

Chapter 2

Literature Review

This research was designed to study about the model assessment of research management for private universities. The researcher has studied the related document and researches as follows;

- 2.1 The internal quality assurance of higher education of the educational organization.
- 2.2 Thai research system
- 2.3 Research Management Concepts
- 2.4 Model concept and model development
- 2.5 Evaluation theory and model
- 2.6 Theory of Evaluation of assessment
- 2.7 Research and Development Concepts
- 2.8 Concept of research needs assessment
- 2.9 Research ethics
- 2.10 Related researches
- 2.11 Research framework

2.1 The internal quality assurance of higher education of the educational organization

There are four main missions that higher education institutions have to manage. (The Quality Assurance Manual for Higher Education Institutions, 2010, page 1) They are the production of graduates, doing research, providing academic service to society, and the preserving arts and culture. The implementation of these four missions is critical aspect to the development of the country in both short and long term.

The education quality assurance

The education quality assurance becomes actual action in Thailand when it is printed in the National Education Act, BE 2542 (1999) section 6 on standards and quality assurance of education. This Act requires that all educational institutions do quality assurance for education as a part of educational administration. This quality

assurance must be carried out in accordance with the prescribed procedures in order to check the quality of all educational institutions by being evaluated the quality at least once every five years (Pisanu Fongsri, 2006, 177-183).

Education quality assurance associates with assessment. In order to have assurance, the education institutes must be evaluated by the assessment tools. The two major types of assessment are internal quality assessment and external quality assessment.

Internal quality assurance means the management in developing students' qualities done by the school administrators to serve the needs, requirements, and confidence of the outside organizations or the customers who receive the service by using the internal and external assessment as the main tools. The education assurance is based on two basic principles. First, management principle which has three steps; planning, doing, and evaluating and has sub steps by having four steps which are planning, doing, evaluating, and improving. The evaluation stage can be divided in to two steps therefore the process can be more than four steps. Another idea which is the main core idea in doing quality assurance has three steps; plan, do, and check. There can be two steps in check. Therefore, the common processes in doing internal quality assessment are plan, do, check, and act. (PDCA)

External quality assurance means the quality of educational management quality and education standards assessed by the outside educational inspectors who have been accredited by the Office of Higher Education. The aim is to improve the quality and standard of education of the institution. External inspectors must be independent and unbiased with no personal benefits. It will lead to the standard of educational qualities.

The results in research of private universities

From www.cheqa.mua.go.th which is database system for quality assurance in higher education. The researcher had selected a database of private universities and can summarize the quality assurance of researches or creative works as follows;

1. Bangkok University

Bangkok University is considered in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The results of the fourth component evaluation about research were in a very good level. In addition, the administrators had suggested the improving points: 1) The university should promote and support the

research policy for commercialization. 2) The university should encourage the faculty staff to continuously develop their research and improve the quality of research. 3) The university should emphasize its target group and survey external actual needs by implementing knowledge management systems. 4) The university should increase publicity and disseminate knowledge from research or creative work to the public and stakeholders through more channels.

2. Bangkok Thonburi University

Bangkok Thonburi University is considered in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The institute has focused on undergraduate. The result of the fourth component evaluation about research was in a below -standard or need improvement level. In addition, the administrators had suggested the improving points: 1) The university should encourage the dissemination of research or creative works in academic conferences or publish them in the national or international journals. 2) The university should provide funding support for doing research and creative work in order to increase research quality and quantity. 3) The university should set a knowledge sharing opportunity where the faculty who receive funding from external sources can share his/her experiences.

3. Krirk University

Krirk University has its research center that support in research development and textbook production. . This center is closely coordinated with the various faculties, which are the important factors in driving the university's research. The center also provides the seminars to increase knowledge and skills in conducting research of teachers. In addition, the university professors in each faculty are able to apply for research grants from the outside institutions. The point to develop suggested by the administrators is about the small proportion of professors to the research. And the number of the research published in both national and international level is still below the standard level. Therefore, the university should plan to increase the research outputs of each faculty member more clearly with the continuously follow- up.

4. Kasem Bundit University

Kasem Bundit University is considered in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The result of the evaluation of the fourth component on research area was in a fair level. The administrators had

suggested the points to be developed which are; 1) The number of academic and research networks is still small. 2) Research and academic articles that are published is in a small number.

5. Christian University

Christian University is in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The administrators had suggested the research improvement points which are; 1) Improve the systems and devices for creating research or other creative works in order to cover all types of research. 2) Accelerate the research support and encourage the faculty to develop research or new knowledge findings. 3) Accelerate the support and encourage the faculty to publish the research papers in journals or in both national and international conference 4) Accelerate the support and encourage faculty to get the financial supports and cooperate with outside organizations in conducting the research that benefit the community, society, and the needs of other external organizations.

6. Shinawatra University

Shinawatra University is in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The result of the evaluation of the fourth component on research area was in a good level. The administrators had suggested the research improvement points: 1) encouraged the faculty to publish research papers in international level. 2) Research networks should be established within the organizations or cooperate with the outside organizations. 3) It should search for the research funding from external organizations such as the Ministry of Science, Technology and Environment, and the National Science and Technology Development. 4) It should promote integrated research in order to develop knowledge from various fields and bring the results to be beneficial for the community.

7. St. John's University

St. John's University is in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The evaluation of the fourth component on research area was in a good level. And the administrators had suggested the improvement points: 1) There should be strategies to assist the teachers to write a qualified research papers for national and international publication. 2) There should be strategies to receive external research fund.

8. Thonburi University

Thonburi University is in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The evaluation of the fourth component on research area was in a good level. And the administrators had suggested that: 1) The amount of the research that integrates in teaching and academic services area is still in a small number compared to the total number of all researches. 2) Research funds from outside are insufficient.

9. Dhurakij Pundit University

Dhurakij Pundit is in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The result of the fourth component of the research evaluation was in a good level. And the administrators had suggested the improvement points that; 1) The amount of the research is in a small number. 2) The research supported by the university should be more qualified.

10. North Bangkok University

North Bangkok University is in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The result of the fourth component of the research evaluation was in a fair level. And from the improvement points suggested by the administrators were: 1) More knowledge should be provided to the faculty members and staff who are interested in conducting a research. 2) Research clinic should be established and consulted by research experts. 3) The university should support more research fund. 4) The university should build more internal and external research networks. 5) The university should focus more on research publications in both national and international academic journals.

11. North Chiangmai University

North Chiangmai University is in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The result of the fourth component of the research evaluation was in a fair level. And from the improvement points suggested by the administrators were: 1) The university should provide more supports in conducting a research especially in engineering and science and technology areas. 2) The teachers do not interest in doing research because they have too much teaching loads and there is not enough motivation. 3) The university should find the strategies in acknowledging the staff about research and innovation. 4) There should be mechanisms for faculty promotion in research and innovation. 4) Research criteria should be

reconsidered properly. It should have standardized units equivalent to teaching tasks. 5) The university should organize the research knowledge sharing opportunity.

12. Naiton University

Naiton University is in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The result of the fourth component evaluation on research area was in a fair level. And from the improvement points suggested by the administrators were: 1) The university should provide more supports and encourage the staff in conducting a research. 2) The number of research paper is still in a small number when compared to the number of the teachers so the university should encourage the staff to do more research and make use of the research results. 3) The university should indicate the precise research indicators that match with the university identities. 4) There should be a research evaluation and giving feedbacks continuously.

13. Pathumthani University

The results of the evaluation of the fourth component on research area showed that Pathumthani University is in a fair level. The administrators had suggested the research improvement points as follows: 1) There should be a follow-up and an evaluation of research results applications and funds.. 2) The system and strategies of research should be established. 3) The number of research outputs does not reach the set goal. 4) The university should offer more support and research budget to increase the number of both quantitative and qualitative research. 5) Research networks should be established at the institutional, cross-institutional, national, and international level. 6) Integrate the research into classrooms in order to improve teaching and learning quality or develop the universities' strengths. 7) Encourage the development in innovative research.

14. Payap University

Payap University is a university in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The result of the evaluation of the fourth component on research area was at a fair level. The administrators had suggested the research improvement points as follows: 1) The university should develop research conducting in all faculties. 2) The university should set a policy in developing a methods to support the benefits for the research with patent 3) Develop a system for

collecting, analyzing, and synthesizing knowledge from research and other creative works to be beneficial for the public concretely.

15. Far Eastern University

Far Eastern University is a university in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The result of the evaluation of the fourth component on research area was at a need- improvement level.

16. Rangsit University

Rangsit University is a university in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The result of the evaluation of the fourth component on research area was at a very good level. And the administrators had suggested the improvement points which are; 1) The university should increase the efficiency in research process or other creative works to make them succeed accordingly to the set goal. 2) The research that related to the local wisdom or solving problems in the society should be conducted more.

