

The current and desirable states in research unit management models to enhance the research capacity of private universities

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Submitted 19 July 2016; accepted in final form 30 January 2017
Available online 29 June 2017

Abstract

The objective of this research was to study the current and desirable states in the research unit management models to enhance the research capacity of private universities. Six management models, namely; Formal, Collegial, Political, Subjective, Ambiguity, and Cultural, modified from Bush's Theory of management, were chosen for the conceptual framework of this research. Questionnaires with structured questions were utilized to collect data from the Vice President of the department of Research Affairs, Directors or Heads of the Research Unit, the Faculty Deans and the Lecturers in forty-two private universities under the Office of the Higher Education Commission. Data analysis was administered in the forms of frequency, mean, standard deviation and Modified Priority Need Index (PNI_{modified}). The findings are as follows: 1) The current states of Formal Management Model ($\bar{x}=3.57$, S.D.=0.95) was found to have the highest mean scores, followed by the Collegial, Cultural, Political, Subjective and Ambiguity, respectively, 2) The desirable states of Collegial management model was shown to have the highest mean scores ($\bar{x}=3.98$, S.D.=0.92), followed by the corresponding 5 management models as mentioned in the current states respectively, 3) According to the PNI, research unit management should prioritize the Collegial Management Model (PNI=0.228) followed by Political, Cultural, Subjective, Formal, and Ambiguity, respectively and 4) Key informants suggested that (1) a high amount of obligated teaching duties have hindered the task of conducting new research, (2) grants given to researchers at private universities should be partially supported by government, (3) research unit heads should be proactive and openly service-minded with their staff and (4) motivational incentives from private universities themselves such as an environment of professional academic facilities or awards can assist in conducting and creating a higher capacity of quality and quantity in research studies.

Keywords: *current and desirable states, research unit management models, research capacity, private universities*

1. Introduction

There is evidence and supporting statistics that in Thailand, when compared to government universities, private university research is not receiving enough support. At first, there was little interest, support or policies regarding the quality or quantity of research, an overlooked issue, which has been changed with the application of the Higher Educational Plan Phase II (2012). The purpose of this plan is to produce a better standard of conclusive research, increase the higher education academic capacity in producing research and improve the engagement of research at private universities. One in four research mission implemented by the Office of the Higher Education Commission is considered as a part of the propulsion system that is also a key driver of the country's capacity development.

Jitpimolmard (2013) stated that an important process of a country's development is its research work; research development, improvement of research knowledge and innovation in research will create value added to the progressiveness and competitiveness of a country. The research grant budget allocated by the government in 2013 supported university departments 89% and the private sector 11%. Most of this budget was used to support the National Research Universities by 71% (equivalent to 1,139 million Baht), public universities 20% (equivalent to 319 million Baht), Rajabhat and Rajamangala University of Technology received 5% (equivalent to 77 million Baht), private universities, and private and public research units as 4% (equivalent to 58 million Baht). From this information, it can be concluded that most of the budget was provided

in supporting research done by universities, particularly public ones. Only a minimal amount of this budget was allocated to support research at private universities.

Private universities are independently managed in comparison to public universities in terms of flexibility in managing. These private universities require an available budget in order to continue with administration under administrative strategies as described by Boonprasert, Tantanadecha, and Polsarum (2003), Sri-iam (2010), and Sukhatunga (2010). Discussed by these authors are the managerial problems of higher education institutions, which are constrained in terms of financial management. These universities rely on revenue from tuition, which in turn restricts the development of innovative research and the support needed to conduct research by these private universities. Other issues effecting the production of research in private universities are the declining number of students enrolled due to higher tuition fees compared to public universities and the lack of publications and reputation of research from private universities.

