

CHAPTER 5

Conclusion, Discussion, and Recommendation

The key objective of this research is to develop the assessment model of research management for private universities in which the researcher conducted the research based on the concept of research and development with sub-objectives as follows: 1) to study the current conditions and the needs of research management assessment for private universities, 2) to study the factors, indicators, and criteria of research management assessment for private universities, 3) to create and verify the quality of the assessment model of research management for private universities, and 4) to study usage results of the assessment model of research management for private universities.

The researcher conducted the research by dividing the process into 4 steps that are relevant to the objectives and results are as follows:

Part 1: Result of examining the current condition and the needs in the research management assessment for private universities

1.1 Result of examining concepts, theories, and other documents related the factors of both research management and assessment model

According to the synthesis of 19 research projects that are related to key factors of research management for higher education institutes in Thailand including both governmental and private institutes. The researcher concluded that factors of research management are comprised of 10 factors as follow: 1) policy and research plan 2) structure and research organization management 3) research budgets 4) research personnel 5) research materials and facilities 6) production and controlling quality of research 7) follow-up and assessment 8) research publishing, publicizing and application 9) research network 10) systems and supporting protocols such as motivation etc.

In addition, the researcher has synthesized research projects that are related to factors of assessment model using concepts given by Sirichai Kanjanawasi (2009) and

Sathienphak Mukdee (2011), results show that factors of assessment model are comprised of 7 following factors: 1) purposes of evaluation, 2) subjects of assessment, 3) assessor, 4) assessment method, 5) indicators of assessment, 6) criteria of assessment, and 7) giving feedback.

1.2 Result of examining the current condition and the needs in the research management assessment for private universities

The researcher studied the results of the study of current conditions and the needs of assessment of research management by the factors of the assessment model as follow:

1. Purpose of assessment: It was found that the opinion of the sample group towards the aspect of objective of assessment was at a moderate level to a high level. The needs of assessment in the aspect of objective of assessment were at a high level. For the differences between current conditions of assessment and the needs of assessment regarding objective of assessment, results pointed out that both aspects are statistically significantly different at a level of .01. So, the results above lead us to the conclusion that there are the needs of assessment in the aspect of purpose of assessment for research management.

2. Subject of assessment: The researcher found that the sample group agreed that current conditions of the focus of assessment is at a moderate level while the needs of assessment in the aspect of the subject of assessment is at a high level. For the differences between current conditions of assessment and the needs of assessment in the aspect of the focus of research, results showed that current conditions of assessment and the needs of assessment are statistically significantly different at a level of .01. So, there are the needs of assessment regarding the focus of research for every factor of research management.

3. Assessors: The opinion of the sample group towards current conditions of the assessment in the aspect of evaluator is at a moderate level while the needs of assessment in the aspect of evaluator is at a high level. For the differences between current conditions and the needs of assessment in the aspect of evaluator, they are statistically significantly different at a level of .01. So, there are the needs of assessment in the aspect of evaluator for every factor of research management.

4. Assessment methods: The opinion of the sample group towards current conditions of assessment is at a moderate level while the needs of assessment in the aspect of assessment methods is at a high level. For the differences between current conditions of assessment and the needs of assessment in the aspect of assessment methods, they are statistically significantly different at a level of .01. So, there are the needs of assessment in the aspect of assessment methods for research management.

5. Assessment indicators: The opinion of the sample group towards current conditions of assessment is at a moderate level while the needs of assessment in the aspect of assessment indicators are at a high level. For the differences between current conditions and the needs of assessment in the aspect of assessment indicators, the result pointed out that both clauses are statistically significantly different at a level of .01. So, there are the needs of assessment in the aspect of assessment indicators for every factor of research management.

6. Assessment criteria: The opinion of the sample group towards current conditions of assessment in the aspect of assessment criteria is at a moderate level to high level while the needs of assessment regarding assessment criteria is at a high level to the highest level. For the differences between current conditions of assessment and the needs of assessment in the aspect of assessment criteria, the result revealed that all items of both clauses are statistically significantly different at a level of .01, except item number 10: the determination of assessment criteria concerning other supporting systems and mechanisms. To sum up, the needs of assessment in the aspect of assessment criteria for every factor of research management, except factor number 10 which is the aspect of other supporting systems and mechanisms.

7. Giving feedback: The opinion of the sample group towards current conditions of assessment in the aspect of the feedback of assessment is at a moderate level while the needs of assessment in the aspect of giving feedback is at a high level. For the differences between current conditions of assessment and the needs of assessment regarding feedback of assessment, the result revealed that both clauses are statistically significantly different at a level of .01. So, it can be said that there are the needs of assessment concerning giving feedback of assessment for every factor of research management.

