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INVESTIGATING THE FACTORS INFLUENCING THE EXCHANGE OF KNOWLEDGE SHARING BETWEEN RESEARCH TEAMS BASED ON SEM*

การตรวจสอบปัจจัยที่มีอิทธิพลต่อการแลกเปลี่ยนการแบ่งปันความรู้ระหว่างทีมวิจัย ด้วยการวิเคราะห์ด้วยโมเดลสมการโครงสร้าง

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Abstract

This research aimed to investigate the factors influencing knowledge sharing among research teams, with an academic objective to identify conceptual approaches for facilitating knowledge exchange within specific research methodologies. The study employed empirical analysis to examine in-depth the factors and mechanisms affecting knowledge sharing within college-based research teams.

The findings revealed that knowledge providers, knowledge recipients, knowledge sharing channels, and the knowledge-sharing environment all significantly influenced the effectiveness of knowledge exchange. To enhance knowledge sharing and improve a team's capacity for innovation. The study proposed targeted strategies and recommendations. These findings provided valuable guidance for the management and operation of research teams in academic institutions, contributing to scholarly development and the advancement of technological innovation capabilities.

Keywords: Investigating; Factors Influencing; Exchange of Knowledge Sharing; Research Team Based

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บทคัดย่อ

บทความวิจัยนี้มีวัตถุประสงค์เพื่อสืบค้นปัจจัยที่มีอิทธิพลต่อการแลกเปลี่ยนความรู้ระหว่างทีมวิจัย เป็นวัตถุประสงค์ทางวิชาการเพื่อค้นหาแนวคิดบางอย่างที่สามารถสร้างขึ้นเพื่อแลกเปลี่ยนความรู้ในแนวทางเฉพาะในระเบียบวิธีวิจัย โดยใช้วิธีการวิเคราะห์เชิงประจักษ์เพื่อตรวจสอบปัจจัยและกลไกที่มีอิทธิพลต่อการแบ่งปันความรู้ระหว่างทีมวิจัยของวิทยาลัยในเชิงลึก

ผลการวิจัยพบว่า ผู้ให้ความรู้ ผู้รับความรู้ ช่องทางการแบ่งปันความรู้และสภาพแวดล้อมการแบ่งปันความรู้ ล้วนมีผลกระทบอย่างมากต่อการแบ่งปันความรู้ เพื่อปรับปรุงระดับการแบ่งปันความรู้และความสามารถของทีมในการสร้างสรรค์สิ่งใหม่ ๆ การศึกษานี้เสนอกลยุทธ์และข้อเสนอแนะเฉพาะ การค้นพบเหล่านี้ให้คำแนะนำอันมีค่าสำหรับการจัดการและการปฏิบัติของทีมวิจัยของวิทยาลัย ซึ่งช่วยส่งเสริมการพัฒนาทางวิชาการและปรับปรุงความสามารถในการสร้างสรรค์นวัตกรรมทางเทคโนโลยี

คำสำคัญ: การแบ่งปันความรู้; การวิเคราะห์ปัจจัยที่มีอิทธิพล; โมเดลสมการโครงสร้าง; ทีมวิจัยของมหาวิทยาลัย

Introduction

The study of Investigating the factors influencing the exchange of knowledge sharing between research teams is the academic purpose to search for some concepts that could be create in exchange of knowledge in specific approach in research methodology. As a results, investigation method is used for finding the influencing factors that effect to knowledge sharing between research team at all. (Al-Alawi et al., 2007)

However, many college research teams currently face numerous barriers to knowledge sharing, such as insufficient knowledge transfer, knowledge waste and knowledge silos, which limit collaborative innovation and overall team performance (Wang et al., 2019). Especially in universities, the difficulty of knowledge sharing between research teams has increased due to the relative scarcity of resources and the uniqueness of team-building methods. Therefore, exploring the key factors that influence knowledge sharing between research teams in universities is very importance for promoting team knowledge flow and improving innovation capability.

