The Impact of Knowledge Sharing on Personal innovativeness in Higher Education Institutions: Case study Constantine 2 university

أثر مشاركة المعرفة على الإبداع الشخصي في مؤسسات التعليم العالي: دراسة حالة جامعة قسنطينة2

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Abstract:

This paper aims to identify the effects of knowledge sharing among students on their personal innovativeness in the higher education institution in Algeria, which uses the socio-technical approach and relies on social capital theory to analyze and interpret the results after examining the social and technical aspects. Where it found that there is a clear effect of knowledge sharing among students on their personal innovativeness through several indicators**.**

Keywords: Knowledge sharing; Personal innovativeness; Higher education; University.

JEL Classification Codes:D19, I21, O31.

ملخص:

تهدف هذه الورقة إلى التعرف على آثار مشاركة المعرفة بين الطلاب على أدائهم الشخصي في مؤسسة التعليم العالي في الجزائر، والتي تستخدم المقاربة الاجتماعية والتقنية وتعتمد على نظرية رأس المال الاجتماعي لتحليل وتفسير النتائج بعد اختبار الجوانب الاجتماعية والتقنية. حيث توصلت إلى أن هناك تأثير واضح لتقاسم المعرفة بين الطلاب على إبداعهم الشخصي من خلال عدة مؤشرات.

كلمات مفتاحية: تبادل المعرفة، الإبداع الشخصي، التعليم العالي، الجامعة.

تصنيفات JEL: D19، I21، O31.

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1. INTRODUCTION

In the competitive environment with high-risk, which is still faced by each industry, academic researchers and practitioners found that continuity of innovation is critical is required for survival and achieve the competitive advantage, especially for industries which progress in knowledge. In addition, it was confirmed that the companies are most likely to succeed in certain position when really recognize in personal innovation which focus on the care and promotion of innovation, because knowledge is the foundation of innovation. Can be used for personal creation elements which building for innovation and organizational change and competitiveness. The personal considered always serves as an introduction to the idea of a new company. A potential and effective key element in creative and innovativeness of the company.

1.1. The problematic

From the lack of understanding of the current approaches with regard the relationship between the knowledge sharing and personal innovativeness in the case of higher education institution. The study is more than this integrative model to explain the effects of the sharing of knowledge on personal creativity. The paper relies on both the social outlook - technical theory of social capital to investigate important precedents for the knowledge sharing, As well as the study of social factors and technical innovativeness through personal influence as intermediate for sharing of knowledge.

The paper provides a justification for a better understanding of the role of knowledge sharing, as well as the relationship between the sharing of knowledge and personal innovation in higher education institutions. Moreover, it also suggests a theoretical and practical links abundant to improve personal innovativeness through access to knowledge through increase the participation among the members of higher education institutions. From the foregoing we could present our problematic as follow:

How and to what extent improve the Personal innovativeness depending on Knowledge Sharing?

1.2. The hypothesis

We try to guide the study through a temporary solution in the form of a main hypothesis as follows:**Universities in Algeria unable to develop the personal innovativeness depending on isolated Knowledge Sharing.**

1.3. The Objectives

This paper aims to identify the effects of knowledge sharing among students on their personal innovativeness in the higher education institution in Algeria, which uses the socio-technical approach and relies on social capital theory to analyze and interpret the results after examining the social and technical aspects

1.4. The Approaches

In this paper, we adopted three approaches to exploit data and access results that can be relatively generalizedon society (the university community, especially among students). 1) Empirical approachby conducting the study on a single sample taken from the higher education society. 2) Descriptive approach through the statistical description of the indicators that make up the studied variables (sharing knowledge, and developing innovativeness at personal level of students). 3) The inductive approach is by generalizing the study results based on a relatively limited sample representative of society.