Result discussion

Any work performed according to university's missions as well as research projects should be organized as a work plan and there should be assessment before and after the work is done in order to check possibilities and proprieties of such work plan (Rattana Buason, 2011). This is relevant to a saying: assessment is a philosophy that develops aspects being assessed; therefore, assessment is the key mechanism that will lead to the improvement of every field of work (Pitsanu Fongsri, 2006). Furthermore, the assessment results concerning current conditions and obstructions of research management in various universities in which the researcher has synthesized will indicate the actual conditions of assessment on each factor of research management. The discussion of research results according to the research objective clause 1 is as follows:

Results of the study of current conditions of research management assessment for every factor of the assessment model showed that almost of all factors of the current conditions of research management assessment in the aspect of budget is at a high level including purposes of assessment, assessment indicators, and assessment criteria. For other factors, they are ranked at a moderate level. Moreover, the current conditions of research management assessment in the aspects of research budgets and research plan are at a high level in which only one factor that is ranked; assessment indicators. For other factors of assessment model are at a moderate level.

For the aspects of research production and quality control, research monitoring and assessment, research publication, and research utilization, only one factor of the current conditions of research management assessment is at a high level which is assessment objective. And other factors of assessment model are at a moderate level. According the information obtained, the researcher concludes that the current conditions of research management assessment mostly are at a moderate level and only a few factors that are ranked in a high level.

According to the information concerning current conditions of research management assessment, the researcher thinks that there are still problems about research budget for private universities which is relevant to the study conducted by Somkiet Wattanasirichaikul and his team (2007) that revealed that the ratio budget for research management is quite low and it is not sufficient to create effective research

system resulting in inflexible budget management and lack of motivation and encouragement for researchers.

For the study of needs of assessment of research management for private universities, the results showed that most of the factors of assessment model are at a high level except the factor of assessment model in the aspect of assessment criteria that is at the highest level which is the factor of research budget. The researcher finds that the research budget for private universities is important. However, assessment that provides realizable results may depend on the criteria of assessment as well. Thus, it is very important to conduct the assessment on the aspect of research budget in order to find out methods to allocate budget for research projects in a better and more effective way.

Regarding the study of the comparison of the differences between the needs of assessment and the current conditions of research management assessment of private universities, the researcher discovered that the needs of assessment is statistically significantly higher than the current conditions of research management assessment at a level of .01 for every aspect, except aspect number 10: the determination of assessment criteria regarding other supporting systems and mechanism. In addition, the researcher finds that the aspect of other supporting systems and mechanisms are still facing difficulties. Furthermore, there should be assessment on the aspect of other supporting systems and mechanisms in order to see in what aspects that need to supported. With regard to the study done by Somkiet Wattanasirichaikul and his team (2007), there still were problems in the support systems such as the lack of information technology and electronics media to help accelerate research management to be more convenient and efficient, the lack of research database to make decisions, etc. Niphon Sukpridi and his team (2007) have also found a problem for the aspect of supporting systems which was the lack of motivation in conducting research. According to the study of the current conditions and the needs of research management assessment in private universities, the researcher points out those private universities have the needs to assess every factor of research management in order to improve research management process to be more comprehensive and effective.

Part 2 Result of examining the factors, indicators and criteria relating to the research management for private universities

2.1 Results of examining of factors and indicators in accordance with the factors of research management for private universities.

The results of the study of factors and indicators in accordance with the factors of research management for private universities obtained from the synthesis of related research projects and the interviews with experts can be concluded as follows:

Factor 1: Policy and research plan, consisting of the following indicators:

- 1.1 The policy and research plan corresponding with the policy and national research strategies.
- 1.2 The policy and research plan responding to both internal and external budget resources
- 1.3 Setting policy and research plan which is clear and practicable.
- 1.4 Creating the research plan according to the cycle of PDCA.
- 1.5 A research plan promoting and supporting the university visions.
- 1.6 A research plan corresponding with the research of the universities.
- 1.7 Research plans which can continuously drive the young researcher

Development

Factor 2: Structure and research organization management, consisting of the following indicators:

- 2.1 A structure of the organization which includes a sector taking charge of the research directly such as office of research etc.
- 2.2 A clear structure of research organization management in aspect of person responsible.
- 2.3 A structure containing a system and protocol of research management accordant with a purpose of university research.
- 2.4 A structure corresponding with the context of the mission and responsibility involving researches.
- 2.5 A flexibles structure and an organization research management.
- 2.6 A structure and an organization research management with clear job descriptions.

2.7 A structure having a system and a protocol promoting and supporting researches.

Factor 3: Research budgets, consisting of the following indicators:

3.1 Systems and protocols relating to statement of support doing researches provided.

3.2 A suitable budget allocation of a university research.

3.3 A budget allocation for being as a research subsidy and other research activities such as training sessions etc.

3.4 Percentage of teachers/ personnel who gain the scholarship for internal and external universities.

3.5 A number of budget for researches and parties in the institutes for teachers/ personnel of permanent contract.

3.6 The issue of materials of a budget involving a research each chance with convenience, rapidity and timeliness.

3.7 The issue of materials of a budget subsidy with a handbook or the instructions of step of issue of materials.

3.8 Budget subsidy of research corresponding with the research plans.

Factor 4: Research personnel, consisting of the following indicators:

4.1 Personnel involving a research in a policy level need to have visions and abilities of research management.

4.2 Personnel in a division of research are knowledgeable and skillful in doing research.

4.3 Personnel in a division of research are friendly.

4.4 A division of research contains the experts of supervision regarding the researches to support and guide for the researchers efficiently.