This study applies an empirical research method that aims to explore the key factors that influence knowledge sharing between research teams in universities. These include variables such as knowledge providers, knowledge recipients, knowledge-sharing channels and the knowledge-sharing environment, as well as analyzing their interrelationships and mechanisms of action. (Ting & Xiaoling, 2018) By uncovering these influencing factors, targeted strategies and suggestions are provided for college research teams to promote knowledge flow and sharing within the team and improve the team's innovation capability and overall performance. This study has important theoretical and practical implications. (Liu et al., 2017). At the theoretical level, it will enrich and extend research findings in the field of knowledge management, particularly by examining the factors that influence knowledge sharing in research. On the practical level, it will provide useful guidance to managers and decision makers of college research teams to promote collaborative innovation and overall team development by optimizing knowledge management and knowledge-sharing mechanisms and achieve leapfrog development of scientific research level and innovation capability. (Lin et al., 2006; Yang, 2018)

Research Objectives

1. To solve problems academically by using analytic and synthetic methods by investigating factors that influence the exchange of knowledge sharing between research teams.

2. To study the results from investigating factors in cases of exchange of knowledge sharing between research teams.

3. To demonstrate concepts from the results of the study to search for a new model of knowledge sharing between research teams.

Methodology

1. Research design

The study employed a quantitative research approach, using empirical methods to examine the factors and mechanisms influencing knowledge-

sharing among university research teams. Data were collected via structured questionnaires. This approach was selected to ensure simultaneous data collection that supports conceptual integrity and analytical consistency.

2. Population and Sample Size

The population for this study included members of university research teams from various institutions across the country. A total of 234 questionnaires were distributed, with 219 valid responses returned. Participants were sampled through a stratified random sampling method to ensure representation across institution types and geographical regions.

Table 2 Sample Information Description

Item	Options	Frequency	Percentage (%)
Gender	Male	111	50.68
	Female	108	49.32
Educational Background	Bachelor degree	16	7.31
	master	185	84.47
	PhD or above	18	8.22
Discipline field	Humanities	73	33.33
	Sciences	129	58.90
	Interdisciplinary	16	7.31
	Other	1	0.46
Scale of the research team	Less than 10	45	20.55
	11-20	126	57.53
	21-30	38	17.35
	More than 30	10	4.57
Age	Under 29	8	3.65
	30-39	22	10.05
	40-49	155	70.78
	50-59	29	13.24
	Above 60	5	2.28

3. Research Instrument

The primary instrument used for data collection was a structured questionnaire, specifically designed to measure:

3.1 Knowledge-sharing levels

3.2 Roles of knowledge providers and recipients

3.3 Knowledge-sharing channels

3.4 Environmental influences

3.5 Instrument Validity & Reliability: Cronbach's Alpha= 0.941 indicating high reliability KMO=0.925 Bartlett's Test of Sphericity= Chi-Square=3572.770, df = 190, p < .001

Table 3 Analysis of Cronbach Reliability Results

Number of items	sample size	Cronbach **α**
20	219	0.941

Table 4 KMO and Bartlett's test

item		value
KMO		**0.925**
Bartlett sphericity test	Approximate Chi-Square	3572.770
	df	190
	p	0.000

4. Data Collection

Data collection was conducted through questionnaire distribution to the sampled participants. Responses were compiled and entered into SPSS software for preliminary analysis.

5. Data Analysis Statistics Used to Analyze the Data

The study utilized Structural Equation Modeling (SEM) via AMOS 24 to test and refine the proposed theoretical framework. SEM enabled simultaneous examination of multiple relationships while accounting for measurement error.

