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RESEARCH ARTICLE

A Causal Relationship of Effectiveness in Research Policy Implementation of Rajabhat University Lecturers in the Northern Region of Thailand

Wiphat Mankan
Faculty of Humanities and Social Sciences,
Lampang Rajabhat University, Thailand

Abstract

This study aimed to develop and investigate a causal relationship model of the effectiveness in research policy implementation of Rajabhat University lecturers in the Northern Region, Thailand. The sample was 240 lecturers, selected by stratified random sampling. A questionnaire with the reliability of .96 was used as the tool for collecting data. Data were analyzed using descriptive statistics and structural equation analysis. The results showed that the proposed model was consistent with the empirical data with χ^2= 31.333, *df*= 21, *p*= .068, χ^2/df= 1.492, *GFI*= .979, and *RMSEA*= .045 by the predicting coefficient of the effectiveness in research policy implementation was .95. It was concluded that external support, organizational management, and personal characteristics could jointly explain 95% of the variability of effectiveness in research policy implementation. The effect of the variables in the proposed model was as follows: 1) External support had a direct, positive influence on organizational management and personal characteristics, with path coefficients of .95 and .97, respectively. 2) Organizational management had a direct, positive influence on effectiveness in research policy implementation, with a path coefficient of .30. 3) Personal characteristics had a direct, positive influence on effectiveness in research policy implementation, with a path coefficient of .69. 4) External support had an indirect, positive influence on the effectiveness of the implementation of the research policy through organizational management and personal characteristics, with a path coefficient of .96.

Keywords

Causal relationship, policy implementation, research policy

CORRESPONDING AUTHOR
Wiphat Mankan, Faculty of Humanities and Social Sciences, Lampang Rajabhat University. Lmapang, 52100, Thailand. Email: wiphatmankan2495@icloud.com

ความสัมพันธ์เชิงสาเหตุของประสิทธิผลในการนำนโยบายการวิจัยไปปฏิบัติของอาจารย์มหาวิทยาลัยราชภัฏในเขตภาคเหนือของประเทศไทย

วิพัฒน์ หมั่นการ
คณะมนุษยศาสตร์และสังคมศาสตร์
มหาวิทยาลัยราชภัฏลำปาง

บทคัดย่อ
การศึกษาครั้งนี้มีวัตถุประสงค์เพื่อพัฒนาและตรวจสอบรูปแบบความสัมพันธ์เชิงสาเหตุของประสิทธิผลในการนำนโยบายการวิจัยไปปฏิบัติของอาจารย์มหาวิทยาลัยราชภัฏในเขตภาคเหนือของประเทศไทย กลุ่มตัวอย่างคืออาจารย์จำนวน 240 คน เลือกโดยการสุ่มแบบแบ่งชั้นภูมิ เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลเป็นแบบสอบถามที่มีค่าความเชื่อมั่นเท่ากับ .96 วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนาและการวิเคราะห์สมการโครงสร้าง ผลการวิจัยพบว่า แบบจำลองที่นำเสนอมีความสอดคล้องกับข้อมูลเชิงประจักษ์ด้วย χ^2= 31.333, *df*= 21, *p*= .068, χ^2/df= 1.492, *GFI*= .979 และ *RMSEA*= .045 โดยมีสัมประสิทธิ์การทำนายประสิทธิผลในการนำนโยบายการวิจัยไปปฏิบัติเท่ากับ 0.95 ซึ่งสรุปได้ว่า การสนับสนุนจากภายนอก การจัดการองค์กร และคุณลักษณะส่วนบุคคลสามารถอธิบายความแปรปรวนของประสิทธิผลในการนำนโยบายการวิจัยไปปฏิบัติได้ร้อยละ 95 อิทธิพลของตัวแปรในแบบจำลองมีดังนี้ 1) การสนับสนุนจากภายนอกมีอิทธิพลทางตรงในเชิงบวกต่อการจัดการองค์กรและคุณลักษณะส่วนบุคคล โดยมีค่าสัมประสิทธิ์อิทธิพลเท่ากับ .95 และ .97 ตามลำดับ 2) การจัดการองค์กรมีอิทธิพลทางตรงในเชิงบวกต่อประสิทธิผลในการนำนโยบายการวิจัยไปปฏิบัติ โดยมีค่าสัมประสิทธิ์อิทธิพลเท่ากับ .30 3) คุณลักษณะส่วนบุคคลมีอิทธิพลทางตรงในเชิงบวกต่อประสิทธิผลในการนำนโยบายการวิจัยไปปฏิบัติ โดยมีค่าสัมประสิทธิ์อิทธิพลเท่ากับ .69 4) การสนับสนุนจากภายนอกมีอิทธิพลทางอ้อมในเชิงบวกต่อประสิทธิผลในการนำนโยบายการวิจัยไปปฏิบัติ ผ่านการจัดการองค์กรและคุณลักษณะส่วนบุคคล โดยมีค่าสัมประสิทธิ์อิทธิพลเท่ากับ .96.

