishment of the network for developing the researchers. There is the identification of policy on developing and promoting the researchers to response to the context and the need of the faculty of Physical Education Institutes. The training kit is developed to ensure appropriateness and consistency with the analysis results on the need of the participants of the training. The data of study shows that recently the faculty of Physical Education Institutes in the North has knowledge and skills on research conduction lower than expected. The contents in the training kit are developed from the educational data on studying the present knowledge and skill of research conduction of faculty of Physical Education Institutes in the North. Thus it responds to the concept of development which states about the context of organization that plays important roles in promoting and creating competency of personnel in organizations. Therefore, in developing personnel in an organization there should be studies to understand the context of organization because the context of organization is the factors that influence personnel development (Stockdill, Baizerman and Compton, 2002; Duttweiler, Grogan, 1998; Johnson, 1998). The similarity appears to the concept of the training of Petcharee Rupavijetra (2011), Chuchai Smitikrai (2011), Aniwat Kaewjomnong (2011), Dessler (2005), Laird (1985), Swanson & Holton (2009) that state about the training process that should have analysis of the context and the needs before development.

2. Process Component is consisting of Planning Phase, Training Phase, and Evaluation Phase. This is the important component for developing the researchers

systematically and continuously. For example, the Planning Phase is the preparation on many aspects so it is in ready condition for the training arrangement. Training Phase is an important development process that will develop knowledge skill in research conduction of faculty of Physical Education Institute in the North. The data from study on the context shows that the Physical Education Institutes will develop only on knowledge, but there is no real practice in research conduction and thus the faculty need experts to provide assistance for consultation, advice during research conduction, and other needs to develop competency on research conduction systematically and continuously. The past development showed that after the completion of the training there was no monitoring and attachment to the research conduction exercises. Such lacking development condition hinders the development of researchers from reaching success as it should. Similarly to the results of evaluation on the third round of external quality assurance show that the researchers creative work that get publication or broadcast to public is in the quality criteria of “urgently need improvement” (Office of ONESQA, 2013). The reports of evaluation on internal educational quality in the institute level show that the numbers of research work that get published to the public have the evaluation result as “low” (Physical Education Institute, 2013). Therefore, in the development of the proper model the researcher develops the model that is consistent with the context and the needs of the faculty of Physical Education Institutes in the North. Such process is composed of the development phase on knowledge of research conduction, the implementation phase of research conduction after the training, and the phase for conduction of research after the training. There is a monitoring for giving assistance by the network of researcher development of Physical Education Institutes in the North. Some experts in the network will offer consultation, advice and several techniques to promote and support research conduction. The monitoring of the researchers will be divided into three phases according to the appropriateness until the completion of research reports. The development of research competency and research conduction of faculty of Physical Education Institutes in the North has an important strategy that is composed of training, teaching, learning by doing, giving consultation and advice, suggesting, demonstrating, participatory training especially on monitoring, giving suggestion, and coaching during the real implementation in research conduction. Such processes not only help the researchers during research conduction but also develop attitude toward research conduction of the faculty of Physical

Education Institutes in the North. It is similar to studies of Surang Kowtrakul (2009), Chuchai Smitikrai (2013), Somkid Bangmo (2011), Petcharee Rupavijetra (2011) who state about learning activities as above that influence to the development of attitude during the Evaluation Phase. Such phase has objective to monitor the effectiveness of the model whether it achieves its objectives according to the learning objective according to the concept of Bloom B.S., et al. (1956) or not. There are three important aspects: on cognitive domain, on attitude (affective domain), and skill (psychomotor domain). The results on studying the competency development on research conduction of faculty of Physical Education Institutes in the North in the past showed that the evaluation is done only on the knowledge part. Therefore, the training arrangement to develop the competency on research conduction should have development and evaluation that cover all aspects. Similarly, the concept of training by some organizations sets the objective to enhance knowledge, skill, experience, and abilities in personnel performance and changing the attitude or undesirable behavior of the personnel. As the result, the personnel have quality and the expected desirable qualification that the organization requires (Chuchai Smitikrai, 2013; Petcharee Rupavijetra, 2011; Worawat Sriyapai, 2011; Somkid Bangmo (2010); Goldstein, 1993).