4.5 A number of personnel in a division of research are suitable for work.

4.6 Personnel involving a research need to be discipline and have morals relating doing a research well.

4.7 Percentage of personnel involving a research have knowledge of doing researches in order to facilitate the research production.

4.8 A protocol and personnel development plan involving research includes the short-term, middle-term and long- term period.

Factor 5: Research materials and facilities, consisting of the following indicators:

5.1 Sufficiency and modernity of the equipment, instruments or durable articles and laboratory.

5.2 Systems include supervisors and research clinic for assisting researchers.

5.3 Modern and efficient materials, equipment and laboratory to facilitate doing researches.

5.4 Various packages to facilitate doing researches such as data analysis programs etc.

5.5 Information technology system for researches to easily log in and be convenient for searching.

Factor 6: Production and controlling quality of research, consisting of the following indicators:

6.1 Systems and protocols of the project proposal corresponding with the policy and research plan responding to the internal and external budget resources.

6.2 Distinct and practicable systems and protocols regarding the production and quality controls of the researches.

6.3 Consideration of research proposal from the experts and specialists in each field.

6.4 Progress report of research projects provided in each period until the end of the project in order to control the quality as a plan.

6.5 A number of researches done and its quality control in each period of the procedure.

6.6 Quality controls of researches by the expert's assessment in each field for the accuracy of the research methodology.

6.7 Announcement about the production and the research quality control.

Factor 7: Follow-up and assessment, consisting of the following indicators:

- 7.1 A system and protocol in reporting in order to follow up and assess the progress of research project.
- 7.2 A friendly atmosphere of follow - up and assessment.
- 7.3 A follow- up and assessment of research management as due- date plan.
- 7.4 Percentage of researches planned.
- 7.5 A follow- up and assessment with acceptable criteria.
- 7.6 Acceptable and sufficient assessment from specialists in specific fields.
- 7.7 Participation in assessment from interested people in researches to get the most of advantages of researches.
- 7.8 Giving opportunities to adjust the research results after the assessment from the assessors.

Factor 8: Research publication and utilization, consisting of the following indicators:

- 8.1 Budget allocation for publishing and publicizing both domestic and foreign researches.
- 8.2 Systems and protocols of publicizing and driving researches to utilization.
- 8.3 Percentage of researches and journals published, publicized and utilized to professors in the local, national and international level.
- 8.4 Promoting knowledge sharing of research result to the development community and society around universities.
- 8.5 Supporting a patent registration or intellectual property protection.
- 8.6 Supporting researches in a field of commercial interests.
- 8.7 Supporting the journal writing skill for publishing and publicizing.
- 8.8 Arranging an academic conference for publishing and publicizing researches.
- 8.9 Publishing international standard research journals for publishing and publicizing researches.

Factor 9: Research network, consisting of the following indicators:

- 9.1 Systems and protocols cooperating with other networks for research cooperation from both the public and private sectors.
- 9.2 Sharing the resources and cooperating with other research institutes.
- 9.3 A number of research networks from both public and private sectors.
- 9.4 Promoting the research cooperation as an interdisciplinary network.
- 9.5 Sharing research information among the network in both domestic and foreign institutes.
- 9.6 Supporting doing researches with other domestic and foreign institutes.
- 9.7 Arranging academic conference with other institutes continuously.
- 9.8 Supporting the training program and visit program among the research network.

Factor 10: Other supporting systems and mechanisms such as motivation, etc. consisting of the following indicators:

- 10.1 Giving opportunities for young researchers in order to earn more scholarships.
- 10.2 Appropriate allocation of load regarding the research influencing on research facilitation.
- 10.3 Special rewarding for good quality of research as a prominent one.
- 10.4 Integrating the research with meritorious working assessment with acceptable standard criteria.
- 10.5 Rule and regulation adjustment being as an obstacle of research flexibility and facilitation.

2.2 Result of analysis of the IOC value from the experts to develop the indicators of research management for the second round

Results of the study of criteria for research management for private universities that obtained from the synthesis of related research and the interview with research management experts, it can be concluded as follows:

The determination of research management criteria is based on two types of indicators including qualitative indicators and quantitative indicators:

1) Qualitative indicators indicate standard criteria by item and there are 5 levels of assessment criteria ranging from 1 to 5 scores and the score will be 0 if there is no action.

2) Criteria of quantitative indicators are in a form of percentage or the mean, score ranging from the lowest to the highest levels. The assessment scores are from 1 to 5 and the score will be 0 if there is no action.

However, details of assessment criteria for each indicator are listed in the manual of research management assessment for private universities.

Result discussion

The researcher discussed the results based on the factors of research management as follows:

Factor 1: Research policies and plans

Results of the study of research management factors that obtained from the synthesis of related research and the interview with research management experts showed that the factor of research policies and plans are very important which are relevant to the study conducted by Maythee Wisaprom (2010), whose study is about research management forms of Office of Education Service Area, suggested key factor which is research policies. Moreover, there was a study about the current conditions of research management system and found out that operation level was at a low level regarding research policies and plans. For the aspect concerning the development of research management system, it came to the conclusion that there should be the determination of clear research policies and plans by considering the consistency of national research policies. This is relevant to the indicator 1.1; research policies and plans should be corresponding with the policy and national research strategies.