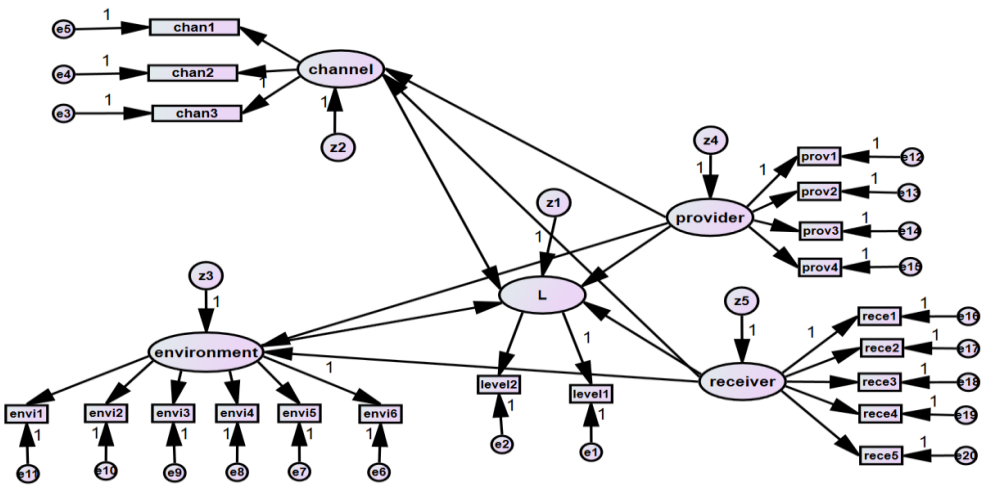

Figure 1 Model Path Diagram

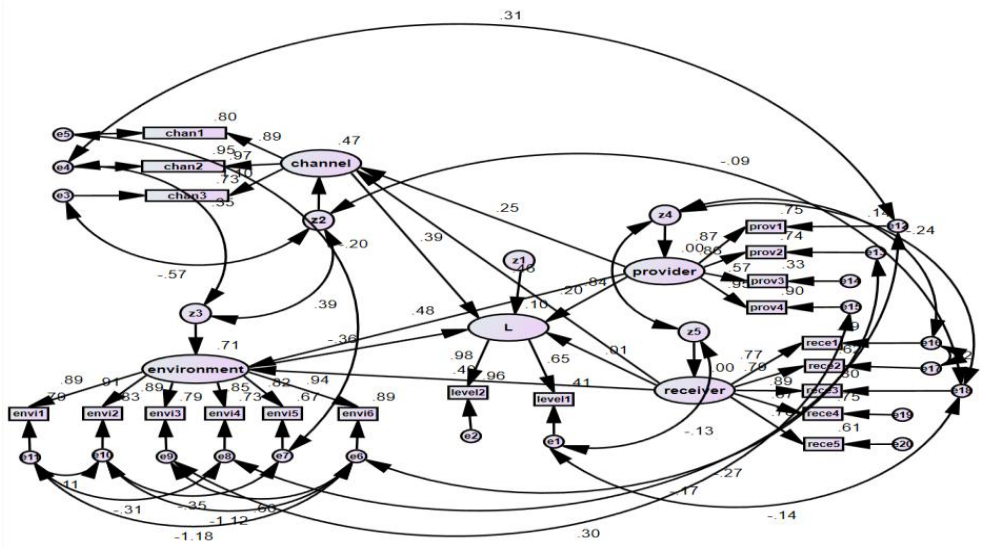

Figure 2 Model Path Diagram

Model Fit Indices: GFI = 0.929, GFI = 0.929, CFI = 0.993, RMR = 0.045, RMSEA = 0.031, NFI = 0.961, ECVI and AIC values indicated good model fit

Table 5 Model Adaptability Test Table

Adaptation Index	Adaptation Standards	Actual Value	Adaptability Judgment
GFI	>0.9	0.929	suit
CFI	>0.9	0.993	suit
RMR	<0.05	0.045	suit
RMSEA	<0.05	0.031	suit
NFI	>0.90	0.961	suit
ECVI	Default model ECVI<Saturated model ECVI, Default model ECVI<Independence model ECVI	1.416<1.927, 1.416<20.044	suit
AIC	Default model AIC<Saturated model, Default model<Independence model	308.615<420.00, 308.615<4369.527	suit

Results

Data analysis results

After performing structural equation modeling (SEM) with the collected data, we obtained the following main results:

Model fit: by comparing various fit indicators such as Chi-square value, Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), etc., we found that the model fits the data well and all indicators reach an acceptable range, suggesting that the model has high explanatory power.