1.5. The study importance

Knowledge is mainlyreflected in the provision of competitive advantage, which is essential for the sustainability of the company and its success in the long term, so the knowledge is one of the most important assets of the company foran. In modern literature on knowledge management, several studies analyzed the success factors and barriers task, such as organizational culture, which affect on the adoption of knowledge management and knowledge management systems. Proposal of the central role of harmonization between the institutional knowledge and KMSs, was to determine the effect of knowledge management and KMSs on personal and institutional performance.

1.6. The Difficulties

One of the most prominent difficulties we encountered in conducting the study especially collecting data from students, and linking the theoretical and empirical aspects

1.7. The Previous studies

We tried to benefit from it in the form of references, as we've benefited from its methodology, approaches, and techniques of data processing. Our addition was that we reached different results and we have mixed varies approaches in specific Path for conducting the study on a different sample in its context in terms of its location, time and circumstances.

According to the authors' knowledge, this study among the few studies on the relationship between knowledge sharing and personal innovativeness. From this new perspective on knowledge sharing, it is expected that this paper establish study on the effects of the sharing of knowledge on personal innovativeness while previous studies have focused on the effects of the sharing of knowledge on organizational performance.

This paper identified knowledge sharing as an intermediary between the previous factors to share knowledge and its effect on personal innovativeness. With this approach, this model can influence the mediator to explain the sharing of knowledge on personal innovativeness, which contributes to both academics and practitioners, to facilitate personal innovativeness through knowledge sharing.

2. Theoretical Background

2.1. Knowledge Management for Knowledge Sharing and Personal innovativeness

As mentioned above, knowledge management is critical to success of participation and knowledge sharing among the people in different level in the company. This effect of knowledge management and KMSs on personal performance and institutional is established well (Bhatt, 2001)(Dyer & Hatch, 2006). For this purpose, it is important to reconcile the institutional and individual knowledge within KMSs (Centobelli, Cerchione, & Esposito, 2017). Many of the researchers applied knowledge on the management of collective innovation and improve organizational performance (Dong, Bartol, Zhang, & Chenwei , 2017) Proposed methods to promote innovation of people through the development of personal skills and collective knowledge sharing (Lam, Huang, & ChanSi, 2017). Also examined closely monitoring the impact on innovation and the sharing of knowledge and define the role of leader in the sharing of knowledge among companies' members (Lam, Huang, & ChanSi, 2017). Survey when and how the sharing of knowledge benefited from the creativity of the team, and pointed to the importance of the diversity of the team of knowledge.

Knowledge sharing is a means to an end, but not an end in itself. Knowledge is one important organizational asset and can sharing of knowledge leads to raise the sustainable competitiveness of the company (Davenport & Prusak, 2000);(Foss & Pedersen, 2002). Among the many media assets based on knowledge, can share knowledge to help members and teams to exploit the assets of knowledge-based and benefit from them, which will contribute to the competitiveness of the company (Davenport &

Prusak, 2000); (Cabrera & Cabrera, 2005); (Jackson, Chuang, Harden, & Jiang, 2006). Among the multiple benefits of sharing knowledge, it should be the most important to share the knowledge associated with innovation, creation and organizational effectiveness, because the sharing of knowledge does not mean the reorganization and transfer of knowledge and skills that not only information, but also refers to the creation of new knowledge and innovative ideas (Cabrera & Cabrera, 2005).

2.2. Socio-technical outlook on Knowledge Sharing

The main idea of social and technical expectations is that the company consists of social and technical sub-systems. The company is a sophisticated system, and integrated subsystems to operate harmoniously. Therefore, subsystems require social and technical, as two main tasks of the company, to be reflected interactively to maintain continuous improvement in innovation (Bostrom & Heinen, 1977). Table 1 shows the definition and examples of social and technical subsystems.

Table 1. Social and technical subsystems

Sub-Systems	Definitions and Examples
Social sub-system	The social part of the company, for example, attitude, knowledge, values, skills, motivation, work atmosphere, organizational structures.
Technicalsub-system	Technical part of the company, which works to improve organizational performance, for example, hardware, tools and techniques.