It is reported that King Mongkut's University of Technology Thonburi (KMUTT), was the only university listed in the Times Higher Education World University Rankings in the top 341-400 rank of universities that have published research. This particular university was reported to have the highest rank of research studies per capita, as well as the highest scores for innovation, learning environment, an international aspect, and high ranking research quality amongst the top universities in Thailand. From 2012-2013 and 2014-2015, King Mongkut's University of Technology Thonburi has maintained the position of an "elite-ranked" Thai university until 2015-2016 where six more universities had also been added to the list; Mahidol University, Chiang Mai University, Chulalongkorn University, Khon Kaen University, Prince of Songkla University, and Suranaree University of Technology (Times Higher Education, 2016a). Criteria for the World University Rankings are based on five institutional qualities: 1) Research - volume, income, and reputation (30% of total score), 2) Citations - research influence (30%), 3) Teaching - learning environment (30%), 4) International outlook of staff, students, and research (7.5%), and 5) Industry income - knowledge transfer (2.5%)

(Times Higher Education, 2016b). Significant emphasis on research is due to the fact that universities are now required to improve the quantity, quality, and amount of published research per year in accordance with the selection criteria as means of personnel, organization, and institution development.

According to Yurarach (2013) stated that the universities in Thailand are very different in terms of budget, personnel and quality of institutions and may lead to difference in research management. The directors of higher education institutions should focus more effort into research unit structure, vision, mission, objectives, and tasks to complete research objectives that comply with the quality assurance of higher education institutions. Administration of research units in public universities is significantly more organized and structured compared to the management of research units in private universities. This discrepancy has clearly resulted in the difference in the number of research and publications between public and private universities.

All of the high-ranking universities mentioned in "Time" magazine are public universities supported by the government and most of them have a strong research unit. Without a supporting unit in research at universities, particularly private universities, researchers will find it difficult to create new research. Due to the nature of private universities, managements and awards for outstanding researchers, supplying equipment to facilitate researches, establishing Science Parks on campuses, and building databases and providing a database exchange system for researches is mostly performed through personal investment with the exclusion of private universities that are associated with a foundation, for example a religious group. Therefore, investments by private universities will usually prioritize other issues before considering supporting the management of a research unit. These above-mentioned issues and constraints hinder the progress of achieving the goals set by both private universities themselves and by the government policy on higher education. A better management model for research units in private universities should be explored.

The main research framework of this study is the management model to enhance the research capacity of private universities based around 3 different conceptual frameworks as follows:

1) Tony Bush's six management models, 2) the conceptual framework from the Office of the Higher Education Commission (OHEC) and the Office for National Education Standards and Quality Assessment (ONESQA) in enhancing research capacity, and 3) the Modified Priority Needs Index.

1.1 Research framework number 1

After exploring relevant available documents, it is found that the management model by Tony Bush (Bush, 2011) best matches the requirements of this research objective. The research framework used in this research is modified from his model. Six modified Management Models from Bush's theory are: 1) Formal Management Model, 2) Collegial Management Model, 3) Political Management Model, 4) Subjective Management Model, 5) Ambiguity Management Model, and 6) Cultural Management Model. In each model there are eight features used in the classification scheme: 1) level at which goals are determined, 2) process by which goals are determined, 3) relationship between goals and decisions, 4) nature of decision process, 5) nature of structure, 6) link with environment, 7) style of leadership, and 8) related leadership model.

Regarding the Six Management Models (Bush, 2011), it can be described as follows:

1) The Formal Model assumes that organizations are hierarchical systems in which managers use rational means to pursue agreed goals. Heads of possessing authority are legitimized by their formal positions within the organization and are accountable to sponsoring bodies for the activities of their institutions.

2) The Collegial Model assumes that organizations determine policy and make decisions through a process of discussion leading to consensus. Power is shared among some or all members of the organization who are thought to have shared understanding about the aims of the institution.

3) The Political Model assumes that in organizations, policy and decisions emerge through a process of negotiation and bargaining. Interest groups develop and form alliances in pursuit of particular policy objectives. Conflict is viewed as a natural phenomenon and power accrues to dominant coalitions rather than being the preserve of formal leaders.

4) The Subjective Model assumes that organization is the creations of people within them. Participants are thought to interpret situations in different ways and these individual perceptions are derived from their background and values. Organizations have different meanings for each of their members and exist only in the experience of those members.

5) The Ambiguity Model assumes that turbulence and unpredictability are dominant features of organization. There is no clarity over the objectives of institutions and their processes are not properly understood. Participation in policy making is fluid as members opt in or out of decision opportunities.

