

The Factors Affecting Knowledge Sharing of University Teachers in Nanning, Guangxi Zhuang Autonomous Region, China

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Abstract

This study aims to 1) study factors affecting the knowledge sharing of university teachers in Nanning, Guangxi Zhuang Autonomous Region, China, and 2) provide guidelines for manage university personnel to achieve the sharing of knowledge. The sample group included 372 university teachers. The research used quantitative research methods, data were analyzed to perform descriptive analysis, correlation analysis, and multiple regression analysis. The results showed that the predictive variables including organizational support, organizational culture, personal attitudes, self-efficacy, interpersonal trust, and use of social media all had a significant effect on the criteria variable knowledge sharing, while the reward system has a non-significant impact on knowledge sharing. This investigation suggests that to achieve knowledge sharing among university teachers, organizations should provide teachers with specific assistance and support. It is crucial to cultivate a positive cultural environment that encourages teachers to share their knowledge enthusiastically, boost their self-efficacy, offer appropriate social media platforms, and promote the open sharing of knowledge and experiences. Furthermore, it provides guidance for the future establishment of comprehensive reward systems to incentivize knowledge sharing of university teachers.

Keywords: knowledge sharing, university teacher, reward system

Introduction

In the age of the knowledge economy, knowledge has transcended its role as a mere factor of production to become an intangible capital of paramount importance. This surge in awareness has fueled unprecedented attention toward the entire spectrum of knowledge management processes: acquisition, application, sharing, integration, and innovation. Knowledge sharing takes center stage as the linchpin of organizational knowledge management. Through knowledge sharing, individuals can unlock the latent resources within an organization, cultivate new knowledge, and bolster the organization's core competitiveness and sustainability (Zhang, 2022). The knowledge economy presents an urgent mandate for higher education. Serving as a crucial conduit for knowledge transmission, universities must actively promote knowledge development, utilization, and innovation. Concurrently, China's Ministry of Education, in conjunction with five other governmental bodies, outlined a series of measures in the Action Plan for the Revitalization of Teacher Education (2018-2022) aimed at forging a high-quality, professional, and innovative teaching workforce (Ministry of Education of the People's Republic of China, 2018). This requires educators in the new era to possess professional expertise, a commitment to continuous learning, collaborative skills, and the ability to effectively disseminate and apply knowledge. Simultaneously, higher education professionals must proactively share knowledge and information, transitioning from individualized self-learning to community-based professional learning, better addressing the educational challenges of the modern era.

For universities, Knowledge sharing not only advances teachers' professional development, refining their teaching and research prowess but also ignites their motivation for autonomous growth. Furthermore, it facilitates the translation of individual learning outcomes into collective or public knowledge, thereby enriching and expanding the practical knowledge pool shared by teachers. This, in turn, provides the necessary knowledge resources for the advancement of educational institutions. However, Teachers' knowledge sharing is further complicated by multifaceted factors. Firstly, there is often a lack of a robust knowledge-sharing culture within organizations, where individuals tend to hoard their knowledge. Secondly, teachers frequently harbor concerns that knowledge sharing may jeopardize their interests or expose their achievements. Additionally, the absence of suitable conditions and platforms, along with constraints on time and energy, hinder knowledge sharing

among university teachers. Consequently, Research into the impact of teachers' knowledge sharing holds significant value, as it not only deepens the understanding and focus of the education community on teachers' knowledge sharing This research serves to stimulate knowledge-sharing behavior, enhance teachers' values, and elevate the standards of knowledge management in educational organizations (Xu & Li, 2022).

Therefore, based on the aforementioned background, coupled with the ease of accessing and collaborating with teaching staff information, as well as the convenience of data collection, this study centers on university teachers in Nanning, Guangxi Zhuang Autonomous Region, China, to evaluate the status of knowledge sharing among these professionals. Concurrently, a theoretical model is crafted to establish linkages between the factors influencing knowledge sharing and to offer managerial recommendations for the facilitation of knowledge sharing among university teachers.

Research objectives

1. To study factors affecting the knowledge sharing of university teachers in Nanning, Guangxi Zhuang Autonomous Region, China.
2. To provide guidelines for using research results to manage university personnel to achieve sharing of knowledge.