Factor 2: Structure and research organization management

Results that obtained from the information synthesis and the interview with experts provided important indicators including organizational structure that offers a unit that is responsible for research work directly. This is agreeable with the study conducted by Phra Maha Boonchuai Sirintharo and the team (2006). The study which is about the development of research management system in the aspect of the structure of research management indicates that there should be a section that is responsible for only

research for each campus for the purpose of effective research promotion. Furthermore, there should be the development of research management process of central universities in order to make it flexible and effective and favorable for researchers. Corresponding to the study conducted by Siroj Phonphanphin (2004), the study which is about model management of research management organization points out that it is not necessary to manage a fixed organization but it depends on such organization's policies which aspects the research unit needs to work on. Also, there should be a main department that can be moved and changed rapidly according to executive' policies, an organization that can be adjusted quickly that manages institute's research section.

Factor 3: Research budget

According to the study of one of the research management factors that is very important which is the aspect of research funding, there is one indicator which is appropriate allocation of research budget within institute. This is consistent to the study from Maythee Wisaprom (2010); he suggested that there should be a specific budget allocation for research as well as a commission for the consideration of budget allocation. All expenses should be determined clearly and flexible. Furthermore, there is another important indicator which is the disbursement of research funds, the researcher suggested that there should be a guideline or a form in order to show details of disbursement. The budget should be allocated in order to promote and support research operation and activities that are related to research such as training course, etc. In addition, Siroj Phonphanphin (2004) suggested that research fund should be allocated conforming to institute' policies and appropriate to the quality of research projects. Furthermore, the budget should be sufficient in order to produce quality research work and result. Budget management system should be convenient for research operation, reducing paperwork and restriction and increasing flexibility.

Factor 4: Research personnel

According to the study of research management factors in the aspect of research personnel, key indicator was obtained which is research personnel at a policy level should be a person with visions and abilities to manage research very well. The study from Rojnatchari Dansawat and the team (2007) stated that: considering the aspect of personnel leading to the find that research section executives did not have research experiences and did not dedicate to the work. They depended on the help from assistants

and therefore institute's research work did not move forward effectively. Furthermore, another important indicator is personnel who work for research office should have research knowledge and skills and able to provide advice regarding research operation to researchers effectively. From the study of research problems completed by Prayote Khupkarnchanakul and the team (2006), it was discovered that the structure of personnel who were responsible for research work often changed and moved which resulted in discontinuity and required more time to re-learn the work process. Besides, research offices usually lacked of team work and research experiences. The indicator of the number of research office personnel should be appropriate and sufficient to the amount of work. This links to the problems found by Somkiet Wattanasirichaikul (2007), he stated that there was a problem of the proportion of researchers; there were very small number of researchers in the academic field. In addition, most of researchers lacked of motivation to conduct research projects and the environment and organization culture were not research operation friendly. These problems resulted in the poor quality and poor efficiency of research management.

Factor 5: Research materials and facilities

Many of important indicators were found during the study of research management factors in the aspect of research materials and facilities including; robust and effective equipment and laboratory that facilitate doing researches, information technology system that can be accessed easily, and there are various software and programs that allow research operations to be conducted smoothly such as data analysis program. Anyhow, these indicators are relevant to what Pramaha Boonchuai Sirintharo and his team (2006) have suggested, approaches for developing research management system concerning information technology system and research facilities are consisted of the preparation and development of modern database that leads to quality research projects, the utilization of database in order to do publicize news and information about research work, there should be trainings that focus on data research ability, there should be the establishment of information technology center for research operation, and the coordination between other educational institutes for data research. These approaches are relevant to the study done by Duangduen Phuthayanan (2010) which is about the model of research management in which support and facility are one of the factors focusing on physical resource management such as laboratory building, tools, durable

articles and laboratory equipment, data research center, library, information technology system, and various programs that provide conveniences and support smooth and fast research operation.

Factor 6: Production and controlling quality of research

The study of research management factors in the aspect of production and controlling quality of research revealed that the indicators included system and mechanism of research production and quality control that are clear and practical, research proposals are reviewed and approved by experts who are experienced in specific fields, there is a report of research progress periodically until finished in order to make sure that the research quality is as planned and finished on time. Likewise, Napachanok Kamlung-aer (1998) mentioned that the development of research project unit should be assessed by experts who have experience in that particular topic. The experts should be honest and neutral. There should be meetings to provide opportunities for researchers to ask questions and receive suggestions and recommendations in order to further improve their research projects. Furthermore, the synthesis of related research regarding research management factors completed by Nadsuda Chamnasiri and the team (2006) suggested 5 aspects of research management factors and the most important aspect was research quality improvement.