17. Rattana Bundit University

Rattana Bundit University is a university in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The result of the evaluation of the fourth component on research area was at a fair level. And the administrators had suggested the weak points which are; 1) The less number of academic researches 2) The teaching load and the lack of research interest of the teachers. 3) The lack of knowledge and skills in conducting knowledge. 4) The follow-up system should be more effective. 5) The rules and regulations should be adjust to make it easier.

18. Sripatum University

Sripatum University is a university in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The result of the evaluation of the fourth component on research area was at a need improvement level. And the administrators had suggested the improvement points which are; 1) The university should expand the number of the researchers in order to have more research paper. 2) The university should support the staff to have more research funding from the outside institutes.

19. Siam University

Siam University is a university in group B which refers to the institute that has focused on undergraduate or bachelor's degree. The result of the evaluation of the

fourth component on research area was at a need -improvement level. And the administrators had suggested that the university should encourage the staff to do more research paper.

20. Southeast Asian University

South East Asia University is considered in group B university which refers to the university that has its focus on the production of graduates at the bachelor's degree level. The result of the fourth component of the research was in a good level. The administrators had suggested that 1) There should be a system or methods to create research based on local knowledge or response to social needs. 2) The university should set an annual academic conference that allow the researchers to present the research results of each faculty and also give the research award. 3) The research database should be restored with research data in all aspects of research to facilitate searching for more research information. 4) The university should support the expenses of the publication of research papers both in national and international level. 5) The university should encourage faculty to get research funding from both internal and external sources.

21. Phitsanulok University

Phitsanulok University is considered in group B which refers to the university that has its focus on the production of graduates at the bachelor 's degree level. The result of the fourth component of the research was in a need improvement level. The administrators had suggested that 1) There should be a strategic plan for research that focuses on integrating research and other teaching missions. 2) There should be more motivations for teachers to make contributions in conduction research. 3) Clinic research should be established to accelerate the development of new researchers to conduct research systematically 4) The results of the research should be a synthesized to be utilized for other institutions and society. 5) The database should be constantly updated 6) The university should encourage the staff to search for more research funding from both inside and outside the university.

From the database system of quality assurance in higher education of the private universities mentioned above. The results of the evaluation of the fourth component of the research are presented in Table 2.1

Table 2.1 The results of the research evaluation of the quality assurance of higher education of private universities.

Private Universities	Evaluation Results				
	Urgently need improvement	Need Improvement	Fair	Good	Very Good
1. Bangkok University					✓
2. Bangkok Thonburi University		✓			
3. Kasem Bundit University			✓		
4. Shinawatra University				✓	
5. St. John's University				✓	
6. Thonburi University				✓	
7. Dhurakij Pundit University				✓	
8. North Bangkok University			✓		
9. North Chiangmai University			✓		
10. Nation University			✓		
11. Pathumthani University			✓		
12. Payay University			✓		
13. Far Eastern University		✓			
14. Rangsit University					✓
15. Rattana Bundit University			✓		
16. Siam University		✓			
17. Southeast Asian University				✓	
18. Phitsanulok University		✓			

The summarized information on the results of the evaluation of the fourth component on research area showed that there are 2 universities that were considered in a very good level or about 11.11 percent. There were 5 universities that were considered in a good level or 27.78 percent. There were 7 universities that considered in a fair level or 38.89 percent. There were 4 universities that considered in a need improvement level or 22.22 percent. When combined those universities that considered in fair and need improvement level, the percentage was 61.11 percent.

In addition, the database system of quality assurance in higher education of the private universities had mentioned above the summarized suggestions of improvement aspects as shown in table 2.2

Table 2.2 The result of the synthesized of the concise suggestions of improvement aspects of private universities

Universities	Research plan and policy	Structure/management	Research budget	Researchers	Research tools	Conduct/control/quality of research	Follow-up and evaluation	Dissemination of research results	Research network build up	Other systems/strategies
Bangkok						✓		✓		
Thonburi			✓			✓		✓	✓	
Krirk	✓					✓	✓	✓		
Kasem Bundit								✓	✓	
Christian						✓		✓	✓	✓
Shinawatra			✓					✓	✓	
St. John			✓					✓		
Thonburi			✓			✓				
Dhurakij Pundit			✓							
North Bangkok			✓	✓	✓			✓	✓	
North Chiangmai	✓	✓	✓					✓		✓
Nation	✓					✓	✓			
Pathumthani			✓			✓	✓	✓	✓	✓
Payap						✓		✓		
Rangsit		✓				✓		✓		
Rattana Bundit		✓		✓		✓	✓			✓
Siam						✓				
Southeast Asian		✓	✓					✓		✓
Phitsanulok	✓	✓	✓	✓				✓		✓

From the data gained from the many private universities, the researcher had synthesized the research evaluation area in 10 aspects which were 1) Research planning and policy 2) The structure and management of the universities 3) Research budget 4) The amount of researchers 5) Research tools 6) The conduction, control, and quality of the research 7) Follow-up and evaluation process 8) Dissemination of research results 9) Building up research network 10) Other supportive systems or strategies

2.2 Thai research system

National research budget

In administrative research, the major research resource is the budget. In order to achieve the government research goal, the budget has become one of the important tools in assessing the efficiency of resource usage.

Researchers

Researchers are considered to be the most important group of people of the country and are considered as an indicator of the research progress of the country, because new knowledge can be discovered by the research that cannot be succeeded without the researchers. (Research Policy and Planning Division, 2004, p. 114). In this current situation, the researchers in Thailand are shortage. The ratio between the researchers and the population is 2:10,000 people which is very low when compared to developed country. In the developed country, the ratio between the researchers and the population is 50-70:10,000 people.

Dissemination of research results

The problem of dissemination of research results as perceived by the executive administrators of different research institutes or researchers of both higher education and private sectors were in a high level. There is not enough organizations run by the government that supports the expenses in printing and producing the copy, so the dissemination of research result is very limited. There are also the problems related to the research dissemination evaluation. Regarding these problems, the National Research Council should support the research dissemination by using technology or any other effective forms of dissemination to widely disseminate the research results as much as possible. (Policy Research and Planning Division, 2004, 140-148).

Use of research results

The current research project approval mainly focuses on the benefits of research more than the past. These benefits are predominantly referred to the commercial benefit which is the factor in increasing economic value. (Research Policy and Planning Division, 2004, 149-154). In other words, the problem in research results usage is in high level whereas the commercial practices are in low level. Intellectual property protection from government is generally proved ineffective.

2.3 Research Management Concepts

The problems and obstacles of research management.

According to the study of the problems and obstacles of research management of both public and private universities, the problem states can be categorized as followed aspects; structure, personnel, budget, and connection of research systems in network building.

A study by Rotchanatch Darnsawasdi et al. (2007). "Research Project to Strengthen Research Management of Prince of Songkla University: The Case Study in Science and Technology" found that there was a policy problem. As the research department was trying to completely accomplish the policy of the research department of the university, the research scope was too board and lacked of focus. In policy structure, there were changes in both the university administrative level and the research department. These changes make the policies and management uncertain. When seeing on the personnel aspect, it was found that the research staff had no experiences in doing research. They had no time nor effort to conduct the research. They also cannot work individually, instead they always require assistants. This issue obstructs the research to progress efficiently. In addition, the research supportive budget is not tangible and insufficient. Another important problem can be found in the connection of the network building research system, there is a lack of shared understanding among the staff about the ultimate goal, in fact all sections must be connected.

Which corresponds with Prayote Kupkanjanakul et al. (2006) who had conducted a research project on the "Development of Local Research Developmental Management System of Suratthani Rajabhat University." The problem was found in organizational structure and personnel area. There were changes in structure and staff that affected the responsible persons. Therefore, there is no consistency in working and spend more time training new people. And also the problem of the personnel was the lack of team persons who had experiences in doing and working on the research.

Siroj Ponpantin (2004), had done the research on, "The research administration model of higher education institutions" found that there were similar problems in personnel, budget, and connection of research network systems. The building up of the network has been facing of the shortage of researchers in both quantitative and qualitative methodologies. To solve the shortage of researchers, the higher education

institutions has created new researchers and develop those remaining researchers. The budget management system has been adjusted to be more flexible, convenient, and faster. In addition, the university has sought for more research funding. The crucial problem in lacking of agility and effectiveness system, each partner in the research system should have collaboration in conducting research. It maybe the integration of research management concepts such as; economic, knowledge based, assimilation research and the application of knowledge.

For the study of the research project "Proactive Adaptive Research Management System" by Somkiat Wattanasirichaikul et al. (2007) showed that the problem about the broaden policy issue was similarly found. Another problem was the proportion of research budget was not enough to provide effective research systems. Budget administration system is very slow and inconvenient. The difficulties in making document is always a problem. And compensation does not motivate. In personnel area, it is found that the amount of the researchers is very low when compared to all academic personnel. Researchers lack of the motivation to do research. The organization culture is not promoting the research doing atmosphere, instead there were too much workload. Research unit is a small part. There were inadequate staffs to support research work requirements. This affected the effectiveness of research administration. The poor coordination and networking building and the lack of electronic systems which can help facilitating in doing research and reducing paper usage. There was also the lack of research database for decision-making, lack of the systematic follow-up and evaluation. Besides, another problem is that the social contribution is low because most based on personal interests of each researcher, not based on the needs of the society and the national strategic plan. The dissemination and introduction of knowledge was very limited. There were very few patents.