3. The component on driven mechanics: The evaluation results of the third round external educational quality evaluation show that the research or creative work that get published to the public is in the quality criteria of “urgently need improvement” (Office of ONESQA, 2013). The reports on evaluation on internal educational quality evaluation at institute level reveal the low quantity of research work that get published and thus evaluated poorly (Physical Education Institute, 2013). From such context, the Physical Education Institutes in the North should support or promote developing the researchers seriously in response to such problem. Study on the context on research conduction shows that the faculty of Physical Education Institute has conducted very little research although it is the legalized duty of the faculty in the higher education institute. From such condition there should be movement to mobilize research production. The developed model will use the known strength of the Physical Education Institutes in the North on having strong organization culture on obeying the supervisors and the external opportunity on the duty of the faculty in the higher education institute

who must conduct research to use as guideline for developing the researchers in Physical Education Institutes through integration of the concept of Power Base of Tosi Rizzo and Carroll (1986) as the driving mechanism of the model. The researcher asks for advice from the Dean on the guidelines for developing the researchers. From the condition that the faculty have understanding in the problem and have the needs to get help in similar forms, the construction of the network is used as the guideline to solve the problem. It is consistent with the data that arises from the study on context. Therefore, the establishment of the network for developing the researchers in Physical Education Institutes in the North by having the Dean as the Chairperson to consult and approve on the principle on the policy on developing competency on research conduction. The Deputy Dean in each campus is the Vice Chairperson. Because the Dean is the highest administrator of Physical Education Institute, the Dean's announcing the policy on the guideline on developing the researchers will lead to further processes that respond and create the movement for developing the researchers. Each campus would create a strategic plan to create a project, set budget to support it, and answer the work on the quality assurance on the issues whether the Physical Education Institutes have a system and mechanism to develop research conduction. Besides, the Physical Education Institutes in other campuses also face a set of common problems in developing the researchers and producing research work.

The evaluation results on the quality of the model for developing competency on research conduction of the faculty of Physical Education Institutes in the North:

The evaluation results on the quality of the model on competency development on research conduction of the faculty of Physical Education Institutes in the North show that the quality of the model on developing competency on research conduction of the faculty of Physical Education Institutes in the North has a high quality level. When considered per item, the data shows that the aspect with the highest average value is the Feasibility of the model and the aspect of the lowest value is Agreement. The quality evaluation results of the model show that the feasibility of the model is having the highest value. Such model is developed from the database on the context of the Physical Education Institutes in the North and the needs of the faculty. Therefore, the model has appropriateness and consistent with the context of the Physical Education Institutes, and

it can lead to the real implementation in the Physical Education Institute in the North in both cooperation and resource arrangement for the implementation. The aspect of agreement has the lowest average value although it is still in the same quality criteria that are considered as in high level. Although the research is the mission of faculty in higher education institute that they must practice research, but the Physical Education Institutes in the North have no measurement on research conduction or have no research conduction. This is a chance to allow academic independent on research conduction. Besides, the Physical Education Institutes are the institutes that have been developing from human resources from Physical Education Institutes that organize education in lower than undergraduate level. Therefore, the strategy of Physical Education Institutes is recruiting or appointing their personnel from undergraduate levels. Such undergraduate or bachelor degrees offer very rudimentary skill in research from limited teaching and learning portions about research. Besides, the faculty of Physical Education Institutes in the North have attitude toward research as the scientific process that is difficult to study and difficult to practice with production of research works. But this is an opinion mainly of the faculty group who are elderly, almost reaching retirement age, and thus not ready for changes.