6) The Cultural Model assumes that beliefs, values, and ideology are at the heart of organizations. Individuals hold certain ideas and value-preferences which influence how they behave and how they view the behavior of other members. These norms become shared tradition which are communicated within the group and are reinforced by symbol and ritual.

1.2 Research framework number 2

The second framework is derived from Office of the Higher Education Commission (OHEC) and Office for National Education Standards and Quality Assessment (ONESQA). The OHEC established rules and regulations on conducting and producing research and related works at higher education institutions. The ONESQA assesses the completion of research according to national standards set by the OHEC. Selected rules and regulations from these two sources that are relevant in the implementation of this research were used in this framework as follows:

1) Funding derived from internal and external sources for research or creative works to the number of full-time faculty members and/or researchers. (Office of the Higher Education Commission, 2011)

2) Publication or dissemination of research or creative works that is published in the proceedings of national/international conferences or published in journals listed in the TCI database, national/international journals listed in the ONESQA announcement, and international journals listed in the SJR or ISI or Scopus.

3) Implementation of research or creative works refers to research or creative works that have been properly implemented as specified in the

projects, research projects, or research reports resulting in tangible solutions to certain problems such as public, policy, commercial, and indirect utilization. They also have demonstrated innovative approaches to target groups with solid evidence of success or acknowledgement by outside organizations.

4) Quality-accredited academic works which are academic articles, textbooks, or books having been reviewed and approved by the criteria set by the Office of the Higher Education Commission on academic title and equivalent before publishing. (Office for National Education Standards and Quality Assessment Public Organization, 2013).

1.3 Research framework number 3

The Modified Priority Need Index formula (PNI_{modified}) by Wiratchai and Wongvanich (1999) was applied in order to find the current and

desirable states of priority needs for development. In this formula (I) refers to Importance and D refers to Degree of success. Therefore, the formula uses $PNI_{\text{modified}} = (I-D)/D$ to define the gap outcomes between the current and desirable states of research unit management. Every gap outcome or PNI level range is set in priority order from the highest score to the lowest score to find the order for the eight elements of management.

2. Objectives

The objective of this research was to study the current and desirable states of the research unit management to enhance the research capacity of private universities.

3. Materials and methods

The overall processes are as follows in Table 1

Table 1 Research methodology procedure

Study the current and the desirable states of research unit management models to enhance the research capacity of private universities		
Research Procedure	Methodology	Outcomes
Phase 1: To review, analyze, and synthesize the theory and relevant researches of 1) Management models and 2) Ways of enhancing the research capacity of a research unit.	<p>1. Review, analysis, and synthesis: Researcher reviewed, analyzed, and synthesized the documents on management models and ways of enhancing the research capacity to define the research conceptual frameworks.</p> <p>2. Assessing and validating the framework. Use the results to create a framework for managing and enhancing the capacity of research units in private universities. Afterwards the framework will be assessed. The framework was validated by five experts in educational administration and educational research and evaluation.</p>	<p>1. Conceptual research framework of the study results:</p> <p>a) The theoretical concept of the six management models and eight elements of management by Bush (2011)</p> <p>b) Four elements for enhancing the research capacity by OHEC (OHEC, 2011) and ONESQA (ONESQA, 2013).</p> <p>2. The final research framework from the framework assessment has been approved and validated by five experts.</p>
Phase 2: To construct a questionnaire based on the final research framework	<p>1. The questionnaire will be in 3 parts:</p> <p>a) Demographic questions with checklist.</p> <p>b) 47 questions on the current and the desirable states of research unit management models to enhance the research capacity of private universities in Likert scale format using a 5-point scale: 1 (very unauthentic / very undesirable) to 5 (very authentic / very desirable).</p>	Full questionnaires.