From the research administration of three private universities namely; Payap University, Siam University, And Walailak University, the results showed the similar problems to those of public universities. They were problems in policy, organization structure, personnel, and budget.

For the area of the research connection network based on the study "Guidelines for the Strengthening of the Research Management System of Payap University" by Sujira Prayoonpitak et al. (2007) showed that there was no clear policy and research

direction nor the correspondence between Payap University research policy and national research policy. There were no concrete research plans and working regulation was research's barriers. The policy mainly emphasized on classroom instruction that made the teachers spend most of their time teaching and planning for the classes. Furthermore, teachers were assigned to be committees in many activities. There was not enough time to do research. As for budgetary issues, it was found that the support of research funding did not cover staff and students and insufficient. In terms of personnel, it was found that researchers had little research experience. There were no concrete guidelines for new researchers to develop or create their research paper. In addition, the research management system was inactive. It took a long time to communicate and approve the project. There was no precise duration of the project and lack of guidelines and strategic plan to stimulate interest in ongoing research. Another interesting problematic issue was the less number of external organization networks. There was no research network within the faculty or department either. Another important issue was the low number of works and the quality of the research.. Most of the researches were done as a single job that scattered around, poor quality, not connected to the teaching, and the results cannot be utilized. There was no research integration or interdisciplinary in the research. The research paper was just limited only in the researcher's faculty.

As for the research of Siam University done by Nipon Sukkapreede et al. (2007), "The Development of Research Management Innovation in Thai Higher Education Institutions: A Case Study of Siam University" the similar problems were found in the research management system of Siam University. Although there was a clear research university management system, there was no research management in faculty and department levels. There were very few specialized research centers. The teachers had too many teaching hours and lack of knowledge in research and development. Moreover, the process of proposing the projects was too complicated and inconvenient. The basic research tools such as laboratory, measurement equipment, were not provided. The staffs were not motivated to do research. There were a little cooperation with outside organizations and lack of budget supported by the government.

Components of research management

There are 19 researches that were studied about the important components of research management in higher education institutions in Thailand. The researcher had

classified by the category of higher education institutions of the government institutions, private institutions, Rajabhat cluster, Rajamangala Institute of Technology cluster, and the religion-focused university. As the following details;

There were 3 findings from the study of the important components of research management in government higher education institutions.

First, the study of important components of research management of Chiangmai University done by Jethada Kasemset et al. (2006) From The Research Innovation that Enhance the Performance, there were four defined components; 1) Input factors which composed of: 1.1 The manpower which means the researchers 1.2 The budget 1.3 The equipment and tools that assisted not only in concept but also in skill improvement. 2) Process means all process of operation that providing research management services. They were composed of management and administration, finance, planning and development, and international affairs 3) Product means research report or research work, patents and publications. And 4) Results means the beneficial use of research results. In order to utilize or create value for knowledge, the university should set the process in knowledge management through brainstorming sessions among researchers that may lead to the new proposal of research project.

For Mahidol University, there was the study on the key components of research management that were conducted by Sasithorn Pukrittayakamee et al. (2007) Research management innovation in the Faculty of Tropical Medicine, Mahidol University had suggested 4 components: budget, recipients, methods of operation, and learning and development.

Based on the Prince of Songkla University's research on the key components of research management, by Srisompop Jitpiromsri et al. (2007) in Research Management System for Regional Universities Case Study: Humanities and Social Sciences Prince of Songkla University, there were 5 important aspects founded. They were 1) the researcher's development system, 2) the funding source management system, 3) the dissemination and application system, 4) the research information system, and 5) the research network system both inside and outside university. In addition, another study of Prince of Songkla University done by Rotchanatch Darnsawasdi et al. (2007) on action research project to strengthen research management of Prince of Songkla University: a case study of science and technology had proposed the similar point. They were 1) the funding source management system 2) the researcher's development system

3) research network system 4) research management and information and technology system 5) the dissemination and application system 6) others supportive systems

For the study of the components of the research administration of private universities, by Sujira Prayoonpitak et al. (2007) on Strengthening the Research Management System of Payap University. The suitable directions of the components mentioned were 1) the research system is clear and can control and supervise the quality of research, number of researches, and ways to apply and utilize the research results. 2) the system of research management is flexible and proactive in the beginning, the middle, the final of the whole process which opened for all new creative ideas and the participation of all parties. Besides, the evaluation must be tracked in each step. 3) research organizations must recruit personnel into the organization and train them to be a qualified researchers and team player 4) build up internal and external research network that can lead to the integration of research and the sharing of research resources. Above all, it is important that all systems be adapted to the situation and dynamic. The application of the research results can be shared through the exchange of learning experience and to establish a cooperative research network.

For the study of key components of research administration of Rajabhat Universities based on the study by Prayote Kubkanjanakul(2006) on the Development of Local Research Developmental Management System of Suratthani Rajabhat University, there were 4 main elements that are proposed: 1) research development; 2) development and consideration of research proposals; 3) research monitoring, evaluation, and supports 4) dissemination of research to be use beneficially.

This was similar to the study of Tanawan Sukkasem (2006) on research management of Phetchabun Rajabhat University. The 4 key components were summarized as follows: 1) research question development system 2) research proposal development system, 3) research monitoring and support system, and 4) research dissemination system. And from the study by Nartsuda Chemnasiri and others (2006) on the comparison of quality development, management of research for local and urban development; case study of Chandrakasem Rajabhat University, the results had suggested 5 elements of research management which were: 1) research quality development 2) researcher development 3) development support 4) research management system development, 5) process of research dissemination and building - up networks.

It is obvious that Rajabhat Universities have their similarities in terms of the research management development. This may be because all Rajabhat Universities have the similar characteristics and context.

Considering the study of the components in various technology universities, the study was conducted by Chalong Ourairat and et al. (2007) on the management of scientific and technological research for Rajamangala University of Technology Srivijaya, southern Campus, it suggested the two main components. There were the management of research projects and research support policy. There were 3 sub-components in the management of research projects which were: 1.1. The management at the beginning point which were the project development and research questions development 1.2 The management in the middle stage referred to the project monitoring and visits. 1.3 The ending management which were the promotion of works for use and publication or dissemination. The research support policy were also divided into 3 parts: 2.1 Motivation which can be done by promotion, workload calculation, and reward presentation 2.2 Rules and regulatory which covered the finance and other supports. 2.3 Research tools referred to the information and technology systems, the development of new researchers, and research assistants.

For the study of Phra Maha Boonchai Sirithro et al. (2006) on conditions and guidelines for the development of the research management system of the academic and research network Mahachulalongkorn University College, there were 9 components suggested. They were 1) policy and plan 2) research management structure 3) researchers development 4) information and technology system and facilities 5) research incentives 6) collaborative in research conducting 7) budget and cost of research fund 8) monitoring and evaluation 9) dissemination and utilization of research results.

Mentioned above were about the key components of research administration in higher education in different contexts. The study of Siroth Ponpantin (2004) about the research administration model of higher education institutions in broad overview that covered all contexts had structured 6 aspects as follows: 1) Organizational organization is divided into 1.1. Official 1.2 Company 1.3 Flexibility / Innovation 1.4 Networking 2) Human Resource Management 2.1 Researchers 2.2 Research Assistants 3) Budget Management 3.1. Internal sources 3.2 External sources 4) Research quality management 4.1 Research standards 4.2 Research monitoring and evaluation 4.3 Research

dissemination support 5) Research connection 5.1 Researchers 5.2. Research results users. 5.3 Research supportive persons 5.4 Policy planner 6) Research Collaboration 6.1 Local Networks 6.2 International Networks

Furthermore, there was a study of the components of the research management of the other institutions in interesting contexts. According to the study of Methee Wisaprom (2010) on the research about administration model of the Educational Service Area Office Offer, there were three core components suggested. Firstly was 1. Research Resources 1.1. Research Policy 1.2 Research Staff 1.3 Research Budget 1.4 Research materials 1.5 Research resources and information and technology. Secondly was 2. Research management 2.1 Organization management 2.2 Research title and objective 2.3 Research proposal proposing 2.4 Research proposal checking 2.5 Research processing support 2.6 research project administrator's management 2.7 Research monitoring 2.8 Research Quality Assessment. Thirdly was 3. The use of research results 3.1 Dissemination of research results 3.2 The utilize of research results 3.3 the distribution of research benefits.

There is also a study on the development of the research management model of the local science project in the upper northern region by Supot Boonrueng et al. (2008). Through the use of Balanced Scorecard, the organization was viewed as 4 aspects; 1) Financial and research management whereas the budget drives the process to achieve the goals. 2) The working process within the organization which referred to the organizational structure, communication and coordination, equipment in operation, technology to accelerate the operation. 3) The customers which referred to the teacher and researcher who participated in the project. They had satisfaction in the service that provided them the knowledge, experience, help, suggestions. 4) The learning and growth such as facilitating system and modern information and technology system.