Factor 7: Follow-up and assessment

According to the study of research management factors in the aspect of follow-up and assessment, the indicators included monitoring and assessment systems with acceptable standard and result assessment is done by experts who have experience in specific fields. This is relevant to the research which was conducted by Napachanok Kamlung-aer (1998), she suggested that there should be assessment criteria with clear indicators and the experts who will complete the assessment should be those who are experienced in such specific fields. Fur therefore, there should be meetings showing results of monitoring and assessment processes using monitoring system that supports research process more effectively. The researcher also recommended that there should be supervision project in order to visit researchers and to report the progress every 6 month. Likewise, Pramaha Boonchuai Sirintharo and the team (2006) suggested approaches for developing research management system concerning result monitoring and assessment which included fast and convenient monitoring and assessment systems

starting from research project assessment, progress report, and completed report preparation. Furthermore, there should be an assessment that conducted by experts who are expertise in such particular field and there should be standards to control research results that can be published and optimum utilized.

Factor 8: Research publishing, publicizing and application

The indicators found during the study of research management factors in the aspect of research publishing, publicizing and application included; budget allocation that supports research publication and dissemination including within the local, national and international level, supporting the journal writing skill for publishing and publicizing, arranging an academic conference for publishing and publicizing researches, and publishing international standard research journals for publishing and publicizing researches. These indicators are relevant to the approaches suggested by Pramaha Boonchuai Sirintharo and the team (2006), there should be a promotion for researchers to be able to publicize in various forms such as a meeting or a seminar to present research projects or the support for researchers to present their work to other organizations. However, these approaches should follow the research plan so that they are up to date in providing answers or suggestions to societies. Trainings should be provided regarding research presentation including article writing. Moreover, the researcher suggested that there should be a collection of research journals presented to public in both Thai and other languages for the purpose of transferring knowledge at an international level. Siroj Phonphanphin (2004) supports the above approaches by stating that most of the research projects were published within the country in different forms rather than in abroad such as distributing to libraries, publishing on media, or presenting in the meetings with outside organizations while presenting in an international level depended on the potential of researchers and the strength of each institute.

Factor 9: Research network

According to the study of research management factors in the aspect of the research network, various important indicators were found including; promoting the research cooperation as an interdisciplinary network, arranging academic conference with other institutes continuously, and supporting the training program and visit program among the research network. These indicators are relevant to approaches suggested by Pramaha Boonchuai Sirintharo and the team (2006) that there should be

promotion to create cooperation network for academic and research purposes within organization and between institutes. In addition, there should be a support for the cooperation to create substantial projects such as seminars or co-research operation. Group or network coordination should be supported continuously and regularly such as a meeting for executives. Moreover, the importance of network establishment should start from a good relationship that everyone supports each other. Rojanatchari Dansawat and the team (2007) supports the suggestions above by confirming that once of the important matters was the problem of connection of research system that was lacked of understanding and mutual goal of the academic advancement of university in which every section must be linked. So, this points out that research operation in a form of network is important for research management.

Factor 10: Systems and supporting protocols such as motivation etc.

The study of research management factors in the aspect of other systems and supporting protocols such as motivation etc. revealed different indicators including; appropriate allocation of load regarding the research influencing on research facilitation, rule and regulation adjustment being as an obstacle of research flexibility and facilitation, and giving opportunities for young researchers in order to earn more scholarships. Likewise, Sujira Prayoonpitak and the team (2007) also found that the lack of concrete research plan was one of obstructions for research operation, institute's policies that focused on teaching and resulted in too much workload, and too much mandatory activities which resulted in insufficient time for conducting research. If these problems are solved, research projects can be managed effectively. Furthermore, for the aspect of motivation, Somkiet Wattanasirichaikul and his team (2007) also pointed out the same problems included; researchers lacked of motivation for research operation, research environment and organizational culture were not research friendly, and too much work load. These problems are relevant to what Niphon Sukpridi and his team (2007) found out which was the lack of motivation to start doing research and doing it continuously.

Part 3: Results of the creation and the quality inspection of research management model for private universities

3.1 Results of the synthesis of related research and the factors of the assessment model

The researcher has synthesized research projects that are related to factors of the assessment model based on the concepts of Sirichai Karnjanawasi (2009) and Sathienphak Mukdee (2011), it can be concluded that the factors of the assessment model consisted of 1) purpose of assessment 2) subjects of assessment 3) assessor 4) assessment method 5) indicators of assessment 6) assessment criteria and 7) giving feedback.

3.2 Results of the creation of the assessment model of research management

Results of the development of assessment model of research management for private universities consisted of 1) purpose of assessment 2) subjects of assessment 3) assessor 4) assessment method 5) indicators of assessment 6) assessment criteria and 7) giving feedback. Details of each factor are as follows:

1. Purpose of assessment

To evaluate research management for private universities

2. Subject of assessment

The focuses of the assessment included the 10 factors of research management for private universities which are:

1. Policy and research plan, 7 indicators
2. Structure and research organization management, 7 indicators.
3. Research budget, 8 indicators.
4. Research personnel, 8 indicators.
5. Research materials and facilities, 5 indicators.
6. Production and controlling quality of research, 7 indicators.
7. Follow-up and assessment, 8 indicators.
8. Research publishing, publicizing and application, 9 indicators.
9. Research network, 8 indicators.
10. Systems and supporting protocols such as motivation etc.,5 indicators.