Study the current and the desirable states of research unit management models to enhance the research capacity of private universities		
Research Procedure	Methodology	Outcomes
	c) Open-end question for additional comments and suggestions. 2. Evaluation: a) Validity The research tool was validated by five experts in educational administration and educational research by means of index of item-objective congruence (IOC). b) Reliability Running the compiled questionnaires at a private university by means of Cronbach's alpha coefficient (=0.986) as a trial run.	
Phase 3: Data collection and data analysis	1. Data collection a) Data was collected through the distribution of a survey to 42 private universities in Thailand. b) 252 informants were contacted to answer the questionnaire consisting of 42 vice presidents of research affair, 42 directors or heads of research unit, 84 deans of faculty, and 84 lecturers of faculty. 2. Data analysis: Obtained data was analyzed using descriptive statistics to map the frequency, mean, standard deviation, and $PNI_{modified}$ of current and desirable states of research unit management model to enhance the research capacity of private universities with suggestions.	1. The current and desirable states of research unit management models to enhance the research capacity of private universities and 2. The level order of priority need in adjusting the research unit management.

4. Results and discussion

The research results based on the main objective revealed the current and desirable states in research unit management model to enhance the research capacity of private universities.

Data and information were collected by questionnaires, analyzed and categorized into the overall perspectives of six management models as shown in Tables 2 and 3.

Table 2 Mean and standard deviation of current states of research unit management models to enhance the research capacity of private universities in overall perspectives

Management Model	Current States		
	X	S.D.	Sequence
1. Formal	3.57*	0.95	1*
2. Collegial	3.26	0.97	2
3. Political	2.89	1.10	4
4. Subjective	2.87	1.09	5
5. Ambiguity	2.54	1.09	6
6. Cultural	3.24	0.99	3

According to Table 2, the current states of research unit management model to enhance the research capacity of private universities could be summarized as follow:

The current states of research unit management model to enhance the research capacity of private universities has implemented the Formal Model as the first model (\bar{x} =3.57, S.D.=0.95), Collegial Model as the second model (\bar{x} =3.26, S.D.=0.97), Cultural Model as the third model (\bar{x} =3.24, S.D.=0.99), Political Model as the fourth model (\bar{x} =2.89, S.D.=1.10), Subjective Model as the fifth model (\bar{x} =2.87, S.D.=1.09), and Ambiguity Model as the last model (\bar{x} =2.54, S.D.=1.09) respectively.

However, the Formal Model is considered as the current management model which is determined as follows:

a) Level at which goals are determined is at university or university subunits level.

b) Process by which goals are determined is determined by leaders.

c) Relationship between goals and decisions are based on the goals of the university or its subunits.

d) Nature of decisions making process is operated through reasonable process and regulations.

e) Nature of structure is subjective to hierarchical structure of executive orders.

f) Links with external environment occur in closed or opened connections based on decisions by the leaders.

g) Style of leadership is determined when the leader establishes and initiates the goals and policies.

h) Related leadership model is a Managerial Model.

Table 3 Mean and standard deviation of desirable states of research unit management model to enhance the research capacity of private universities in overall perspectives

Management Model	Desirable States		
	\bar{x}	S.D.	Sequence
1. Formal	3.94*	0.97	2*
2. Collegial	3.98*	0.92	1*
3. Political	3.24	1.15	4
4. Subjective	3.13	1.18	5
5. Ambiguity	2.61	1.28	6
6. Cultural	3.76	1.09	3

According to Table 3, the desirable states of research unit management model to enhance the research capacity of private universities could be summarized as follow:

The desirable states of research unit management model to enhance the research capacity of private universities is shown in order of sequence as follows: Collegial Model is the first model (\bar{x} =3.98, S.D.=0.92), the second model is Formal Model (\bar{x} =3.94, S.D.=0.97), the third model is Cultural Model (\bar{x} =3.76, S.D.=1.09), the fourth model is Political Model (\bar{x} =3.24, S.D.=1.15), the fifth model is Subjective Model (\bar{x} =3.13, S.D.=1.18), and the final model is the Ambiguity Model (\bar{x} =2.61, S.D.=1.28) respectively.

The three desirable models with the highest mean score from the highest to the lowest are as follows; Collegial, Formal, and Cultural Model. Two out of three models show nearly the same mean scores, concluding that most informants agreed with the concept of these two models.