Also from the study about the development of the classroom research management model by Sompop Boonteingtrong (2010), the results presented five key components of research management: 1) Research problem development, 2) Research proposal writing development, 3) Research support. 4) Research dissemination. 5) The use of research results constructively.

The synthesizing the components of the research developmental management system of higher educational universities can be summarized in table 2.3

Table 2.3 The synthesizing the components of the research developmental management system of higher educational universities.

Components	Jesada Kasemsate and others(2006)	Srisompop Jitpiromsri and others (2007)	Rotchanatch Darnsawasdi and others(2006)	Prayote Kupkanjanakul and others (2007)	Tanawan Sukkasem (2006)	Nartsuda Chemmasiru and others (2006)	Chalong Aurairat and others(2007)	Pra Maha Boonchui Siritato and others (2003)	Siroj Ponpantin (2004)	Matee Wisaprom (2010)	Supoj Boonrang and others (2008)	Sompop Boontiang (2010)
Policy and plan								✓		✓		
Organization structure								✓	✓		✓	
Management	✓					✓				✓		
Budget/resources	✓	✓	✓					✓	✓	✓		
Coordination/Teamwork								✓			✓	
Researchers' development	✓	✓	✓			✓		✓	✓	✓		
Tools/ facilities	✓							✓		✓	✓	
Information and technology system		✓	✓				✓	✓		✓	✓	
Research quality development						✓			✓	✓		
Research question development				✓	✓		✓					✓

Table 2.3 (continued)

Components	Jesada Kasemsate and others(2006)	Srisompop Jitpiomsri and others (2007)	Rotchanatch Darnsawadi and others(2006)	Prayote Kupkanjanakul and others (2007)	Tanawan Sukkasem (2006)	Nartsuda Chemmasiru and others (2006)	Chalong Aurairat and others(2007)	Pra Maha Boonchuai Siritato and others (2003)	Siroj Ponpantin (2004)	Matee Wisaprom (2010)	Supoj Boonrang and others (2008)	Sompop Boontiang (2010)
Research results	✓											
Follow-up and evaluation				✓	✓		✓	✓	✓	✓		✓
Dissemination	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Application and utilization of research results	✓		✓	✓			✓	✓	✓	✓		✓
Network		✓	✓			✓			✓			
Motivation							✓	✓				

From the synthetization of the research components, some areas can be combined such as the organization and structure and the management, research development and research question development, research dissemination and the application of the research.

From the synthesizing of the research components of higher education together with the system of national research management system, the researcher could summarize the 10 components of research management. They were 1) research policy and plan 2) research structure and management 3) research budget 4) research personnel/staff 5) research tools and other supportive equipment 6) research production and quality control 7) follow –up and evaluation 8) research publication, dissemination, the application, and the utilization of research result 9) research network building up and 10) others supportive and motivate strategies

2.4 Model concept and model development

Definition of model

Yaowadee Rangchaikul Wiboonsri (2009, p. 25-27) states that the word "pattern" is used to convey the meaning of the word "model" in English. It is the way in which a person has conveyed his or her thoughts, insights, and fantasies towards any phenomenon or story to be seen through various types of communication, such as drawing, chart, continuous structure map, or mathematical formulas in order to be easily comprehend. And at the same time, it can present stories or issues systematically and well-organized.

Sirichai Kanchanawasri (2004, p. 46) states that the word pattern or model means the English word "Model", which represents several Thai words such as model, pattern, or the use the same English word "Model". There are several definitions as follows: 1) Real model 2) Guided model 3) Model showing relationship between data symbols and principles of the system. 4) Patterns of operations explaining relationships between each part of the system.

From the above definition, it can be concluded that the model is what the person created or developed from the concept of conceptual theory, imaginary, or experience to convey the phenomena by presenting them in a simple, concise, and accurate way so as to be the guidance for practicing or doing. Model should have at least 3 components which are objective, variable or content, and organized connection between variables.

Model development

At present, there is a continuous development of model when the previous model format cannot meet the intended purpose. Thus, it is essential to develop more effective systematic model format. An educator had proposed the concept of the development process as follows (Ratana Buasont, 2543 and Boonchom Srisaard, (1992).

1. In order to creating or developing model, the researcher can create or develop a pre-hypothetical model based on a theoretical study, other existing concept in the same or different matters, or the related studies or findings. Having analyzed these things, the research can set the components or variations within the model. In addition, some research requires the expert to consider the correctness.

2. Pattern accuracy test is another concern action. After the initial development of the model, it is necessary to test the accuracy of such patterns of a model. Although the model had been developed based on theoretical knowledge or other people's ideas, or even having checked by experts, it is considered just a hypothetical model. It is necessary to collect data in real-world situations or experiment in real situations to examine whether it is appropriate or not. (At this stage, sometimes we use the word Model Testing Performance)

3. The last step is the evaluation of overall usage of the model. This covers the evaluation of the whole model including the process model, the result of using the model, problems and obstacles, the results of the assessment that will lead to further improvements possibilities.

2.5 Evaluation theory and model

Evaluation definition

Sirichai Kanjanasawee (2009, p. 21-22) concludes that evaluation is a process of studying things by using research methodology. Evaluation is the checking for achievement of the intended purpose. Assessment provides information related parties through an in-depth lecture. Evaluations judges value of what is assessed.

Yaowadee Rangchaikul Wiboonsri (2009, p.7) sees that "evaluation" always involves with assessing and judging the value of something. Therefore, it can be

concluded that the evaluation means to describe and judge certain value of individuals or groups including processes and projects.

Pisanu Fongsri (2006, p. 2) said that evaluation is the process of judging the value of thing by bringing information or results from measurements compared to the set criteria.

Suwimol Wongwanich (2001, p. 7) gave the meaning of the evaluation as referring to judging the value of what is measured by comparing with the criteria. The focus of the assessment will be on the fairness and appropriateness of the certain criteria used. These criteria must be fair, clear, open, reliable, and the information must be derived from the quality measurement process and authentic result.

From the meaning of assessment from the educators as above, assessment can be summarized as the judgment of something by using the information and technology or the results to compare with the set criteria.

The assessment process

There are 9 steps of assessment process (Pisanu Fongsri, 2006 p.19-25)

1. Study and analyze what will be assessed

The assessors must have a deep understanding about what they are going to assess by study the information and all related aspects. Study the forms and the cautions of the assessment. The assessors should adjust or adapt the forms of each project, curriculum, or organization assessment forms.

2. Identify the objectives of the assessment or the areas that will be assessed

Use the aspects that will be assessed to be the sub objectives or we can call it the variable aspects of assessment that will lead to the activities about the indicators development, weight of indicator, tools, resources, collecting data, and including analyzing data.

3. Setting the assessment scope

Mostly, there were the population, sampling group, place and time. What will be assessed will be set the scope for example assess the whole picture including import factors, process, and production.

4. Develop indicator, criteria, and weight of value

Indicator is the important components of assessment that derived from the sub aspects that will be assessed. The question of each aspect will be created in different

kinds of assessing tools. After setting the indicator and criteria, some aspects should be weighed since their importance are not the same. In this case, the statistic experts or other related people should be invited to design. This is another crucial step that reflects the analysis and synthesis of the researcher in designing the assessment form or set the scope of assessment in order to plan the activities and data collecting.

5. Create and develop the assessment tools

Assessment is a distinctive task that the research must create and develop the assessment tools according the teaching theory, approach, or objective. The content of the assessment must be completely effective. The use of statistic

The estimation in both quantity and systematic methods require the statistic in analyzing the data so as to summarize the accurate results.

6. Write the assessment report

The assessor writes the assessment report to be the instrument for the users and other elated person to utilize the results of the assessment.

Criteria

Sirichai Kanjanasawee (2009, p. 95) states that the criterion refers to a level or standard that is considered to be a success of the complete operation or performance. The criteria determine the quality of the practice or the outcome. The criteria may come from the professional standards or needed expectations of the relevant group such as the standard set by experts, the needs of the target group, or the value of the society.

Criteria refer to the level or standard that should be used to judge something, such as the student's behavior and the school's effectiveness. Defining criteria is very tricky. Due to international standards, there is still less. Specifically, the social science or educational evaluation criteria will always face problems and arguments. Because the threshold is too high, it is difficult to achieve. If set to low, there may be a problem with the quality of pass criteria. The guidelines for determining the criteria may be determined by six sources

Pisanu Fongsri (2006, p. 3) stated that criteria refers to a set level or standard that is used to judge something, such as student behavior and school effectiveness. It is very difficult to assess criteria, due to the lack of the international standard approvals. Especially, in social science or educational evaluation criteria which usually face with the problems and arguments, because it may be too difficult to pass when the criteria are

too high, whereas there may be a problem about poor quality when they are too low. The guidelines for determining the criteria can be justified by six sources:

1. Standard of the subject that will be assessed (if any), such as standard height or weight set by the Department of Health, or the physical fitness standards set by the Department of Physical Education.