Source: By researchers depending on the previous

Previous studies on the social outlook - technology revolves primarily around the sharing of knowledge, particularly in business sectors, but in the public sectors, such as higher education institutions, there are not many comparative studies. There are many contextual factors that facilitate the sharing of knowledge, based on previous studies; it can be classified many of them in the socio-technical factors.

In recent years, a lot of studies adopted integrated perspective of knowledge sharing, which focuses on the interactive role of social and technical factors. For example, the use of social-technical perspective in the conceptual perspective looking at contextual factors to share knowledge in a specific context (Pan & Scarbrough, 1998). Summarized in Tables 2 and 3 other studies of social and technical perspective.

2.3. Model Hypotheses Background

Based on the theoretical support regarding with impact of social and technical factors on knowledge sharing and its affect on the personal

innovativeness, it has been developed study model and suggested the following hypotheses. Figure 1.

2.3.1. Social Factors and Knowledge Sharing

Social relations of cooperation, information channels and flows of assets (Tsai & Ghoshal, 1998), can provide more channels for the sharing of knowledge between company members (Nahapiet & Ghoshal, 1998). It must facilitate social networking in connection between company members, in order to improve the capabilities of knowledge sharing (Soonhee & Hyangsoo, 2006).

Many former researchers Argued that social trust is an important factor to enable the sharing of knowledge, it helps company members to overcome the problems and dificulties, in order to start knowledge sharing activities more easily (Butler & Murphy, 2007). (Krogh, 1998) Pointed out also that confidence as a kind of organizational culture can enhance the connection speed, because members with high confidence can share knowledge and information towards others without hesitation, and thus activate the knowledge sharing. Moreover, there were also many empirical studies that have demonstrated directly that confidence can lead to a better sharing of knowledge (Nonaka & Hirotaka , 1995); (Chiu, Hsu, & Wang, 2006); (Soonhee & Hyangsoo, 2006). Without confidence, the people reluctant to share knowledge with others, both of formal and informal in knowledge sharing practices (Machlup, 1981).

People have a high level of emotional definition of a high level of loyalty towards companies, also they show a willingness to maintain committed relationships with high performance members in company "who can control and manage relations". From the perspective of social capital theory, both pointed(Nahapiet & Ghoshal, 1998) that the definition was one of the social capital assets that can change the motives of members for the sharing of knowledge.

2.3.2. Technical Factors and Knowledge Sharing

Information technology Evidence has been as a platform for knowledge management value, it also served as a basis for the sharing of knowledge. Evidence of information technology here means the existence of an integrated infrastructure for information technology with the hardware, software and databases «intranet, Internet". Systems were not only protected from the IT infrastructure of information technology for the company, but were also associated with users. Many scientists have argued

that the use of information technology was essential and a critical factor in enabling knowledge sharing (Machlup, 1981)(Davenport & Prusak, 2000).

It focus on importance of studies related the end user tools based technology (Davenport & Prusak, 2000);(Butler & Murphy, 2007). Sharing valuable knowledge is the use of information technology integration, requires easy to use, easy to access, and easy to manage (Bartol & Srivastava, 2002).