Hypothesis of Research

Social Exchange Theory suggests that when one party offers assistance in an exchange, the other party reciprocates by engaging in actions that benefit the former. This framework extends to the relationship between individuals and organizations, where the quality of care an individual experiences directly influences their job performance. George & Brief's (1992) study further supported the positive impact of POS by encouraging additional role behaviors among organizational members. These behaviors encompass assisting colleagues, providing guidance, and aiding the organization in risk avoidance. Therefore, this research suggests the following hypotheses:

H1: Organizational support affect knowledge sharing of university teacher.

Al-Alawi et al. (2007) propose that organizational culture exerts an influence on employee motivation, trust, and interactions, primarily through elements such as organizational structure, processes, information systems, leadership, and reward systems.

These factors collectively drive behaviors that encourage knowledge sharing. Therefore, this research posits the following hypotheses:

H2: Organizational culture affect knowledge sharing of university teacher.

A study conducted by Kugel & Schostek (2004) concluded that knowledge sharing is facilitated by the reception of financial incentives. Hence, this research formulates the following hypotheses:

H3: reward system affect knowledge sharing of university teacher.

Attitudes play a mediating role in the correlation between personal factors and knowledge sharing (De Vries et al., 2006). Therefore, this research posits the following hypotheses:

H4: personal attitudes affect knowledge sharing of university teacher

Research has shown that individuals who have confidence in their own abilities are often more willing to share knowledge with others, thereby making a positive contribution to the organization (Lu, Leung, & Koch, 2006). Accordingly, this study posits the following hypotheses:

H5: self-efficacy affect knowledge sharing of university teacher.

Knowledge sharing is a voluntary cooperative act founded on mutual trust among individuals. Trust is instrumental in building and sustaining relationships, thereby fostering high-quality knowledge sharing (Liang & Shi, 2008). Therefore, this research suggests the following hypotheses:

H6: Interpersonal trust affect knowledge sharing of university teacher.

In the digital era, social networks assume a crucial role in an organization's knowledge management system. Social media platforms support social interactions among individuals, both inside and outside the organization, fostering the creation, share and dissemination of knowledge (Ryan et al., 2010). Therefore, the last hypothesis for the present study is stated as follows:

H7: usage of social media affect knowledge sharing of university teacher.

Literature Review

"Knowledge sharing" is a multifaceted concept with varying interpretations across scientific perspectives, especially within the context of academic research. Knowledge sharing have been grounded in the framework of knowledge management (KM). At the core of KM lies

innovation and knowledge sharing, emphasizing the utilization of existing knowledge to innovate and generate new value. (Trehan & Kushwaha, 2012). Academics are inherently driven to share knowledge due to the wealth of knowledge generated and stored, which serves as a valuable resource for university faculty and researchers. This sharing of knowledge not only benefits individuals but also catalyzes the flow of knowledge (Basu & Sengupta, 2007). Knowledge sharing plays a pivotal role in enhancing the quality and quantity of knowledge held by individuals. This process actively contributes to the creation of new knowledge and the overall advancement of educational institutions. According to Zhu (2004), faculty knowledge sharing can be viewed as a concept that nurtures faculty growth. Concurrently, it thereby promoting positive interpersonal relationships and teamwork. In accordance with Zhou & Sun (2006), teacher knowledge sharing is delineated as "the process of externalizing, transferring, assimilating, and reconstructing teachers' professional knowledge through various interactions within the school context, utilizing diverse communication tools such as language, symbols, behaviors, and information technology." Wang (2005) defines teacher knowledge sharing as "the mutual exchange of individually generated practical knowledge among teachers, enabling knowledge to transition from personal experience to the organizational level within the school." This definition underscores the collaborative nature of knowledge sharing and its focus on practical knowledge.