2. Target that has been assigned. It may refer to the goal in programs or projects, such as the number of students attending the training program must not be less than 80% of all students, and completing not less than 90 percent, etc.

3. Growth is a comparison of development such as increased scores, or improved performance compared to the original. It should happen gradually such as students with a GPA of 2.00 in the previous semester will be encouraged to reach 2.25 and gradually increase which may possibly be lower than the general standard at first.

4. Norm is the comparison with groups which can be compared among themselves or between similar groups. Or if a very ambitious commitment is required, it may be compared with the best group, such as the student's average grade in the room between the rooms or the best room.

5. Comparing with benchmarking. These criteria are similar to those in number 4, but benchmarking is most commonly used to evaluate an administrator and organization by using the similar organization as the best criteria or benchmark, and manage to reach that standard. It can be applied to educational organizations, such as Thai higher education institutions, which need to be comparable to the high quality universities. It can also be adapted to other evaluations such as the best courses and projects of the same type.

6. Clients / Stakeholders's benefits consideration should be done in some cases that cannot be applied from the above guidelines. For this case, it may be necessary to involve clients or stakeholders in determining appropriate criteria. Once they all agree with the set criteria, the results of the evaluation will be accepted and utilized in accordance with the philosophy of evaluation.

Standard and Indicator

Standards and indicators are related in such a way that the indicators are components of standard One standard normally consists of one or more indicators. Indicators are indicative of achieving the set standard. Some indicators are abstract that

need to be clarified, so the development of standards and indicators must be preceded at the same time.

Evaluation standards

Ratana Buason (2012, pp. 183-186) proposed the standards for project evaluation developed by the Joint Committee on Standards for Education Evaluation. It consists of four standards and each standard contains indicators for consideration as followed;

1. Utility Standards are the standards that ensure or warrant that the evaluation provides information that responds to the user's usage. It consists of seven indicators:

1.1 U1 : Stakeholder Identification

In the assessment, the related person or the person whom will receive the effects from the result of the assessment must be clearly identified. This is to clarify the need to apply the assessment results to these groups.

1.2 U2 : Evaluator Credibility

An assessor must be competent with the trustworthy skill is in doing evaluation. This will support the result to become the most acceptable and reliable.

1.3 U3 : Information Scope and Selection

The information collection about the project must be comprehensive, meet the questions of attention and needs of service recipients and other stakeholder groups.

1.4 U4 : Valuation Identification

In the evaluation, the attitude, methods, and reasoning used for interpretation of judgments of value must be cautiously and clearly defined.

1.5 U5 : Report Clarity

The assessment report must be clear and describe the project that has been assessed both the context, purpose, method and the results of the evaluation. In short, this information must be simply and easily to understand.

1.6 U6 : Report Timeliness and Dissemination

Evaluation results and evaluation reports must be ready to be used in time for those who need to utilize the report results.

1.7 U7 : Evaluation Impact

The evaluation or assessment must be planned, implemented and reported in a way that encourages stakeholders to continually utilize them.

2. Feasibility Standards are standards that give confidence or assurance that the assessment is realistic, possible, practical and worth doing. It consists of 3 indicators;

2.1 F1 : Practical Procedures

The methods used in this evaluation must be possible and practical.

2.2 F2 : Political Viability

The evaluation should involve a wide range group of people and allow them to agree to cooperate in the evaluation.

2.3 F3 : Cost Effectiveness

The evaluation should be worth with the resource expenses.

3. Propriety Standards create the confidence or assure that the evaluation will be in accordance with the law, ethical, and public mind. They are 8 indicators which are;

3.1 P1 : Service Orientation

The evaluation should be well designed to support the organizations or related parties. The service has been provided to the service recipients should be distributed thoroughly and effectively

3.2 P2 : Formal Agreements

There should be ta formal contract while processing the evaluation. To make sure that both sides agree with what to be assessed, whom to be assessed, how to assess, and when to assess.

3.3 P3 : Rights of Human Subjects

The evaluation should be designed in the way that present the protection the right and acceptance of the subjects that will be evaluated.

3.4 P4 : Human Interactions

The evaluator should respect the dignity and value of the people that he/she interact with. The evaluator should not threat or do other things that destroy these value and dignity.

3.5 P5 : Complete and Fair Assessment

For a complete evaluation, the evaluator should write the report that covers both strengths and weaknesses of what was received from the assessment.

3.6 P6 : Disclosure of Findings

The evaluation report must be straightforward especially the point that affect the small group in including other points that should be informed according to the law.

3.7 P7 : Conflict of Interest

In case that the evaluation may cause the overlapped advantages or interest conflicts, the negotiation must be done with honesty and open-minded way. However, it does not meant to compromise about the research process and results.

3.8 P8 : Fiscal Responsibility

In conducting a research, the researcher should carefully use the resources properly and relevant with the ethical responsibility or professional ethics in expending budget.

4 . Accuracy Standards guarantee the enough using of the information and technology in identify the value of the evaluated project. They are 12 indicators as follows;

4.1 A1 : Program Documentation

The project that will be evaluated must be presented in a clear document form.

4.2 A2 : Context Analysis

In assessing the program, all details and contexts of the project must be study precisely enough to classify the project clearly.

4.3 A3 : Described Purpose and Procedures

The evaluation's proposes and procedures must be clarified clearly and sufficiently.

4.4 A4 : Defensible Information Sources

The information and sources of the evaluation used must be clearly stated.

4.5 A5 : Valid Information

The evaluation tools that were designed to collect data must have validity.

4.6 A6 : Reliable Information

The evaluation tools that were designed to collect data must have reliability.

4.7 A7 : Systematic Information

The collective data must be analyze and report systemically. In case of the mistake occurs, the correctness must be replaced immediately.

4.8 A8 : Analysis of Quantitative Information

The evaluation of quantitative information requires a systematic and appropriate analysis in order to provide accurate answer to assessment questions.

4.9 A9 : Analysis of Qualitative Information

The evaluation of qualitative information requires a systematic and appropriate analysis in order to provide accurate answer to assessment questions.

4.10 A10 : Justified Conclusions

The summarization of the evaluation must be reasonable and justified by all related parties.

4.11 A11 : Impartial Reporting

The evaluation report must be neutral and unbiased. The report must reflect the finding frankly and clearly.

4.12 A12 : Metaevaluation

The evaluation must be repeatedly processed both in a period of time and evaluate the whole process by considering all indicators that had mentioned in order to reach to the goal and completeness of the evaluation. All related parties can utilize the results of the evaluation and perceive the strengths and weaknesses of what had been evaluated

The indicators development techniques

1. Quality technique

1.1 Documentary Survey

1.2 Field Study

1.3 Focus Group Discussion

1.4 Criticism and Connoisseurship

2. Quantitative technique

2.1 Delphi Technique

It is a way to find consensus among a group of people on one issue. The selected persons are considered an expert on the subject. Without facing each other, they will express their ideas or comments of various questions according to the purpose of each study. And keep going until most of the answers are consistent. Generally, it is done about 2-4 times with more than 13 professionals.

2.2 Combination technique

In addition to the use of qualitative methods or quantitative methods, we can combine both methods at the same time. We can use a qualitative approach as a conduit to study the field study of what is intended to study. Then, select and define variables and measure variables and take them to be analyzed by statistical methods to confirm the selection of variables that will lead to the creating of the next indicator.

Evaluation form

Sirichai Kanjanasawee (2009, p. 103) stated that the evaluation model is an authentic model that links the relationship system from conceptual theory to assessment to action plan. In accordance to Yaowadee, Rangchikul Wiboonsri (2009, p. 28), confirmed that the evaluation model can be regarded as theoretical because it is justified on the basis of the preliminary agreement. In addition, the evaluation model can be understood and applied to various projects. It can create new knowledge to the evaluation methodology.

Development of Assessment Forms

The process of developing a neo-estimation model (cited in Bantam Insombat, 2008, pp. 65-66) has suggested 10 question in developing evaluation model.

1. What is the definition of evaluation? Evaluation is judging the value of what is being evaluated or seeking information for decision-making in improving or developing a task.

2. What is the function of evaluation? Evaluation assesses a progress to improve the current activities at this moment or as a summarizing of the assessment for decision making, or to show what has already been done. Each form of assessment may perform several functions.

3. What is the things that will be assessed? We should know, understand, and distinguish what will be evaluated thoroughly and clearly. In educational evaluation, evaluated things can be; for example, students, educational and management personnel, curriculum, media materials, teaching aids, projects, and teaching instruction etc.

4. What kind of information should be acquired from the assessment? This depends on the dimension of assessment and the purpose of the assessment. Stack suggests that the assessment must consist of two parts, the description of what needs to be evaluated and what needs to be judged. Stufflebeam proposed that the assessment

must have a significant component; namely, the purpose, planning, process, and product of what needs to be evaluated.