3. Assessor

The assessment of research management for private universities are comprised of concerned parties divided into 3 levels including; 1) Policy Level which comprised of the executive level Vice-Rector for Academic Affairs, Vice-Rector for research or Director of Research Division including the research committee of universities 2) Practitioner Level with researchers and 3) Coordinator Level consisting of personnel in Research division of private universities.

4. Assessment methods

An assessment method was conducted based on 70 indicators from the 10 factors and the data obtained from the assessment was compared to the assessment criteria. The assessor tried to understand the factors, indicators, and assessment criteria using the assessment guideline.

5. Assessment indicators

Assessment indicators of research management for private universities consisted of 72 indicators obtained from 10 factors. The assessors from the policy level and the coordination level assessed the 72 indicators while the assessors from the operational level assessed only some indicators including:

- 1) The policy and research plan, the indicators that were assessed included 1.1, 1.2, 1.3, 1.5, 1.6 and 1.7
- 2) Structure and research organization management for research operation, the indicators that were assessed included 2.1, 2.2 and 2.7.
- 3) Research budget, the indicators that were assessed included 3.1, 3.6 and 3.7
- 4) Research personnel, the indicators that were assessed included 4.1, 4.2, 4.3, 4.6 and 4.8.
- 5) Research materials and facilities, the indicators that were assessed included 5.1, 5.2, 5.4, and 5.5.
- 6) Research materials and facilities, the indicators that were assessed included 6.1, 6.4, 6.5, and 6.6
- 7) Follow-up and assessment, the indicators that were assessed included 7.1, 7.2, 7.3, 7.5, 7.6 and 7.8.

8) Research publishing, publicizing and application, the indicators that were assessed included 8.1, 8.7, 8.8 and 8.9.

9) Research network, the indicators that were assessed included 9.5 and 9.6.

10) Systems and supporting protocols such as motivation etc., the indicators that were assessed included 10.1, 10.2 and 10.3

6. Criteria of Assessment

An assessment criterion for research management was determined based on types of indicators in which they can be divided into 2 types including qualitative indicators and quantitative indicators:

1) The criteria of qualitative indicators indicate standard criteria by item and there are 5 levels of assessment criteria in which the scores range from 1 to 5. The score is 0 when there is no action taken.

2) The criteria of quantitative criteria are in a form of percentage or mean with operational level ranging from lowest to highest. The scores are ranged from 1 to 5 and 0 when there is no action taken.

7. Giving Feedback

Providing feedback refers to the report of assessment results of research management which completed by the assessors informing the results to university. The assessors are people who are associated with the university's research which can be divided into 3 levels including; 1) Policy Level which comprised of the executive level Vice-Rector for Academic Affairs, Vice- Rector for research and Director of Research Division, 2) Practitioner Level with researchers and 3) Coordinator Level consisting of personnel in Research division in a private university. The results given divided into two sections including sub-assessment results and overall results categorized by factor.

Result discussion

Results of the development of the assessment model of research management for private universities, which based on the concept of Sirichai Karnjanawasi (2009) and Sathianphak Mukdee (2011) in the aspects of the creation process and the quality inspection of the assessment model of research management for private universities based on factors of the assessment model, can be discussed as follows:

1. Purpose of assessment

Assessment model of research management for private universities was developed in order to provide necessary information for the improvement of research operation. Pitsanu Fongsi (2006) stated that the philosophy of assessment is to improve the aspects that being assessed and therefore assessment is the important mechanism that leads to the improvement of every aspect. Sirichai Karnjanawasi (2004) also confirms that a goal or a target of assessment is to develop the values of aspects being assessed. According to the development of the assessment model, the target of assessment is research management. So the purpose of assessment is focused on the development of the matters being assessed which is the development of research management to be more effective.

2. Subject of assessment

Results of the development of the assessment model of research management for private universities allow the researcher to discover that the factors of research management consists of 10 factors including 1) policy and research plan 2) structure and research organization management 3) research budgets 4) research personnel 5) research materials and facilities 6) production and controlling quality of research 7) follow-up and assessment 8) research publishing, publicizing and application 9) research network 10) systems and supporting protocols such as motivation etc. However, Pitsanu Fongdee (2006) mentioned about important assessment process which was the analysis of the assessed topics in which he explained that the researcher should thoroughly understand details of the topic being assessed by analyzing the topics that will be assessed in every aspect. Furthermore, Sirichai Karnjanawasi (2004) mentioned that the factors of assessment model should consist of the determination of the subject of assessment, that is, assessors should know or are able to determine what the subjects are. However, the researcher has thoroughly synthesized related research as well as analyzed topics about research management which are the focus of assessment.

3. Assessors

For the assessment of research management, assessors should be people who are associated with research system of the university's research which can be divided into 3 levels including; 1) Policy Level which comprised of the executive level Vice-Rector for Academic Affairs, Vice-Rector for research and Director of Research Division

2) Practitioner Level with researchers 3) Coordinator Level consisting of personnel in Research division. Nevertheless, Rattana Buason (2012) suggested that standard for utilization is determined with one indicator that is linked to the assessor which was stakeholder identification. He explained that a person who is associated with or is affected by the assessment should be clearly indicated in order to show the needs of assessment results. Furthermore, Rattana Buason pointed added that there should be operational plan that is involved with various groups of people and gain cooperation from them. This is relevant to what Neo proposed (referenced in Bantita Insombat, 2008), he presented steps of developing assessment model by giving 10 main questions in which one of the questions is concerned the researcher; who should the assessment is for? Who are stakeholders of the project? What are each person's roles? Who is the assessment judge? Who should be the assessors? And what are the qualifications? should there by only one assessor? Or as a team?