The social exchange theory, initially proposed by Homans (1958), has emerged as a prominent theoretical framework for understanding behavior, emotions, and interactions, especially concerning knowledge sharing. In the realm of social exchange theory, neither party in an exchange transaction explicitly demands a reward. The nature of the reward depends on the mutual needs of the parties involved in the exchange. The relationship between an employee and their organization adheres to the principle of reciprocity. This means that as the bond between an employee and the organization strengthens, the employee becomes more inclined to reciprocate through behaviors that benefit the organization, consequently enhancing knowledge sharing within the organization. Bandura's social cognitive theory, introduced in 1986, underscores the causal relationship between individual behavior and the environment, emphasizing the subjective initiative and self-regulation capabilities of individuals (Bandura, 1986). Internationally, researchers have extended this theory to the realm

of knowledge management, offering deeper insights into individual knowledge-sharing behaviors.

Research Framework

The aim of this study is to consolidate research findings across seven dimensions: organizational support, organizational culture, reward system, personal attitudes, self-efficacy, interpersonal trust, and the use of social media. This comprehensive exploration seeks to understand their impact on knowledge sharing.

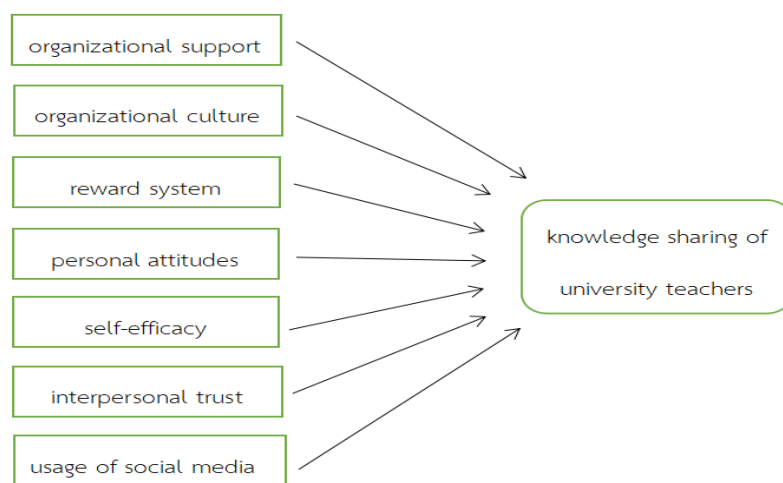


Figure 1 Conceptual framework

Research Methodology

Population and Sample

In this study, the population consisted of in-service teachers from seven universities in Nanning, Guangxi Zhuang Autonomous Region, China. According to the data retrieved from the official websites of these universities, the total number of full-time teachers across these institutions is 10,987 individuals. The sample size was determined using Daniel Soper's principles, with an Effect size of 0.15, Desired statistical power level of 0.8, Number of predictors being 7, and a probability level of 0.05, resulting in a minimum required sample size of 103 participants. Data were collected through questionnaires distributed to teachers, yielding a total of 372 responses. The data collection employed random sampling to ensure an equal chance of selection for each teacher.

Research Tools

The survey instrument used in this study, a questionnaire, was meticulously developed following a comprehensive review and analysis of pertinent literature. The questionnaire is divided into two main sections. The first section collects basic information about university teachers, including gender, age, highest level of education, job title, and subjects taught. The second section encompasses the measurement of variables relevant to this study. It includes scales for seven predictive variables influencing teachers' knowledge sharing, alongside one scale for the criterion variable. The scale consists of 45 items, each providing response choices ranging from "strongly disagree" to "strongly agree." These options are assigned values of 1, 2, 3, 4, and 5, respectively. These values are considered ordinal, with higher values indicating a greater level of agreement with the provided options.

The reliability of the questionnaire was evaluated using Cronbach's alpha for eight variables scale: organizational support, organizational culture, reward system, personal attitude, self-efficacy, interpersonal trust, social media usage, and knowledge sharing. Each variable scale exhibited a Cronbach's alpha exceeding 0.7, indicating the questionnaire's suitability for data collection.

To account for the geographical diversity of the survey participants, a dual survey methodology involving both online and offline distribution of questionnaires was adopted. Distribution channels encompass online platforms such as the China Questionnaire Network, WeChat, email, and similar applications. A total of 400 questionnaires were randomly distributed, resulting in 372 valid responses that were utilized for the data analysis in this study.