The effectiveness on using the model for developing competency on research conduction for faculty of Physical Education Institutes in the North: the evaluation on the effectiveness of the model for developing competency of research conduction of faculty of Physical Education Institutes in the North enables the researcher to arrange such model to set the training at the Physical Education Institute, Lampang Campus by using the experimental design called One Group Pre-test Post-test Design (measuring scores on variables before and after the training). The 16 participants of training from the campuses in this experiment must qualify in the criteria for passing status such as what follows. (1) Participants of the training have knowledge on the research that their scores from the pre- and post-tests reach 70 percent. (In this research three participants fail this criterion.) (2) Participants of training must attend the training sessions not less than 80 percent of the training hours. (One participant fails to reach this threshold.) (3) Participants of training must be able to conduct research by completing the research conduction after the identified time (three participants fail such criterion). The

evaluation of the effectiveness of the model evaluates three aspects which are the evaluation on knowledge, evaluation on attitude toward research conduction, and evaluation on skill on research conduction.

Evaluation on knowledge: the results on evaluation on knowledge on research conduction will be evaluated through a set of questionnaires. The findings show that the scores of the test on research conduction of faculty of Physical Education Institutes in the North before the training is in the criteria of moderate level. The scores on testing the knowledge after the training reach the criteria in good level. After comparing the scores from the results of knowledge test on the research conduction before and after the training, the researcher finds that the score after the training is higher than that before the training with statistical significance at the level of $P < .05$. In this training the researcher in the development of training kits to develop the knowledge on research conduction develops it from the data of study on the need in developing competency in research conduction of faculty of Physical Education Institutes in the North. This sets the contents in the training kit appropriateness, consistency, and responsiveness to the needs of the faculty of Physical Education Institutes in the North. In addition, there is a selection of techniques for the training to improve its appropriateness to the contents and to allow the development of knowledge on research conduction of faculty of Physical Education Institutes in the North achieving the objectives. Similarly the concepts offered in the training of Petcharee Rupavijetra (2013), Chuchai Smitikrai (2011), Aniwat Kaewjomnong (2011), Dessler (2005), Laird (1985), Swanson & Holton (2009) who state that in the process of training the trainers should analyze the contexts, the needs before the development, and the activities to develop personnel through training process that can develop the knowledge.

The evaluation on attitude: The evaluation result on attitude toward research conduction which is evaluated by the evaluation on attitude is revealing that the attitude toward research conduction before the training is in good criteria and the attitude after the training is in the very good criteria. When compared, the attitudes toward the research before the training is lower than the score after the training with statistical significance at $P < .05$. In the development of attitude toward the research conduction, the researcher utilizes the data from studying the context which has the needs of the faculty for help in

various forms such as network for research conduction to give consultation and advice during the research conduction in the step of research conduction. Such model uses the monitoring process, giving consultation, advice, and coaching during the real implementation of research conduction. There is the monitoring of the researchers about three times throughout the research conduction phase or process. Such process not only helps the researchers during research conduction but also develops the attitude toward research conduction of faculty of Physical Education Institutes in the North. Surang Kowtrakul (2009) , Chuchai Smitikrai (2013), Somkid Bangmo (2011), Petcharee Rupavijetra (2011) mention about the learning activities, monitoring processes, and giving consultation, advice, and coaching during the real implementation until the trainers are able to develop proper attitude.

Evaluation results on the skill: The evaluation results on the skill to evaluate the research conduction are calculated to check the quality of research work by using the evaluation form of the research quality (Office of the Education Council, 2009) . It shows that the quality of research report of the faculty of Physical Education Institutes in the North is higher than the set criteria with statistical significance at the level of $P < .05$. The quality as the whole is in a moderate level but when considered per individual item it appears in the relatively high level. For example, two people or 22.22 percent of samples are in high level while seven people or 77.73 percent are in a moderate level. In the research conduction on the model, the researcher applies the data from studying the context on giving consultation, advice, implementation training, coaching, demonstration and participatory training during the implementation of the real research. Helping the researchers during the reach conduction is accomplished by monitoring the researchers three times until the completion of their research work. The monitoring of activities of the researchers shows that it can help them to conduct research well and increase the research quality. Similarly the concept of developing competency on skill by using activities, training by doing, demonstrating, coaching, and participatory training can actually develop the skill (Chuchai Smitikrai, 2013, Somkid Bangmo, 2011, Petcharee Rupavijetra, 2011).