4. Assessment method

The assessment method is conducted based on indicators from each factor and the data obtained from the assessment will be compare to the assessment criteria. The assessors studied and understood the criteria using the assessment guideline. However, Sirichai Karnjanawasi (2004) suggested 3 factors of assessment model and he focused on the most important one which was the determination of assessment method. Assessment method is a process of obtaining data in order to judge the value of the assessed topics. In addition, Sirichai Karnjanawasi (2010) added very interesting opinion about the assessment; he said that value judgment of the assessed items requires propriety inspection using a method that is conforming to the situation of such assessment. There are important criteria that should be used to value the quality of assessment method: clear assessment objective and goal. So, assessment method should be conform and appropriate to the context as well as understandable and acceptable. Therefore, important factors will lead to appropriate selection of assessment method. Rattana Buason (2012) suggested that any method used in the assessment must be practical and assessors should conduct the assessment by following assessment guideline with clear details and explanation.

5. Indicators of assessment

Indicators of research management assessment are developed from the synthesis of related research projects and the interview with experts who have experience in research management, in order to gain consensus opinion and agreement confirming that 72 indicators from 10 factors are appropriate and complete. Rattana Buason (2012) stated that standard and indicator are related to each other as indicator is a sub-composition of the standard and one standard is comprised of one indicator or more. Indicators indicate the accomplishment of such standard, some indicators are abstract and they need to be developed. Thus, the development of standards and indicators needs to be accomplished. Besides, good features of indicators should be comprised of 1) precision which means that the value indicates such topic is precise, 2) accurate which means it should indicate the conditions of such topic correctly and clearly with a reliable value, providing mutual understanding, 3) neutral which means that the indicator should be fair and not taking side by telling only failure or only success, 4) quickness which means that the indicator should reflect the conditions of the assessed topic quickly and show differences of the assessed topics clearly, however, such indicator should have measurement and measurement unit that have enough resolution, and 5) easy-to-use which means it should be use easily such as collect data easily or interpret meaning easily, etc.

6. Criteria of Assessment

Assessment criteria of research management are developed from the synthesis of related research projects and the interview with experts who have experience in research management. After that the assessment criteria for 72 indicators was developed; the experts reviewed and considered the appropriateness of assessment criteria in order to fine consensus opinion by making decision which indicator should be assessment criteria of research management assessment for private universities. The criteria included; the median is higher than 3.50 and quartile range not more than 1.50. In addition, Suwimon Wongwanich (2001) has given meaning of assessment that it refers to the judgment of values of the aspects being assessed by comparing to the criteria. The focusing points of assessment are fairness and appropriateness of the criteria used whether or not they are transparency, open, precise, and reliable. Furthermore, the data obtained from the measurement process should be quality data providing accurate

measurement results and conform to reality. For the process of development of assessment model, Neo (referenced in Bantita Insombat, 2008) stated that criteria, which will be used judging the values of the assessed items; either objective criteria or benefit criteria that is appropriate or conform to the assessed item, will be selected by considering its precision and reasonableness. Sirichai Karnjanawasi (2004) mentioned that assessment criteria or judgment method refers to a comparison method of data that has been measured and statistical analyzed. It is the comparison between data referring to the features of the focus points and judgment criteria in which it is considered as a standard of value. In addition, such standard has been determined by reliable methods and once assessor judged the assessment, the results will be concluded in order to determine the value of such assessed items.

7. Giving Feedback

Giving feedback refers to the report of assessment results of research management which completed by the assessors informing the results to university. The assessors are people who are associated with the university's research which can be divided into 3 levels including; 1) Policy Level which comprised of the executive level Vice-Rector for Academic Affairs, Vice- Rector for research and Director of Research Division, 2) Practitioner Level with researchers and 3) Coordinator Level consisting of personnel in Research division in private universities. The results given divided into two sections including sub-assessment results and overall results categorized by factor. However, Pitsanu Fongsi (2006) talked about assessment process in the aspect of report writing in which he explained the assessors writes a result assessment report as a medium for those who utilize the assessment results, associated people, or people who are interested in and offices. Furthermore, Rattana Buason (2012) recommended that the preparation of assessment report should be clear by explaining a clear picture of the project being assessed including context, objectives, assessment methods, and its results. In conclusion, such information should be easy to understand. Assessment results and assessment report must be accomplished on time so that people who are interested in can utilize it immediately. Assessment report should honestly reveal the findings, especially for restrictions of the assessment that might affect someone. The report must be in neutral tone and reflect the findings fairly.

Part 4 Result of examining the implementation of research management assessment model for private universities

4.1 Quality assessment results of examining the implementation of research management assessment model for private universities in University A

1. Quality of the assessment model using evaluation theory is consisted of the following 3 aspects:

1.1 Assessment subject: the appropriateness of every item is at a high level and overall image of propriety is at a high level.