คำสำคัญ
ความสัมพันธ์เชิงสาเหตุ, การนำนโยบายไปปฏิบัติ, นโยบายการวิจัย

Introduction

Research is a mechanism for developing and driving the country in terms of society, economy, and industry to can compete with other countries. The developed countries will give priority to research and development in order to build and expand knowledge in creating innovation to keep up with changes and to compete in the world stage. (Phisansupong, 2014). It was seen from the ratio of research and development expenditures on the GDP of developed countries that were higher than countries in other groups. Such as Sweden 3.74%, Japan 3.4%, South Korea 3.24%, United States 2.82%, Singapore 2.27%, Australia 2.06%, People's Republic of China 1.4%, and Malaysia 0.64%. As for Thailand was policies to increase support for research with increase the research and development expenditures, from 0.26% of GDP in 2011 to 0.37% of GDP in 2018, and the research investment proportion of private sector to government sector adjusted, from 41:59 in 2011 to 51:49 in 2018 (NRCT: National Research Council of Thailand, 2011).

The Twelfth National Economic and Social Development Plan (2017-2021) set a goal to increase investment in research and development to be close to the world average of 1.04% that is a target of investment in research and development of this plan and increased to 2% in the next plan. Besides, it has a target to increase the investment proportion in research and development of the private sector, from 40% in 2019 to 70% in 2021 by specifying the research policies to one of the central policies of the country. The government set a guideline for related agencies such as the National Research Council of Thailand (NRCT) and higher education institutions to essential mechanisms to increase the country's research potential by having a pivotal role in the production of researchers and research both in quantity and quality (NESDB: National Economic and Social Development Broad, 2017; NRCT, 2018). Each higher education institution may have a different research focus depend on the environment and readiness. Therefore, to achieve the research policy of the nation, they must set clear their policies and strategies for research operations. However, the success of policy implementation also depends on other factors, namely, 1) communication, 2) structure of the bureaucratic system, 3) resources, 4) support of a person who implements the policy (Sabatier, 2007; Sabatiar & Mazmanian, 1980), 5) leadership, 6) participation, 7) motivation, 8) teamwork, 9) engagement and acceptance (Chandarasorn, 2013), 10) an attitude of a person who implements the policy, and 11) mechanisms within the agency or between departments that implement policies (Meter & Horn, 1975)

Besides, the previous studies showed that factors affected the success or effectiveness of research policy implementation of universities include: 1) The researcher itself. 2) Support from the universities and external organizations in terms of research funding. 3) Facilities that are favorable to the research in terms of personnel, environment, and atmosphere. 4) Creating a

network of collaborators to create research results, and 5) Organizing the learning process of the organization about creating and presenting research to use to benefit society and the nation (Junphuang & Athinuwat, 2016; Phingsranoi, 2013).