Data Analysis

The study employed a quantitative research methodology. Following the completion of data collection, SPSS version 27 was utilized to analyze the data. The analyses conducted included descriptive analysis, correlation analysis, and multiple regression analysis (By utilizing the 'enter' selection method, this approach facilitates the simultaneous examination of multiple predictor variables' impacts on the outcome variable. Moreover, it provides predictive capabilities while accounting for the influence of other variables).

Results Analysis

To study factors affecting the knowledge sharing of university teachers in Nanning, Guangxi Zhuang Autonomous Region, China, the collected data will undergo the following relevant analyses.

1. Demographic Analysis of University Teachers

Analysis of demographic data including gender, age, highest educational qualification, job title, and subjects of 372 university teachers in Nanning, Guangxi Zhuang Autonomous Region, China.

Table 1 Analysis of demographic factors of university teachers

Project	Classify	Frequency	Percentage (%)
Gender	Male	177	47.6
	Female	195	52.4
Age	30 years old and under	43	11.6
	31 to 40 years old	153	41.1
	41 to 50 years old	126	33.9
	50 years old and above	50	13.4
Highest Education Level	Bachelor's degree	42	11.3
	Master's degree	98	26.3
	Doctorate Degree	232	62.4
Job Title	Assistant professor	20	5.4
	Lecturer	86	23.1
	Associate Professor	206	55.4
	Professor	60	16.1
Subjects	Liberal arts (Philosophy, Literature, History, Arts)	124	33.3
	Social Sciences (Economics, Law, Teaching, Management)	200	53.8
	Science, Technology, Agriculture and Medicine	48	12.9

From Table 1, it is found that there were 372 respondents, most of whom were males 47.6%, aged between 31 and 40 years, accounting for 41.41%, holding a doctorate degree, 62.4%, 55.4% being associate professors, and being in the field of social sciences (economics, law Education and Management).

2. Analysis of factors affecting knowledge sharing of university teachers in Nanning, Guangxi Zhuang Autonomous Region, China

Table 2 Descriptive Statistics Analysis of variables

	N	Mean	Std. Deviation	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Organizational Support	372	3.739	0.889	-0.841	0.126	0.426	0.252
Organizational Culture	372	3.698	0.846	-0.848	0.126	0.77	0.252
Reward System	372	3.681	0.853	-0.927	0.126	0.826	0.252
Personal Attitude	372	3.689	0.866	-0.758	0.126	0.519	0.252
Self-efficacy	372	3.702	0.826	-0.851	0.126	0.78	0.252
Interpersonal Trust	372	3.711	0.824	-0.787	0.126	0.441	0.252
Usage of Social Media	372	3.704	0.891	-0.868	0.126	0.461	0.252
Knowledge Sharing	372	3.725	0.804	-1.128	0.126	1.379	0.252

From Table 2, it is observed that organizational support having the highest mean value of 3.739, while the reward system had the lowest mean value of 3.680. The standard deviation for all variables is less than 1, suggesting minimal fluctuations in the original sample data obtained through the questionnaire and a high level of consensus among teachers regarding knowledge-sharing-related matters. Skewness<0 indicates that the data distribution is left-skewed compared to a normal distribution, meaning there are more extreme values on the left side of the data. Kurtosis>0 indicates that the overall data distribution is more peaked or leptokurtic compared to a normal distribution.

Table 3 Analysis of relationships between organizational support, organizational culture, reward system, personal attitude, self-efficacy, interpersonal trust, use of social media, and knowledge sharing.

	Organizational Support	Organizational Culture	Reward System	Personal Attitude	Self-efficacy	Interpersonal Trust	Usage of Social Media	Knowledge Sharing
Organizational Support	1							
Organizational Culture	.779**	1						
Reward System	.787**	.765**	1					
Personal Attitude	.775**	.771**	.751**	1				
Self-efficacy	.801**	.773**	.780**	.743**	1			
Interpersonal Trust	.753**	.766**	.706**	.722**	.741**	1		
Usage of Social Media	.773**	.741**	.730**	.746**	.748**	.734**	1	
knowledge sharing	.819**	.817**	.787**	.805**	.822**	.796**	.796**	1

From Table 3, it is found that there is a significant positive relationship between organizational support, organizational culture, reward system, personal attitude, self-efficacy, interpersonal trust, use of social media, and knowledge sharing. The Pearson correlation coefficients for these relationships are 0.819, 0.817, 0.787, 0.805, 0.822, 0.796, and 0.796, respectively.