Path coefficients and their significance: In the SEM analysis, we determined the path coefficients and their significance levels between each variable. The results show that factors such as knowledge providers.

Discussions

Based on the results of the data analysis, we can draw the following conclusions:

First, the research hypothesis has been confirmed. Factors such as knowledge providers, knowledge recipients, knowledge-sharing channels and the knowledge-sharing environment all have a significant impact on the level of knowledge-sharing in college research teams. The combined effect of these factors constitutes a complex mechanism for knowledge-sharing among college research teams.

Second, in terms of the degree of influence of the different factors, the influence of knowledge providers and knowledge recipients is the most direct and significant. This reminds us that to improve knowledge sharing in college research teams, we should focus on the quality of knowledge sources and the ability of recipients, and improve the willingness and ability of both parties to share through measures such as training and incentive mechanisms.

Body of Knowledge

In addition, the channels for knowledge sharing and the environment for knowledge sharing also play an important mediating and regulating role. Diverse communication methods and effective information transmission media can promote communication and collaboration among team members, thus improving the degree of knowledge sharing. At the same time,

a good corporate culture, institutional support and incentive mechanisms can create favorable conditions and a good atmosphere for knowledge sharing.

Recommendations

Policy Recommendations

1. Foster a Knowledge-Sharing Culture: Universities should cultivate an open, innovative, and collaborative organizational culture that encourages knowledge sharing and protects the rights of contributors through solid intellectual property mechanisms.

2. Support Innovation-Oriented Teams: Higher education institutions should provide sustained financial, infrastructural, and policy support for research teams engaged in interdisciplinary innovation.

3. Institutionalize Performance-Based Incentives: Create policies that recognize and reward knowledge contribution and real-world research application to enhance both academic and social impact.

4. Establish Flexible and Inclusive Governance: Promote flexible management and inclusive policies that accommodate diverse research practices, innovation styles, and collaboration models.

Operational Recommendations

1. Enhance Knowledge Provider Capabilities: Conduct regular training and academic exchange activities to improve the professionalism and willingness of team members to share knowledge.

2. Improve Knowledge Recipient Readiness: Equip team members with relevant skills to absorb shared knowledge and provide constructive feedback, fostering an environment of mutual learning.

3. Optimize Knowledge-Sharing Channels: Utilize internal knowledge management systems and online collaboration tools to support real-time, efficient knowledge flow. Supplement digital tools with offline activities such as seminars and team-building.

4. Build a Diverse and Collaborative Team: Form research teams with diversity in discipline, gender, and experience. Encourage interdisciplinary

collaboration and trust-building through joint projects and structured communication mechanisms.

5. Implement Strategic Knowledge Management: Perform regular knowledge audits, develop knowledge maps, and ensure clarity in knowledge structure to facilitate innovation and teamwork.

Recommendations for Next Research

1. Explore Knowledge-Sharing Behavior in Varied Team Structures: Investigate how hierarchical vs. flat research teams differ in their approach to knowledge sharing and collaboration.

2. Assess Impact of IP Policies on Knowledge Contribution: Examine how intellectual property protection affects motivation to share and collaborate within university research environments.

3. Study Innovation Management Models: Analyze effective models of innovation governance in academic settings and how they influence team performance and creativity.

4. Evaluate the Role of Technology in Knowledge Exchange: Conduct mixed-method studies on how digital tools shape knowledge-sharing practices, both qualitatively and quantitatively.

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