3. Empiricalstudy (Methodology of the Study)

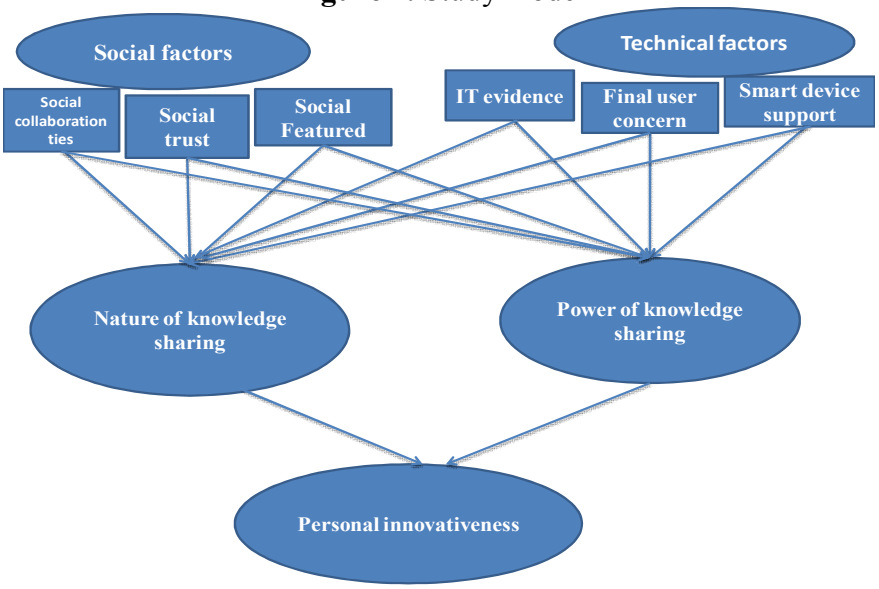
We've relied on different methods of data collection, starting with seeking and surveying through simple interviews with university students in addition to the questionnaire as a key tool for collecting data from them.

Firstly we'll test the tool reliability through Crompach's alpha, Internal and Structure validity. To discribe the indicators and dimensions of the two variables, we'll use Mean, Std. Deviation, Skewness and Kurtosis. Also we'll use Pearson' correlation coefficient, simple linear regression and average variance extracted to test the hypothesis. Depending on SPSS Amos 22. We aim to determine the impact of knowledge sharing on the student's personal innovation and identify relationships that explain the partial impacts between different dimensions.

Through available knowledge, previous studies, field observations, and experiences, we have come to the following hypothesis "There is a clear impact of knowledge sharing on personal innovativeness of university student also the correlation between each their factors are significant". The proposed model is following.

The study was conducted between March 2020 and July 2020 in some faculties in Constantine 2 university, it focused on describing the opinions of a sample of university students in an attempt to explain the requirements of knowledge sharing and its impact on personal innovativeness. The society includes all the students of Constantine 2 university. There were 392 as a sample has been selected for the analysis of the primary data among university students. Among them, a sample was excluded 11 of the 392 responses due to incomplete and non-saturated. Therefore, a sample 381 was selected for the analysis of the final data.

Figure 1. Study model



Source: By researchers depending on the previous

About Crompach's , alpha,Internal and Structure validity we are trying to measure the correlation between knowlegde sharing, personal innovativeness and their components to prove the representation of their indicators.

Table 2. Crompach's alpha and internal validity of social factors

Code	Variables/ dimensions	Crompach's alpha		Internal validity	
		N = 381	sig	N =381	sig
1	Social features	,8345	,000	,811**	,000
4	Social trust	,7916	,000	,814**	,000
5	Social intactionties	,7945	,000	,813**	,000

**. Correlation is significant at the 0.01 level (1-tailed)

Source: By the researchers depending on the output of SPSS.V20.

The indicators in table above show that: The correlation coefficients are significant at $0.05 \geq \alpha$ level. Thus, the Crompach's alpha and internal validity are consistency and reliabil.

Table 3. Crompach's alpha and internal validity of techncal factors

Code	Variables/ dimensions	Crompach's alpha		Internal validity	
		N = 381	sig	N =381	sig
2	IT support	,7984	,000	,827**	,000
3	Final-user concern	,8225	,000	,822**	,000

4	Smart DeviceUtilization	,7916	,000	,814**	,000

**. Correlation is significant at the 0.01 level (1-tailed)

Source: By the researchers depending on the output of SPSS.V20.

The indicators in table above show that: The correlation coefficients are significant at 0.05 ≥ α level. Thus, the Crompach's alpha and internal validity are consistency and reliabil.