Table 4 Analysis of factors affecting knowledge sharing among university teachers.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics
	B	Std. Error	Beta			VIF
(Constant)	0.166	0.089		1.860	0.064	
Organizational Support(OS)	0.105	0.042	0.116	2.533	0.012	4.331
Organizational Culture(OC)	0.147	0.041	0.154	3.550	0.000	3.874
Reward System(RS)	0.075	0.039	0.080	1.913	0.056	3.572
Personal Attitude(PA)	0.154	0.038	0.166	4.040	0.000	3.450
Self-efficacy(SE)	0.191	0.042	0.196	4.518	0.000	3.865
Interpersonal Trust(IT)	0.161	0.038	0.165	4.212	0.000	3.167
Usage of Social Media(SM)	0.128	0.036	0.142	3.547	0.000	3.293
R Square						0.823
F						241.566
P						<0.001
Dependent Variable: Knowledge Sharing						

From Table 4, The data presented in the table shows the following conclusions:

1) The fit of this linear regression model is strong, with an R-squared value of 0.823. This implies that the seven predictive variables collectively account for 82.3% of the variance in knowledge sharing. Therefore, the results of this data analysis effectively reflect the influence of these predictive variables on the criteria variable, knowledge sharing.

2) The VIF values for all seven predictive variables in this multiple regression analysis are less than 5, indicating the absence of multicollinearity among them. This signifies that the analysis results are both accurate and reliable.

3) The data reveals the significance of this regression equation, with an F-value of 241.566 and a p-value less than 0.001. This indicates the meaningfulness of the model, demonstrating that at least one of the seven predictive variables has a significant impact on the criteria variable, knowledge sharing.

4) Among the seven predictive variables, it was found that the reward system ($P=0.056>0.05$) had a non-significant positive effect on knowledge sharing, while organizational support ($P=0.012<0.05$), organizational culture ($P=0.000<0.05$), personal attitude ($P=0.000<0.05$), self-efficacy ($P=0.000<0.05$), interpersonal trust ($P=0.000<0.05$), and the usage of social media ($P=0.000<0.05$) all significantly and positively influence knowledge sharing.

Finally, based on the above analysis, the regression equation between the predictive variable and criteria variable is as follow:

Regression equation in unstandardized coefficients:

$$KS = 0.166 + 0.105OS^* + 0.147OC^* + 0.075RS + 0.154PA^* + 0.191SE^* + 0.161IT^* + 0.128SM^* \quad (1)$$

Regression equation in standardized coefficients:

$$KS = 0.116OS + 0.154OC + 0.080RS + 0.166PA + 0.196SE + 0.165IT + 0.142SM \quad (2)$$

Standardizing the partial regression coefficients allows for the comparison of the magnitudes of the effects of different independent variables on the dependent variable. From equation (2), founded that at a significance level of 0.05, the most impactful factor on knowledge sharing, in descending order, is SE, with a regression coefficient (β_5) of 0.196, PA had a regression coefficient (β_4) of 0.166, IT had a regression coefficient (β_6) of 0.165, OC had a regression coefficient (β_2) of 0.154, SM had a regression coefficient (β_7) of 0.142, OS had a regression coefficient (β_1) of 0.116 and RS had a regression coefficient (β_3) of 0.080.

To provide effective guidelines for universities aiming to foster knowledge sharing based on research findings, schools can effectively promote such sharing among teachers by implementing the following measures:

- 1) Increase the level of support for university teachers, fostering a campus culture characterized by fairness, harmony, mutual respect, and trust.
- 2) Strengthen recognition and acknowledgment of the work of university teachers, consider individual differences and diverse needs, and adjust the mindset of teachers.
- 3) Focus on expanding teachers' personal knowledge and enhancing their professional skills, foster emotional bonds within teacher interaction groups, enhance team cohesion, and implement various measures to establish a comprehensive incentive system to motivate knowledge sharing among teachers.