This study was to examine the relationship of the variables as defined in the proposed model to find out which variables influenced the effectiveness in research policy implementation of university lecturers. The result was used as a good guideline for policy implementation to promote and support research development to be more productive and meet the research development goals of the university and nation.

Methods

Research Conceptual Framework

The proposed model was derived from a previous study on the conditions facilitating the success in research policy implementation within Thailand, observed variables, latent variables, and four hypotheses were identified as follows (Figure 1):

External Support (SUP)—the receiving support in funding and collaboration of lecturers' research from agencies or people outside the university include government and private agencies, and other universities, both domestically and internationally, as well as international organizations. In this study, SUP was defined as an exogenous latent variable that is consists of two observed variables, namely, 1) research funds (FUN), and 2) research collaboration network (NET) (Boonnamma & Subbamrung, 2009; Chandarasorn, 2013; Hiranwong; 2004; Pfeffer & Salanick, 2003).

Organizational Management (ORG)—Organizational processes and resources that enable research activities to be completed efficiently and effectively. In this study, ORG was defined as an endogenous latent variable that is consists of five observed variables, namely, 1) leadership (LEA), 2) resource (RES), 3) incentives and motivation (INC), 4) communication and promotional activities (COM), and 5) mechanisms within the organization (MAC) (Barnard, 1966; Chandarasorn, 2013; Herzberg, 1959; Meter & Horn, 1975; Yawaprapad, 2005).

Personal Characteristics (PER)—Trait, attitude, motivation, skills, and abilities of an individual that influence a person's behavior that helps to achieve the vision, mission, and strategy of the organization in research. In this study, PER was defined as an endogenous latent variable that is consists of three observed variables, namely, 1) academic ideology (IDE), 2) research ability (ABI), and 3) attitude in research (ATI) (Atthakon, 2013; Maslow, 1968; Sabatier & Mazmanian, 1980; 2007; Sriprom, 2011).

Effectiveness in Research Policy Implementation (EFF)—Achieving research indicators according to the educational quality certification criteria of the Office of National Education Standards and Quality Assessment (Public Organization). In this study, EFF was defined as an

endogenous latent variable that is consists of two observed variables, namely, 1) research publications (PUB), 2) satisfaction in research policy implementation (SAT) (ONESQA: Office for National Education Standards and Quality Assessment, 2016).

The conceptual research framework consists of four hypotheses, as shown in Figure 1:

H1: External support (SUP) had a direct, positive influence on organizational management (ORG).

H2: External support (SUP) had a direct, positive influence on personal characteristics (PER).

H3: Organizational management (ORG) had a direct, positive influence on effectiveness in research policy implementation (EFF).

H4: Personal characteristics (PER) had a direct, positive influence on effectiveness in research policy implementation (EFF).

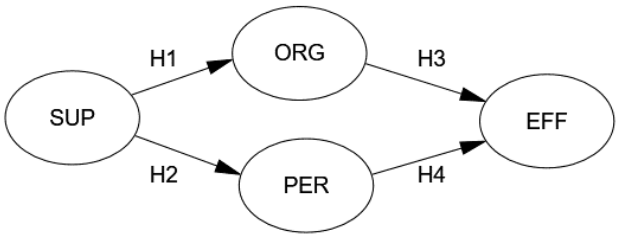

Figure 1. The Conceptual Research Framework

Population and Sample

The population used in the research was 2,653 lecturers of 8 Rajabhat University in the northern region include Chiang Rai Rajabhat University, Chiang Mai Rajabhat University, Pibulsongkram Rajabhat University, Lampang Rajabhat University, Uttaradit Rajabhat University, Nakhon Sawan Rajabhat University, Phetchabun Rajabhat University, and Kamphaeng Phet Rajabhat University. The sample size determined based on the criteria of Stevens (1986), which specifies that the sample sizes for linear structural relationship analysis should use at least 20 units per observed variable. In this study, 12 observable variables were defined. Therefore, the sample was 240 lecturers selected by stratified and proportional random sampling.