The desirable management model resulted from the participation of private universities agreed upon the Collegial and Formal Model. The eight main elements of management of these desirable models are determined as follows:

a) Level at which goals are determined is in university or university subunits level.

b) Process by which goals are determined is mutually set up by leaders and staff.

c) Relationship between goal and decisions is based on all staff-agreed goals of the university or its subunits.

d) Nature of the decision-making process is rational and a collegial process.

e) Nature of private university research unit structure is hierarchical in structure, focusing on staff and network relationship both inside and outside the organization.

f) Links with the external environment are not restricted as they occur in closed or opened connections through the decisions of all research unit staff.

g) Style of Leadership is determined by the leader who seeks to promote group consensus, establish and initiate the goals and policies.

h) Related leadership model is Transformational, Participative, Distributive and Managerial.

The overall results of PNI sets the priority in the level ranges of six management models as shown in Table 4.

Table 4 The overall results of PNI level of 6 management models

Management Model	PNI level	Sequence
1. Formal	0.106	5
2. Collegial	0.228*	1*
3. Political	0.162	2
4. Subjective	0.119	4
5. Ambiguity	0.091	6
6. Cultural	0.161	3

According to Table 4, the priority need for adjusting research unit management model could assume the Collegial Model (PNI = 0.228) as the first priority need, whereas the Political Model (PNI = 0.162), the Cultural Model (PNI = 0.161), the Subjective Model (PNI = 0.119), the Formal Model (PNI = 0.106), the Ambiguity Model (PNI = 0.091) were ranked in order as the second to the last ones, respectively.

However, the highest level of PNI for adjusting research unit management models is the Collegial Model (PNI = 0.228). This indicates that the highest gap between the current and desirable states of research unit management that requires adjustment is the Collegial Model. This also stresses that the Collegial Model has not been used as research unit management model for the past years. However, it is the most desirable management model for a research unit of private universities.

5. Conclusion

From this research, there are four main findings:

1) Current state of research unit management model to enhance the research capacity of private universities is the "Formal Management Model".

2) Desirable state of research unit management model to enhance the research capacity of private universities is the "Collegial and Formal Management Models".

It is the goals, the processes, the relationship between goals and decisions, the decisions making, the structure, the external environment, the style of leadership and the related leadership model that focuses on leaders and all staff

at private universities that are needed to enhance the research capacity of private universities. All of these elements are needed to promote consensus and networking relationships both inside and outside private universities with established goals and policies.

The Collegial Management Model is the model of sharing ideas and working towards the same goals and policies whereas the elements and indicators for assurance quality of research internally and externally consist of four elements: 1) funding, 2) research publication, 3) research or creative works that contributes to society, and 4) certified high-quality research. Private universities research units and all university staff should work in collaboration through planning, agreed policies, and reviewed strategies.

This Collegial Management Model is congruent with the findings of Chongkhlaiklang (2014) study development of a management model for the empowerment of teachers in Basic Education Institutions, it was found that the highest mean scores at current, desirable states and prioritized development is the Collegial Management Model. In a study of academic administration models, the Buddhist scripture school, general education division also prefers the Collegial Model. Teerawatee (2015) had also stated that the Collegial Management Model was implemented for co-operation between colleagues and external organizations.

3) The priority for adjusting research unit management models would have been better mapped with the "Collegial Management Model" that was not used this model as the research unit management. The most desirable management model in the future is the Collegial Management Model.

4) Key informants suggested that (1) a high amount of obligated teaching duties have hindered the task of conducting new research, (2) grants given to researchers at private universities should be partially supported by government, (3) research unit heads should be more available, proactive and openly service-minded with their staff and (4) motivational incentives from private universities themselves such as an environment of professional academic facilities or awards can assist in conducting and creating a higher capacity of quality and quantity in research studies.

6. Acknowledgements

This article is a part of a whole dissertation funded by The 90th Anniversary of Chulalongkorn University Fund (Ratchadaphiseksomphot Endowment Fund). The topic of this article is only the first objective of the authors' dissertation works. The authors would like to thank the Graduate School of Chulalongkorn University for providing the funding sources for this research.

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