5. In determining the value of the assessment, what criteria should be used? We have to consider the criteria of objectives, criteria, benefits, or any other criteria that are appropriate for the assessment and assessment function of the assessment model. We should consider the accuracy and reasonableness of the criteria used.

6. For whom should the assessment conduct? Who are the project shareholders? How does each party play a role? Who evaluates the results?

7 . What is the assessment process? This step is to identify the process of evaluation that depends on the theoretical concept used. Each theory has the different form of model.

8. Should use which method to find the answer of evaluation? This is a research methodological question as should we use the experimental method, semi-experimental method, or natural methods.

9. Who should be the evaluators and how should they be qualified? There should be a single assessor or evaluation team. The evaluator should have: 1) Ability in research methodology and analyzing data techniques.. 2) Understand the social context and characteristics of what will be assessed. 3) Have the ability to maintain interpersonal relationships and develop assessment reports with the people or groups involved in the assessment. Have the ability to fully integrate working within the operational framework.

1 0 . What standards should be used to judge the quality of assessment? Evaluation should be standardized in terms of usefulness, accuracy, possibility, and appropriateness.

Elements of evaluation form

Sirichai Kanchanawasri (2004, p. 8-11) proposed the following components of the evaluation model:

1 . Determine what to evaluate. An assessor must know or determine what to evaluate. What is the necessity or reason that comes from the need of the social processes?

2 . Determining evaluation methods the method of evaluation is a process for receiving information for judging the value of what is assessed as a result of determining

what the next thing to be assessed is. In this evaluation process, there are three related issues; what is intended to be evaluated, information, and judgment of value

3. Criteria or method of judging means the method of comparing the data that had been measured and analyzed statistically. This is a comparison between information that shows the characteristics of what is intended to be evaluated and the criteria with the criteria judgment. This is a benchmark for value and standards, through a reliable standardization approach. When the evaluator has evaluated the assessment, they will summarize the results to determine the value of what is intended to be evaluated.

2.6 Theory of Evaluation of assessment

Evaluation of assessment task (Sirichai Kanjanawasri, 2009, pp. 171-173) is a judgment on the quality of assessment. If any assessment is quality, it must include the quality of the "Determining Assessment Points," "Assessment Methods," and "Assessment Results." Evaluate the assessment is another way be a quality control device of assessment. This can be done by monitoring, criticizing, comparing with the benchmark of evaluation, or repeating the evaluation

The evaluation over the assessment task should cover the assessment of the quality of the assessment question, methods, results, and criteria that will be used to determine the quality of assessment questions which are; needs analysis and participants involvement. For evaluation methods, there are important criteria that should be used to judge the quality of assessment methods i.e., objective and purpose of the assessment that are related to the experience and values of the shareholders and the environment of the evaluation. In addition, the results of the evaluation are important criteria for judging the quality of the evaluation results which refer to the good relationship between the evaluator and the evaluated person, the rationale of the criteria and criteria acceptance of relevant parties. The evaluator must also be proficient in using assessment methodology, the content of the assessment, and ethics

Objective

Evaluate the assessment task is an instrument for the quality control of an evaluation that may lead to the development of theoretical and practical evaluation methods. There are the objectives as follows;

1. Evaluate the quality, impact, or the use of evaluation results.

2. Examine and certify the assessment report.
3. Control or reflect bias in evaluation.
4. Judge the value or benefit of new assessment methods.

Evaluation Criteria

To be aware of the success / failure of the project according to the social expectation, the quality of social projects need to be assessed. There are 3 principles of quality assessment can be judged from the value of issues, methods, and results of assessment.

1 . Evaluation issues should be directly response to the needs of the conducted activity or project that will lead to the correct value judging of what is needed according to the goals of the agreed activities or projects. Evaluation issues should also response to the information needed by those who involve in making decision to improve / changing activities or projects to be better in the future. Therefore, the analysis of the genuine needs and the participation in determining the assessment points of the information critical affect to the quality of the assessment issue.

2 . Assessment methods should be a process that responds to the purpose of evaluation. These methods can lead to accurately, appropriately, and successful results of the assessment of the value of what are intended to be evaluated. As a matter of the fact that, the accurately value of what is intended to evaluate depends on the context. Therefore, the assessment method should be consistent and contextualized as well as being understandable and acceptable by the concerned person. It is obviously seen that the key elements that will lead to the selection of appropriate assessment methods are clear objectives and targets, the environment of assessing the experience / the values of the evaluator and the person involved.

3. The results of the evaluation should be utilized. The utilization of the results is the most important characteristic. The results gained from the evaluation should benefit people broadly. It is the duty of the evaluator to be able to identify the person who will receive benefit from the beginning of the evaluation. Then, the evaluators will build a good relationship with those people in order that he/she will know what information is needed. A good relationship will also lead to a good cooperation including attention and acceptance of evaluation results and the use of them beneficially. The results of the evaluation should be fair in judging the value of the

assessment and collecting data from broadly perspective and from many parties. The reasonable and acceptable criteria must be used and also associated to the value of the assessment context. Besides, the results of the evaluation should be reliable, so that the truth about the value of the assessment can be revealed. Another important indicator of the reliability of the evaluation results may be determined by the credibility of the "evaluator" in terms of being proficiency in the evaluation methodology, content, ethics and designing the use of reliable assessment methods.



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

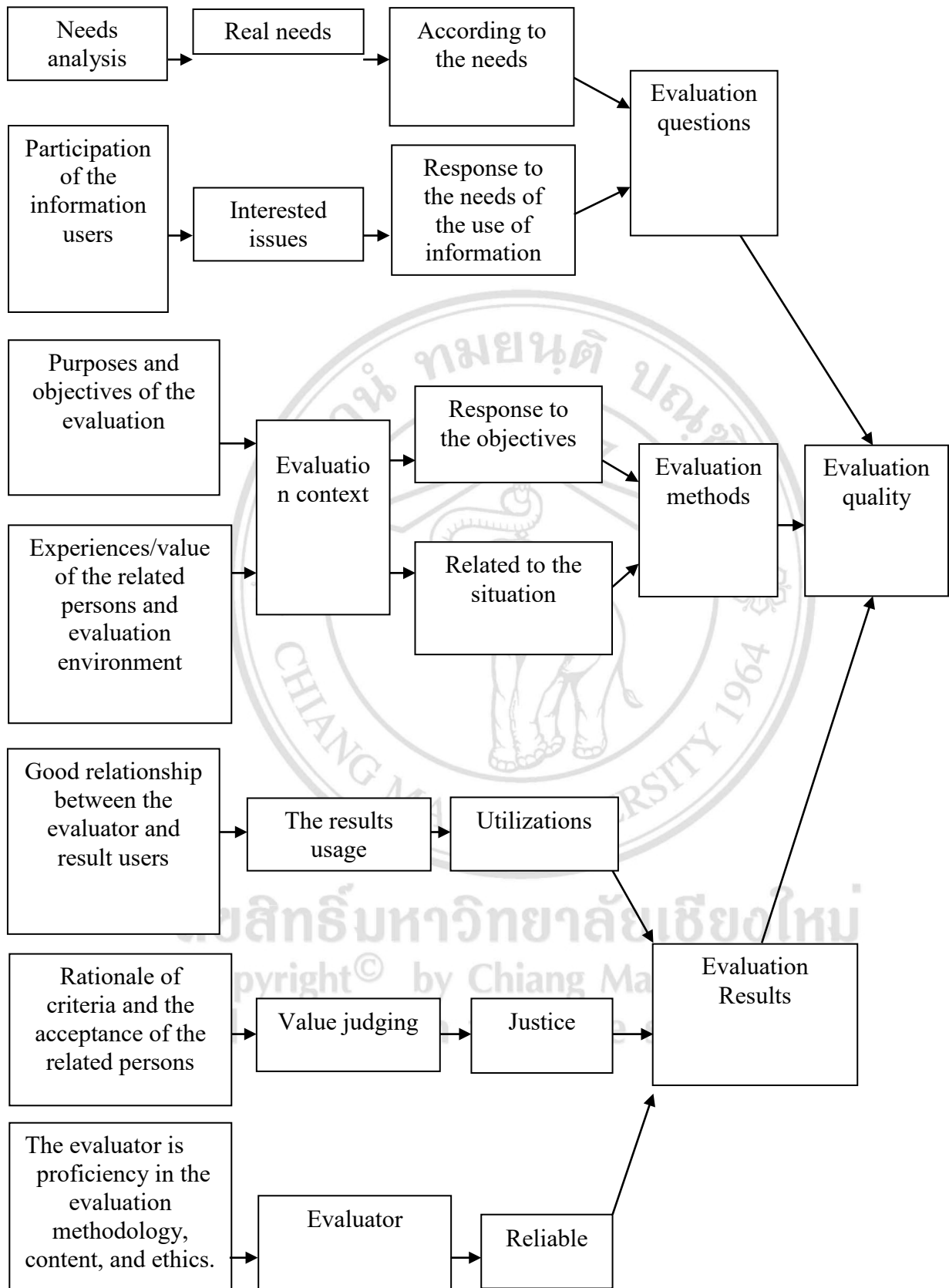


Figure 1 The criteria of evaluating the assessment task

2.7 Research and Development Concepts

Research and development in education can be adjusted to suit the needs, while still maintain the principles of research and development. In particular, evaluation research can be adjusted the research and development model (Vichit Suratrungchai, 2007) as follows.