Instrument

The study instrument was a questionnaire, the content validity of which was examined by five experts. The index of item objective congruence (IOC) for all questions in the questionnaire was higher than .60. Then, the questionnaire was tested with thirty, non-sample Lecturers to find its reliability using Cronbach's alpha coefficient method (Cronbach, 1951). The reliability of the

questionnaire was .95, and the reliability of the questionnaire that was used to measure the variables of SUP, ORG, PER, and EFF were .92, .96, .93, and .96, respectively.

Data Analysis and criteria

The data were analyzed using frequency, percentage, correlation analysis, and structural equation modeling analysis (SEM) to determine the consistency of the proposed model with empirical data. The consistency criteria included 1) chi- square probability level ($p > .05$), 2) relative chi-square ($\chi 2/df < 2$), 3) goodness of fit index (GFI > .90), and 4) root mean square error of approximation (RMSEA < .08) (Brown & Cudeck, 1993; Byrne, 2001; Kline, 2005; Schumacker & Lomax, 2004).

Results

Most of the respondents were female (62.2%), aged between 35-44 years (42.4%), who graduated with a master's degree (65.5%), their job positions were lecturers (48.6%), and their work experience was 6-10 years (35.4%).

Structural equation analysis was to examine the proposed model with empirical data. It showed that the consistency of the proposed model to the empirical data after the model was adjusted with chi-square ($\chi 2$) = 31.333, degrees of freedom (df) = 21, probability value (p) = .068, chi-square relative: ($\chi 2/df$) = 1.492, goodness of fit index (GFI) = .979, and root mean square error of approximation (RMSEA) = .045, as shown below in Figure 2 and Table 1

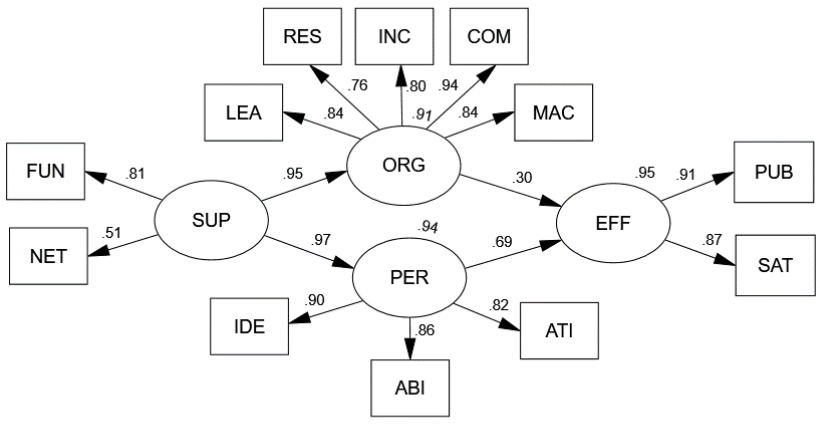

Figure 2. Consistency Statistics of Proposed Model to the Empirical Data

Table 1. Statistics of Proposed Model's Fit against the Criteria.

Evaluating the Data-Model Fit	Criteria	Analysis results
1) Chi-square Probability Level: p	> .05	.068
2) Relative Chi-square: $\chi 2/df$	< 2	1.492
3) Goodness of Fit Index: GFI	> .90	.979
4) Root Mean Square Error of Approximation: RMSEA	< .08	.045

Table 2. The Effect of the Variables in the Proposed Model

Independent Variables	Dependent Variables								
	ORG			PER			EFF		
	DE	IE	TE	DE	IE	TE	DE	IE	TE
SUP	0.95**		0.95**	0.97**		0.97**		0.96**	0.96**
SUP→ORG								0.29**	0.29**
SUP→PER								0.67**	0.67**
ORG		-			-		0.30**		0.30**
PER		-			-		0.69**		0.69**
R^2		0.91			0.94			0.95	