Suggestions

Suggestions in the implication of the research findings to use

From the development of competency in research conduction of faculty of Physical Education Institute in the North, the researcher and the faculty who get the development on competency on research conduction and relevant people gain lessons from the development on competency on research conduction in several ways as the followings.

1.The administration of Physical Education Institutes in the North finds that the administrators in all levels play important roles on the success of developing competency on research conduction especially the high level administrators.

The researcher has the followings suggestions.

1 . 1 The administrators should give importance to the development of researchers, identification of the policy, monitoring and constructing motivation in producing research work clearly, and publicizing to the faculty of Physical Education Institutes in the North. The administrators need to know widely the development of the faculty to have knowledge and skill in research conduction especially those who are responsible for research work of physical education in the North.

1.2 The administrators should support and facilitate all resources to be used for helping the researchers. For example, to facilitate on the time because the faculty have a lot of work burden with no time for research conduction that they can not find chances to catch up with due dates. No time is left to collect data.

1.3 The administrators should create motivation and give importance to the persons who produce research work such as the administrators should apply the research work to consider the good deeds or performance seriously and concretely. It will improve motivation for the faculty in producing research work.

1 . 4 The administrators promote the learning exchange on research conduction. There should be promotion of activities on learning exchange among the

campuses of Physical Education Institutes in the North and external organizations to create knowledge and good understanding to extend the boundary of thoughts and develop the knowledge on research conduction.

2. The relevant people to the development of research of Physical Education Institutes in the North should enhance and develop researchers throughout the Physical Education Institutes in the North because from the research findings point to the clear discovery that the construction of competency on research conduction of faculty will enable them to conduct research correctly according to research methodologies. These findings also provide suggestions on the development of competency on research conduction for the faculty of Physical Education Institutes continuously throughout the Physical Education Institutes in the North as the followings.

2 . 1 There should be analysis on the context and needs for developing competency of research conduction of the faculty. It must consider that Physical Education Institutes in the North enhance or create the competency of research conduction for the faculty or not. For example, the Institutes must find out how and what factors that influence the success of enhancing the competency on research conduction by analyzing the internal and external situation of the Physical Education Institutes in the North. The external situation is the pressure to mobilize the Physical Education Institutions in the North to produce more research work and to attract financial supports from outside donors. The internal situation is policies from the administrators, the budget support for research conduction, and the analysis of organization to check the working climate inside the Physical Education Institutes in the North.

2.2 The analysis of mission is the analysis of the mission of the faculty who attended the development of competency on research conduction that needs to conduct research later after the development. This analysis indicates what the practitioners must do, how, and for what reasons. In addition, it also indicates what is needed in term of research conduction contents to impart knowledge, skill, and ability to the participants. The data analysis helps to know the contents of developing competency on research conduction: what it should have.

3. Suggestions for the faculty at the implementation level are the followings. The faculty in the operational level should develop competency on research conduction continuously. It can be the development of competency by participating in research work as assistant researchers and data collectors to create climate in learning about research conduction.

Suggestions for future research

1 . There should be development of a model for developing competency on research conduction continuously to expand the knowledge on research and develop the model for developing competency on research conduction to be more efficient.

2. This research implements the monitoring over the process only at one time. It still needs developing the model further that the model will be appropriate to the context of Physical Education Institutes in the North.

3 . There should be more research for studying the factors that influence the development of competency of research conduction of faculty of Physical Education Institutes in the North.