1. Needs Assessment which is the first step of doing a research and development process in order to find the real cause of the problem and find the solution, consequently. Needs Assessment can be accomplished by defining needs or expectations. The next step is to study the current condition. There are several appropriate ways to study the current condition, such as surveys, observations, inquiring, interviews, or document analysis. Then, comparing the actual situation with the set requirements. If the comparison results show the differences from what had been expected, there must be real problems. We need to find out what is causing the problem and how to fix it. All information obtained from needs assessments will be used for making decision and setting target or objective of research and development.

2. Product Design

When the goals or objectives of the research and development are set, the researcher must design the appropriate educational products.

3. Product Development is a step in working the process of product development as detailed. The steps are as follows;

3.1 Product development planning

3.2 Process the planning guidelines

4. Preliminary Test

After receiving the developed product, it must send to the preliminary test step in order to test the quality in advance whether the product has qualifications as specified, or not. Then take the product to the expert to review and comment on whether the product meets the expected requirements, or not. This is the test of Jury Validity. In addition, the product may be pre-tested by the small, medium, and big size of samples to determine the suitability of the product.

5. Product Revision

The product revision is to revise the product based on the primary inspection results. In practice, the product improvement process will be carried out in parallel with

the product inspection done in step 4. As soon as the detection of a defect is found, the improvement or solution is made.

6. Field test is the process of presenting a product that has passed the initial inspection and improvement to test in real or near real-life situations.

7. Conclusion and dissemination

After the field trial of trying the products in real or near real-life situations, if the product is found to be effective, according to the set criteria, the evaluator can write the research report conclusion of research and development and disseminate to relevant parties to broadly utilize the results.

2.8 Concept of research needs assessment

The planning must begin with a contextual assessment in order to understand the organization's condition and know the needs to know what action should be reacted. As a result, research methods have been developed to assess the needs so as to find the appropriate solution. Currently, research needs assessment is renowned because it can help identifying the certain causes of the problems. This makes the problem solving process served to the needs of those who are involved in the organization (Suwimol Wongvanich, 2005). It consists of five steps:

1. What should be
2. What is
3. Analysis of the difference between the information obtained from no. 1 and 2 and prioritizing the results to determine the required needs.
4. Analyze the cause of the difference in no. 3 and prioritize the causes that lead to the required needs.
5. Study and determine solutions to the problems that caused the requiring needs in no.4.

2.9 Research ethics

Background

Nowadays, research results are very important for economic and social development. If the research results proposed to the public is accurate, and reflect the true state of the problem, it will lead to effective solution that the genuine cause will be

solved. In order to get good quality research requires a number of important components. In addition to conducting quality research procedures, the moral or ethics of researchers is another one of the most important factors.

National Research Council of Sociology Committee recognizes the importance of the researcher ethics, therefore they had initiated the ethics of researcher as the same standard for the whole country including other researchers and academics professors in different fields. This standard can put into practice through the feedback process from the researchers and other expertise experts from various fields. And it has been simplified and developed until approved by the National Research Council and announce to be the standardized criteria of overall researchers.

(http://www1.nrct.go.th/downloads/rm/4th_project2555/Researcher_ethics.pdf)

Objective

Objective is the guidelines for the researchers' behavior. This is more to be informed as awareness not a compulsory. This will lead to ethical research among researchers in the future.

Definition

Researchers mean those who inquire knowledge systematically to answer questions through the acceptable relevant methodology of each educational field. It covers both concept and methods used in collecting and analyzing data.

Ethics

Ethics refers to the proper principle of behavior that shows moral and ethical in occupation. Each group or each profession professionally constructs to provide its members in the professional field to behave. Professional ethics can maintain reputation and promote the honor of that professional field.

Researcher ethics refers to the behavioral norms of the general researcher, so that the research work is based on the appropriate ethics and academic principles. It ensures the standard of research, the dignity and honor of the researcher as well.

Resolution

1. Researchers must be honest and ethical in their academic and management.

Researchers must be honest to themselves. They cannot copy others' works or claims to be the owner of other's work. Instead, the research must honor the person for

the primary source of information used in the research. They also must be honest about the research funding and fair about the benefits of the research.

1.1 Researchers must be honest with themselves and others.

1.1.1 Researchers must be honest at all stages of the research process. Start from the selection of subject matter, participants, and the use of research results' benefits.

1.1.2 Researchers must honor others by referring back to the person or source of information and their reviews used in research.

1.2 Researchers must be honest in applying for research scholarship and funding.

1.2.1 Researchers must provide clear and straightforward information or ideas in the proposal.

1.2.2 Researchers are required to present research proposals with integrity, without duplicate scholarship or funding.

1.3 Researchers must be fair about the research benefits.

1.3.1 Researchers must allocate a fair proportion gained from the research results to all researchers.

1.3.2 Researchers have to present their work honestly, without claiming of other people's work.

2. Researchers must be aware of the obligation in accordance with the agreements made with the research support units of their respective organizations.

Researchers must follow to research commitments and agreements that all parties agree to. Moreover, they should dedicate the most of their time and efforts, finishing the tasks according to the deadlines, and not abandoning the work before it is done.

2.1 Researchers must be aware of their research obligations.

2.1.1 Researchers must carefully study the terms and conditions of the funding owner carefully to prevent conflicts that will happen later.

2.1.2 Researchers must follow to the entire conditions, rules, and regulations of the agreement.

2.2 Researchers must dedicate their time.

2.2.1 Researchers need to devote their knowledge, ability, and time for doing Research in order to receive quality and useful results.

2.3 Researchers must be responsible.

2.3.1 Researchers must be responsible. Do not cancel the appointment without a respectable reason and hand in the job on time. They cannot break the contract or agreement until it causes damage.

2.3.2 Researchers are required to produce a complete research report to provide results to be used for further benefit.

3. Researchers must have a basic knowledge in the academic field of research.

Researchers must have a thorough knowledge base in the field of research and have the capability or experience associated with the research subject in order to qualify the research and to prevent problems or any mistake in analyzing, interpretations, and conclusions. These errors may damage the research.

3.1 Researchers must have a basic knowledge in the field of research and have the capability or experience associated with the research subject in order to provide the quality to a research

3.2 Researchers must maintain the standards and quality of research in that particular field. To protect the academic mistakes that may occur.

4 . Researchers must be responsible for the research's experimental subject, whether it is a living or non- living things, or not.

Researchers must be careful while conducting research involving humans, animals, plants, arts, culture, natural resources, and environment. The researchers should have morality and commitment to preserve the arts, culture, natural resources, and environment

4.1 The use of humans or animals as an experimental samples must be done in case of no other alternatives only.

4.2 Researchers must conduct research in mindful of not causing damage to people, animals, plants, arts, culture, natural resources and environment.

4.3 Researchers must be responsible for the outcomes that may affect themselves, the samples used in the study, and the society.

5. Researchers must respect dignity and human rights of research experimental samples.

Researchers must not neglect the respect for human dignity and rights while considering on the academic success. It is an obligation to explain the purpose of the

research to the sample group without deceiving, distorting the truth, or violating personal rights.

5.1 Researchers must respect for human right of research experimental sample by asking for participating with prior informed consent.

5.2 Researchers must treat humans and animals used in experiments with kindness, regardless of the academic benefits that may cause damage or conflict.

5.3 Researchers must protect the rights and confidentiality of the experimental samples.

6. Researchers must have freedom while thinking. There cannot be bias or prejudice at all stages of the research.

Researchers must think freely. Researchers must realize that bias or prejudice could lead to the distortion of information and academic findings that damage research.

6.1 Researchers must be free to think. Do not work research with fear.

6.2 Researchers must conduct research based on the use of academic principles as criteria, without prejudice involved.

6.3 Researchers are required to present research results openly and honestly. They should not deliberately divert the results expecting for personal interests or harm others.

7. The researcher should use the research results in a righteous way.

Researchers should publish research results for academic and social benefits, but should not expand the findings more than the reality or use in the wrong way.

7.1 Researchers are responsible and prudent in disseminating research results.

7.2 Researchers should disseminate research results regarding to the academic and social benefits. Do not publish research results further than the reality for their own personal benefits.

7.3 Researchers must present actual research results. Do not multiply the findings without the methodological verification.

8. Researchers should respect the opinions of others.

Researchers must be generous and ready to share information and research procedures. At the same time, they should accept and adjust their research according to the suggestions, opinions, and other academic reasons.