* DE = Direct effect, IE = Indirect effect, TE = Total effect (β, ** $p < .01$)

Data in Figure 2 and Table 2 shows that the effect of the variables in the proposed model can be summarized as follows:

External support (SUP) had a direct, positive effect on organizational management (ORG) and personal characteristics (PER), with path coefficients (β) of .95 and .97, respectively

Organizational management (ORG) had a direct, positive effect on effectiveness in research policy implementation (EFF), with a path coefficient (β) of .30

Personal characteristics (PER) had a direct, positive effect on effectiveness in research policy implementation (EFF), with a path coefficient (β) of .69.

External support (SUP) had indirect, positive effects on effectiveness in research policy implementation (EFF) through 2 ways: (1) SUP→ORG→EFF, with a path coefficient (β) of .29 (.95 x .30). (2) SUP→PER→EFF, with a path coefficient (β) of .67 (.97 x .69). Therefore, external support had a total effect on effectiveness in research policy implementation, with a total path coefficient (β) of .96.

It was concluded that SUP, ORG, and PER had effects on EFF, with path coefficient effects (β) were .96, .30, and .69, respectively.

Besides, Data in Figure 2 and Table 2 showed that the predicting coefficient of effectiveness in research policy implementation (estimate of standardized regression weights)

was .95 (R^2 = .95). It was concluded that SUP, ORG, and PER could jointly explain 95% of the variability of effectiveness in research policy implementation (EFF).

Table 3. Hypotheses testing results

Hypotheses	Estimate	SE	t	Summarized
H1: SUP → ORG	.953**	.080	11.989	Supported
H2: SUP → PER	.970**	.066	14.879	Supported
H3: ORG → EFF	.303**	.132	2.559	Supported
H4: PER → EFF	.687**	.136	5.584	Supported

**$p < .01$ ($t \geq 2.518$, $df = 21$)

The hypothesis testing results (Table 3) were summarized as follows:

Hypothesis 1 (H1): External support (SUP) had a direct, positive effect on organizational management (ORG), with a path coefficient (β) of .953, t of 11.989 (t ≥ 2.518), which showed that supported the Hypothesis 1, at a statistical significance level of .01.

Hypothesis 2 (H2): External support (SUP) had a direct, positive effect on personal characteristics (PER), with a path coefficient (β) of .970, t of 14.879 (t ≥ 2.518), which showed that supported the Hypothesis 2, at a statistical significance level of .01.

Hypothesis 3 (H3): Organizational management (ORG) had a direct, positive effect on effectiveness in research policy implementation (EFF), with a path coefficient (β) of .303, t of 2.559 (t ≥ 2.518), which showed that supported the Hypothesis 3, at a statistical significance level of .01.

Hypothesis 4 (H4): Personal characteristics (PER) had a direct positive influence on effectiveness in research policy implementation (EFF), with a path coefficient (β) of .687, t of 5.584 (t ≥ 2.518), which showed that supported the Hypothesis 4, at a statistical significance level of .01.

Conclusion and Discussion

The study was concluded that the proposed model explained the data adequately. The results indicated that SUP, ORG, and PER had effects on EFF of Rajabhat University lecturers and could jointly explain 95% of the variability of effectiveness in research policy implementation (EFF), with both direct and indirect effect that were summarized as follows:

External support (SUP) had an indirect, positive effect on effectiveness in research policy implementation (EFF) through ORG/PER. It may be due to the effectiveness in research policy implementation of the university depends on receiving support and cooperation network from public and external organizations, such as the agencies that support funds and facilities for

research lecturers, including collaborative networks and the relationship between researchers and persons in the area. It is in line with previous studies that found that external support that had most effects on the research motivation and research productivity of university lecturers was supporting research budgets or research funds. Followed by document resources, materials, equipment, the collaboration between researchers, and the research atmosphere, respectively (Hiranwong, 2004; Sriprom, 2011).