Discussion

To explore the the factors influencing knowledge sharing of university teachers, this study investigates the relationship between seven predictive variables: organizational support, organizational culture, reward system, personal attitude, self-efficacy, interpersonal trust, and usage of social media, and the criterion variable: knowledge sharing, based on collected valid data and prior analysis. The hypothetical outcomes associated with these relationships are outlined as follows: Hypotheses H1, H2, and H3 explored the relationship between organizational support, organizational culture, reward system, and knowledge sharing. The results of the analysis demonstrated that both organizational support and organizational culture positively correlate with and significantly influence knowledge sharing. Hence, hypotheses H1 and H2 find support. These findings suggest that perceiving high levels of care and support from the school and fostering a positive cultural atmosphere on campus effectively facilitate knowledge and skill sharing among teachers and peers. However, the reward system does not exhibit a significant relationship with knowledge sharing, rendering hypothesis H3 unsupported. In consideration of the questionnaire responses, the following conclusion is drawn: Teachers feel a lack of recognition and incentives from the school for their involvement in knowledge sharing. The institution falls short in providing an effective incentive system to motivate teachers in this regard.

Hypotheses H4, H5, H6, and H7 examined the connection between personal attitude, self-efficacy, interpersonal trust, usage of social media, and knowledge sharing. The analysis results indicate that all these predictors have positive relationships with knowledge sharing and significantly impact it. Therefore, hypotheses H4, H5, H6, and H7 are supported. These outcomes suggest that when university teachers maintain a positive attitude towards their work, exhibit high self-efficacy in job performance, and operate in a trustworthy interpersonal environment, it significantly enhances their motivation to engage in knowledge sharing. Furthermore, the use of social media platforms encourages teachers to share knowledge and facilitates its dissemination, utilization, and innovation in higher education.

The questionnaire results indicated a prevalent inclination among university teachers in Nanning, Guangxi Zhuang Autonomous Region, China, towards embracing knowledge sharing. Teachers generally perceive considerable support from the university; however, the extent of rewards remains comparatively limited. Through multiple regression analysis, the study revealed the substantial impact of organizational support, culture, personal attitude, self-efficacy, interpersonal trust, and usage of social media on knowledge sharing. To optimize knowledge sharing efficiency among university faculty, interventions targeting these factors should be prioritized. Despite the analysis showing a lack of significant influence from the reward system on knowledge sharing, delving into the underlying reasons for this insignificance can provide valuable insights and guidance for educators aiming to foster a culture of knowledge exchange.

Suggestions

Enhancing knowledge sharing within educational institutions necessitates multifaceted support, streamlined lateral communication, and optimized organizational structures. This collective effort aims to elevate teaching quality and foster solidarity within the academic community. The establishment of communities fostering teacher knowledge sharing proves pivotal, amplifying support for educators, nurturing knowledge exchange, and fostering a collaborative environment conducive to professional growth. Recognizing university professors as invaluable knowledge assets and fostering reciprocal relationships, fair evaluations, and decision-making autonomy empowers them to willingly engage in knowledge sharing. Cultivating a harmonious work environment built on positive interpersonal relationships and

trust enhances self-confidence, thereby promoting knowledge exchange. Additionally, modern technology-driven seamless knowledge-sharing platforms expedite extensive knowledge integration, facilitating enriched content sharing and interactive exchanges. Ultimately, these platforms cultivate a culture of knowledge sharing among educators.

Despite previous research emphasizing the crucial role of reward systems in fostering knowledge sharing, the survey analysis conducted in this study reveals a limited impact on teachers' knowledge-sharing behaviors. To address this, the study presents two key explanations and corresponding recommendations.

Primarily, the informal nature of knowledge sharing poses challenges in establishing a direct link between organizational rewards and knowledge-sharing behaviors. Encouraging knowledge sharing among university teachers necessitates incentive mechanisms that offer both tangible and intangible rewards.

Secondly, negative employee attitudes towards reward systems and management's limited understanding of their preferences can lead to incongruent reward structures. Hence, educational institutions should prioritize individual interests and expectations, providing tangible incentives and avenues for career progression. Additionally, acknowledging the value of educators and offering training opportunities can enhance satisfaction levels, thereby fostering increased knowledge-sharing behaviors.

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