8.1 Researchers have good human relations and pleased to exchange ideas and create an understanding among their colleagues and other scholars.

8.2 The researchers are ready to accept and adjust their the research according to the rational recommendations to produce a usable result.

9. Researchers must have responsibility to all social levels.

Researchers are determined to devote their strengths in both intellectual and physical to do the research effectively, progressively, and prosperously.

9.1 The researcher always carefully select the topic of research and determined to devote their strengths in both intellectual and physical to improve the academic advancement, the progress of the institution, and the social benefits. Social welfare

9.2 Researchers are responsible the prosperity of society. They do not conduct the researches that offend to the law, peace, and morals.

9.3 Researchers should develop their roles to become productive and dedicate their time and effort to improve the capability of new researchers and the society at large.

2.10 Related Research

Research on Essential Needs

Kongkiat Raksham (2012, p. 62) conducted a research on needs assessment for self-development of faculty members at Rattana Bundit University. The first objective is to study the state of expectation and the reality of self-development of the faculty members of Rattana Bundit University. The tool used in collecting data was a questionnaire. There were 5 levels of rating scales. The data analysis were calculated on frequency, percentage, average score, standard deviation, and also test the difference between the condition of expectation and reality in the teacher's self-development by paired sample t-test. The results showed that the faculty members of Rattana Bundit University had high expectations in their development and have realities in their development aspect of the medium to very much. On the test of the difference between the actual state and the condition of self-development in continuing education, academic instruction, and academic profession entry, training and seminars and the overall picture, it was found that the actual condition and expectations of the development of the faculty members of Rattana Bundit University differed at .01 level of significance at both the overall result and each single aspect.

Pennapa Tangprasert (2006) conducted a study on the current situation and the needs of computer literacy knowledge improvement of support staff at Rajabhat Universities in Bangkok. The objective is to study the present condition and the needs. And also to compare the differences between current situation and the needs in computer knowledge development of support Staffs, Rajabhat Universities in Bangkok. The instrument used for collecting data was a 5 level- rating scale questionnaire. The data were analyzed in frequency, percentage, mean, and standard deviation. The results showed that the current condition of the computer literacy of the support staff had mean in policy, equipment and materials, budget, and personnel were at a medium level in all aspects. For the needs of computer literacy development of support personnel, there showed that the policy, equipment and materials, budget, curriculum, and personal computer literacy development were at a high level. However, the average of knowledge about computer program is in a low level.

Research on the development of assessment models

Khak Moonded (2006) conducted research on the development of a model for external quality assessment of basic educational institutions conducted by families. The objectives were to create, experiment, and evaluate the model of external quality assessment of educational institutions at the basic level of education structured by families. The conclusion of model building consisted of two parts: the composition of the evaluation form which consisted of an evaluation purpose, objective, role standard, indicator, criteria, ICT users, assessment form, assessor, and writing assessment report.

Isalux Jenkao (2007) conducted a research on the development of the performance assessment model of private school teachers in northeastern Thailand. This research and development project was aimed to develop a model for assessing the working performance of teachers in the northeastern private schools and to evaluate the results the created assessment model. The results of this research were as follows. The assessment consists of 8 elements; evaluation objective, evaluator, evaluation content, criteria, methods, tools, duration, and giving feedback. The results of the assessment model were used after the experiment with Wattana Wittayalai School and Ruang Sri Witthaya School by depending on four standards which were utility, possibility, suitability and accuracy. It was found that both schools had similar opinions that the 4 standards were in a high level.

Sathienpak Mookdee (2011) conducted a research on the research and development model of the Rajabhat Institute's of Research and Development. The details were as follows;

1. Objectives of the evaluation were:
 - 1.1 To guide the development and improvement areas of the institute.
 - 1.2 To apply the results of the assessment to make decisions in management.
 - 1.3 To create information evidence for internal and external evaluation.
2. There were 6 focused missions.
 - 2.1 Coordination, encourage, and support the production of research results.
 - 2.2 Application and disseminate of research results.
 - 2.3 Development in researchers resources
 - 2.4 Synchronization, promotion, and support the use of academic services.
 - 2.5 Research management
 - 2.6 Budget Management
3. An assessment indicator composed of 50 indicators.
4. The assessors include administrators, faculty, staff, students, and the community.
5. Assessment methods include observation, interviewing, examining items, and checking portfolio.
6. Evaluation criteria were very good, good, fair, need improvement
7. Providing feedback was to inform the results of the overall evaluation of the institute.

For evaluating the assessment model, the researchers had used the standards developed by the The Joint Committee on Standards for Educational Evaluation which composed of 4 standards; utility, possibility, suitability and accuracy. The result showed that the created assessment model was appropriate and accurate at the highest level and in accordance to the quality assurance policy.

From the 7 researches about the development of evaluation model, it can be concluded that the compositions of the evaluation model were: 1) the purpose of the assessment, 2) target group of assessment 3) assessor 4) assessment methods 5) indicators 6) criteria 7) giving feedback.

2.11 Research Framework

For this research on the model assessment of research management for private universities, the researcher had developed from the current study, the need for research administration evaluation in private universities, as well as the study of paper and research that related to the development of assessment models. The research framework can be summarized as follows.

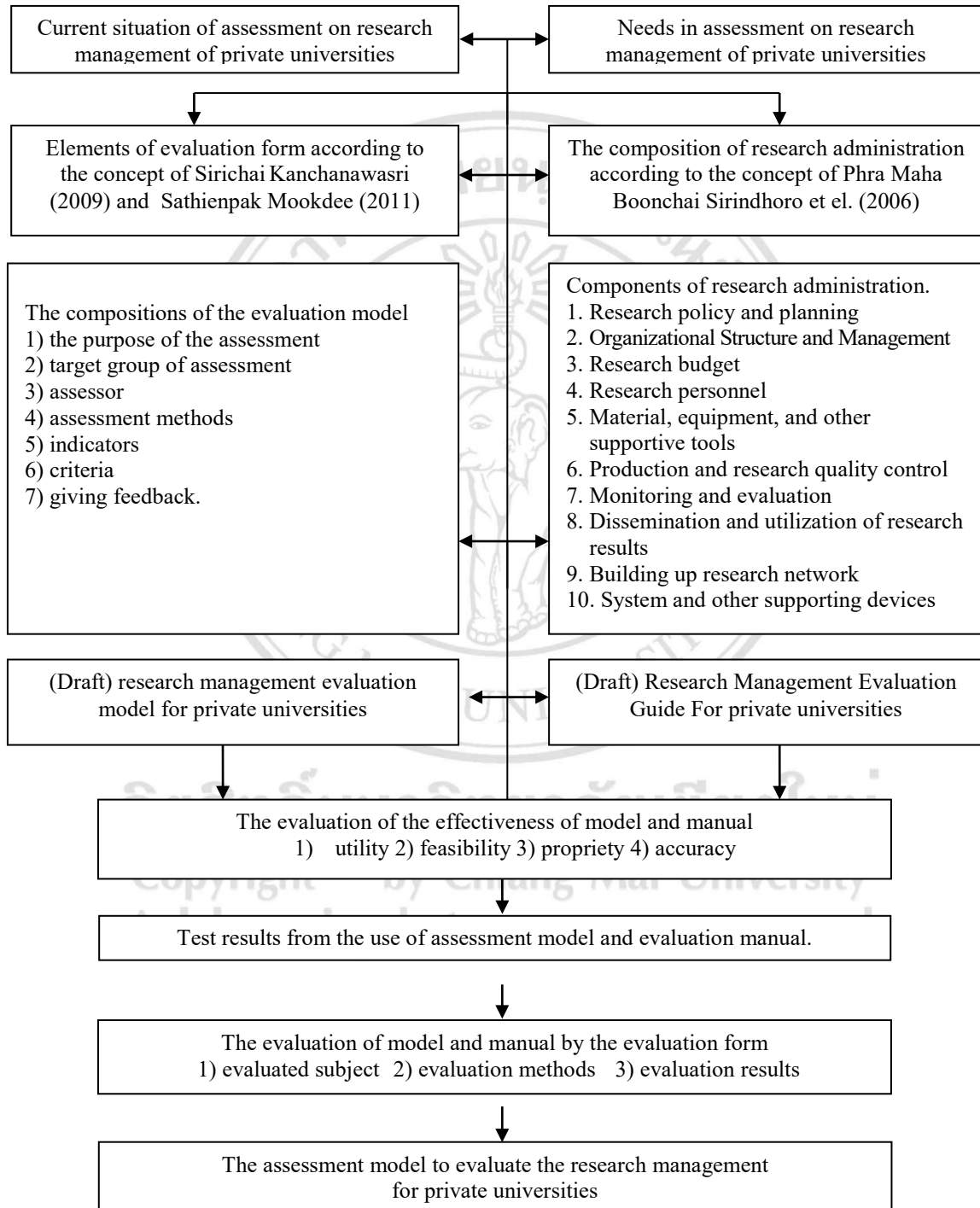


Figure 2 Research Framework