Organizational management (ORG) had a direct, positive effect on effectiveness in research policy implementation (EFF). It may be due to proper organizational management is a critical factor for policy implementation to succeed. The success of the policy implementation depends on organizational capabilities and development in various aspects were as follows: 1) Support from executives—is receiving support from executives in setting policies, training, and facilitating that is an incentive for the researchers to succeed in the research (Naksawi, Ratniyom, & Jaeloh, 2007; Tantisriyanurak, Thisopha, & Kriangsinyot, 2005). 2) Organizational resources—is resource support with sufficient both in finance, and a workforce with quality, as well as service factors are materials, equipment, locations, tools, appliances, and other facilities that are necessary for operations (Sabatier & Mazmanian; 1980). 3) Incentives and motivation—is the crucial driving factors for employees into more willing to work. (Pfeffer & Salancik, 2003). The critical role of executives is to motivate organizational members and relevant people to realize their organizational objectives and goals. They need to motivate organizational members to collaborate work through a variety of incentives, namely, advancement opportunities, bonuses, working environment, ideological motivation, belief, faith, and negative motivation (such as punishment if necessary) (Barnard, 1966). As for the implementation of the policy, incentives are considered an essential factor affecting successful policy implementation (Chandarasorn, 2013). As can be seen from previous studies on the research policy implementation of universities in Thailand, found that incentives and motivation were factors that influenced the lecturers' research success at a high level (Phingsanoi, 2013; Sriprom, 2011; Supharatanapirak, 2011). 4) Communication and promotional activities—is communication and support that is crucial for linking policies and operations to achieve organizational goals (Barnard, 1966). Open communication is the opportunity to create vertical and horizontal ties that is one of the important in determining the success or failure of policies (Meter & Horn, 1975). 5) Mechanisms within the organization—is a factor that profound effects on the success or failure of the policy implementation include the organizational structure, the hierarchy of command, and the relationships between mechanisms within the organization implementing the policy (Meter & Horn, 1975; Sabatier, 2007).

Personal characteristics (PER) had a direct, positive influence on effectiveness in research policy implementation (EFF), it may be due to the individual factors of policy implementation

practitioners that are consistent with the practitioners' interests will affect the policy implementation cooperation. (Yawaprapad, 2005). For the research policies, it must start from the lecturers who must be aware of the research mission that is a vital role of lecturers in higher education institutions (Appleby, 1973). How much of their awareness will be? It depends on their characteristics, ideology, competence, and attitude (Sriprom, 2011; Atthakorn, 2013). It is in line with the study of Vanida Phingsanoi (2013), the factors that influenced the research are individual factors include self-esteem; knowledge, ability, and skills of research; and attitude towards conducting research.

Suggestions

The results show that the causal factors in the proposed model, include external support, organizational management, and personal characteristics that influenced the effectiveness in research policy implementation of Rajabhat University lecturers. Therefore, if they want to develop the effectiveness in research policy implementation of Rajabhat University lecturers to more effective, the relevant agencies, and universities should proceed in the areas were as follows:

1. Government agencies that responsible for national research policies should promote and support university lecturers to have the opportunity to receive research grants from outside funding sources.

2. Universities should establish academic cooperation networks with external agencies to encourage lecturers to have the opportunity to research with those agencies. There are academic cooperation agreements by specifying clear policies and objectives to promote and support lecturers to work with external agencies to produce and utilize from researches with continuous and tangible.

3. Universities should develop a research management system and mechanism, resources, incentives, as well as facilities to promote, support and facilitate the lecturers' research to achieve the research targets and objectives by the university and nation policy.

4. Universities should promote and support the roles in the research of lecturers to create awareness and proper attitudes in the research duties that is one of the main tasks other than teaching.

5. Universities should have processes for developing the research capability of lecturers continuously to enable them to conduct research effectively by the university's research policy goals.

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