Table 4. Crompach's alpha and Structure validity of dimesions

Code	Variables/ dimensions	Crompach's alpha		Structure validity	
		N = 381	sig	N =381	sig
5	Power of Knowledge Sharing	0.7945	,000	,813**	,000
6	Nature ofKnowledge Sharing	0.7224	,000	,833**	,000
7	IndividualCreativity	0.8511	,000	,823**	,000
	Social factors	0.7114	,000	,824**	,000
	Technicalfactors	0.7911	,000	,819**	,000

**. Correlation is significant at the 0.01 level (1-tailed)

Source: By the researchers depending on the output of SPSS.V20.

The indicators in table above show that: The correlation coefficients are significant at 0.05 ≥ α level. Thus, the Crompach's alpha and internal validity are consistency and reliabil.

4. Descriptive statistics

Below are descriptive statistics of model dimensions.

Table 5. Discribtive statistics of dimensions

	N	Mean		Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
Social features	381	5.60	.107	.582	-.471-	.409	-.726-	.798
Social trust	381	5.70	.102	.653	-.388-	.409	-.708-	.798
Social intactionties	381	5.61	.101	.612	-.178-	.409	-.427-	.798
IT evidence	381	5.51	.103	.590	-.099-	.409	-.284-	.798
Final-user concern	381	5.70	.102	.653	-.388-	.409	-.708-	.798
Smart DeviceUtilization	381	5.61	.101	.612	-.178-	.409	-.427-	.798
Power of Knowledge Sharing	381	5.61	.101	.612	-.178-	.409	-.427-	.798
Nature of Knowledge Sharing	381	5.51	.103	.590	-.099-	.409	-.284-	.798
IndividualCreativity	381	5.51	.103	.590	-.099-	.409	-.284-	.798
Social factors	381	5.70	.102	.653	-.388-	.409	-.708-	.798

Technicalfactors	381	5.70	.102	.653	-.388-	.409	-.708-	.798

Source: By the researchers depending on the output of SPSS.V20.

From above data we can see the indicators that illustrate the availability of the knowledge sharing and innovativeness at university level through all its relatively high components compared to what is expected that indicate the university community find mechanisms that enable them to improve the knowledge sharing , which is relatively high means that express the views of the sample studied members with standard deviations not exceeding 1 with a coefficient of variation least than 2% for all indicators. This indicates the homogeneity of the answers and opinions about the availability the knowledge sharing and its improvement, with normal distribution through the both skewness and kurtosis indicators, which mean the sample respondents, were able to improve the knowledge sharing and innovativeness by using different methods and techniques to create excellence through either sharing of knowledge and innovativeness.

5. Test the hypothesis

- **H_0:**Universities in Algeria able to develop the personal innovativeness depending on Knowledge Sharing.
- **H_1**: Universities in Algeria unable to develop the personal innovativeness depending on Knowledge Sharing.

In order to test the above hypothesis, we're going to use Pearson' correlation coefficient, simple linear regression and average variance extracted to test the hypothesis as follows.

Table 6. Pearson correlation coefficient between Knowledge Sharing and personal innovativeness

		Knowledge Sharing
Pearson Correlation	**personal innovativeness**	.743
Sig. (1-tailed)	**personal innovativeness**	.000
N	**personal innovativeness**	381

Source: By the researchers depending on the output of SPSS.V20.

It is clear from the results of table above, that the correlation between Knowledge Sharing and personal innovativeness is significant because the values of (Sig less than α), which indicates a strong positive correlation significant at the α level between Knowledge Sharing and develop personal innovativeness.