1.2 Assessment method: the appropriateness of every item is at a high level and overall image of propriety is at a high level.

1.3 Assessment results: the appropriateness of every item is at a high level and overall image of propriety is at a high level.

2. Quality of the assessment model using assessment standard, consisting of 4 quality aspects:

2.1 Utility: the appropriateness of every item is at a high level to the highest level and overall image of propriety is at a high level.

2.2 Feasibility: the appropriateness of every item is at a high level and overall image of propriety is at a high level.

2.3 Propriety: the appropriateness of every item is at a high level to the highest level and overall image of propriety is at a high level.

2.4 Accuracy: the appropriateness of every item is at a high level and overall image of propriety is at a high level.

4.2 Quality assessment results of examining the implementation of research management assessment model for private universities in University B

1. Quality of the assessment model using evaluation theory is consisted of the following 3 aspects:

1.1 Assessment subject: the appropriateness of every item is at a high level and overall image of propriety is at a high level.

1.2 Assessment method: the appropriateness of every item is at a high level and overall image of propriety is at a high level.

1.3 Assessment results: the appropriateness of every item is at a high level to the highest level and overall image of propriety is at a high level.

2. Quality of the assessment model using assessment standard, consisting of 4 quality aspects:

2.1 Utility: the appropriateness of every item is at a high level to the highest level and overall image of propriety is at a high level.

2.2 Feasibility: the appropriateness of every item is at a high level and overall image of propriety is at a high level.

2.3 Propriety: the appropriateness of every item is at a high level to the highest level and overall image of propriety is at a high level.

2.4 Accuracy: the appropriateness of every item is at a high level to the highest level and overall image of propriety is at a high level.

Result discussion

The study of the results of using the assessment model of research management for private universities involves evaluation theory (Sirichai Karnjanawasi, 2009) as a concept for the quality assessment of the assessment model. The evaluation of the assessment work is to judge the quality of the assessment and if the assessment has a good quality it should include quality of “the determination of assessment subjects,” “assessment method,” and “assessment results.” However, key criteria that should be used to judge quality of the determination of assessment aspects included the analysis of needs and the participation of people who need to use such information. This is conforming to the operation completed in step 1: examining the current condition and the needs in the research management assessment for private universities. Regarding assessment method, the important criteria that should be used included the clear objective and goal of assessment in which the objective and goal of the assessment of research management for private universities is to evaluate research management for private universities. Once the assessment is completed, private universities will receive information and data that are useful for the improvement and the development of research operation. This is relevant to Sirichai Karnjanawasi (2010) which he stated that the goal of the assessment is to suggest useful information that is favorable for decision makings of organization’s executives. So, it can be said that important factors will lead to appropriate selection of assessment method which is the determination of clear objective and goal. Regarding assessment results, the most important thing are that they can be utilized and are useful for associated people, however, who that will be utilizing

the benefits is the responsibility of the assessor to indicate from the beginning of the assessment. In addition, the assessment results should be fair; data must be collected carefully and collected from various sources. The criteria used should be reasonable and acceptable and conform to research methodology. The assessors are stakeholders and are associated to the research project including 3 levels which are policy level, practitioner level, and coordinator level. Regarding indicators and assessment criteria, appropriateness is inspected by experts who are experienced in research management to find consensus opinion in order to make sure that such indicators and assessment criteria are appropriate and truly agreed by every expert.

For the results of assessment, they are considered by the assessment standards (Rattana Buason, 2012) which consisted of 1) utility standard, 2) feasibility standard, 3) propriety standard, and 4) accuracy standard. These four standards are widely used in order to evaluate projects or assessment models, for example; Sathienphak Mukdee (2011, p. 218) presented the experimental result of using assessment model of research and development institute of Rajabhat universities that the model is useful with feasibility, propriety, and accuracy at a high level and it can be utilized in a real situation. This is relevant to the experiment result of the use of good governance assessment model for government universities which presented by Pradthana Kowitthayangkul (2008, p. 228) in which the result revealed that the participants agreed that the model is useful with feasibility, propriety, and accuracy at a high level.

Recommendations

Recommendations for the utilization of research results

1. Private universities should perform research management assessment in order to improve and develop research work continuously; however, the assessment model of research management obtained from this research can be applied.

2. Private universities can apply the assessment model of research management which they may assess some indicators or some factors of research management in order to improve and develop only some aspects that are problems and it is unnecessary to assess all factors.

3. Private universities can utilize research management however they should study details and usage guideline of the assessment model so that they fully understand

the model. Changes may be done in the section of indicators and some criteria to make it appropriate to the context and feasibility for real situation for each organization.

Recommendation for further research

1. There should a study of impacts of the use of the assessment model of research management for private universities in order to use the obtained information to improve and develop research work to be more effective.

2. There should be an assessment of research management in faculty level in order to examine strength/ weakness of each factor and indicator for the purpose of development and problems can be solved in the right direction.

3. There should monitoring and result assessment process of research management for private universities on a regular basis so that research projects are in good quality according to factors and indicators.



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