Table 7. The correlation coefficient between variables

	Power of knowledge sharing	**Nature of knowledge sharing**	**Personalinventiveness**
R	0.56565	0.75580	0.57552

R Square	0.31997	0.57124	0.33122

Source: By the researcher depending on the output of SPSS.V20

The correlation between Knowledge Sharing and personal innovativeness is significant because the values of (Sig less than α), through all their dimensions either (Power of knowledge sharing, Nature of knowledge sharing, Personal inventiveness)

Table 8. Model Summary for Knowledge Sharing and personal innovativeness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.743a	.545	.543	.11091	.789	719.775	1	380	.000

a. Predictors: (Constant), Knowledge Sharing

b. Dependent Variable: personal innovativeness.

Source: By the researcher depending on the output of SPSS.V20.

The table shows both the Pearson R correlation coefficient between the independent variable "Knowledge Sharing" and the dependent variable "personal innovativeness." .that shows the strong positive correlation between the independent and dependent variables as well as the high coefficient of R Square which indicates the suitability of the model to estimate the direction of the relationship between the variables. Also the adjusted coefficient of error resulting from the estimation error is .11091 as a standard error of estimation showing the Knowledge Sharing of representing the regression trend in estimating the relationship between Knowledge Sharing and personal innovativeness.

Table 9. ANOVA[a]Knowledge Sharing and personal innovativeness

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.215	1	17.215	719.775	.000[b]
	Residual	.424	380	.014		
	Total	17.628	381			

a. Dependent Variable: personal innovativeness

b. Predictors: (Constant), Knowledge Sharing

Source: By the researcher depending on the output of SPSS.V20.

From the ANOVA table, we find that: the value of Sig = 000 "is less than the level of significance 0.05 "so the regression is significant .Thus, there is a linear relationship between the variables predictable towards personal innovativeness in terms of Knowledge Sharing.

Table 10. Coefficients: Knowledge Sharing and personal innovativeness

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.291-	.169		-1.765-	.079
	Knowledge Sharing	1.089	.049	.782	28.632	.000

a. Dependent Variable: personal innovativeness

Source: By the researcher depending on the output of SPSS.V20.

From the table above, the simple linear regression model between Knowledge Sharing and personal innovativenesscould be written as follows:

Personal innovativeness = -.291-+ 1.089 Knowledge Sharing

From the sig value in the table above we find that, the independent variable X that expresses the "Knowledge Sharing" is the only significant in the equation (sig less than 0.05), while we find that the constant coefficient is not significant "sig value greater than 0.05", which indicates that Knowledge Sharing is the cause of significance the analysis of variance of the regression towards developing personal innovativeness, which explains the importance of Knowledge Sharing and its contribution to developing personal innovativeness.

Table 11. Discriminant validity:correlations and average variance extracted (AVE)

Variable	AVE	SIT	SI	IT	EF	SDU	IKS	QKS	IC
ST	0.611	0.777							
SIT	0.675	0.319	0.841						
SI	0.711	0.182	0.527	0.842					
IT	0.718	0.247	0.148	0.199	0.889				
EF	0.655	0.219	0.115	0.098	0.138	0.812			
SDU	0.629	0.308	0.113	0.201	0.639	0.232	0.789		
IKS	0.696	0.279	0.449	0.361	0.178	0.089	0.341	0.839	
QKS	0.679	0.445	0.508	0.488	0.259	0.316	0.351	0.566	0.825
IC	0.621	0.070	0.235	0.322	0.181	0.300	0.151	0.212	0.422

Source: By the researcher depending on the output of SPSS.V20.

Table 12. Hypothesestestingresults

Hypotheses	T-Value	Result (TwoTails)
H_{1a}	0.571489	Not Accepted
H_{1b}	1.9643	Accepted ($p < 0.05$) *
H_{2a}	2.282699	Accepted ($p < 0.05$) *
H_{2b}	2.291318	Accepted ($p < 0.05$) *
H_{3a}	0.346368	Not Accepted
H_{3b}	0.774949	Not Accepted
H_{4a}	1.979202	Accepted ($p < 0.05$) *
H_{4b}	2.106269	Accepted ($p < 0.05$) *
H_{5a}	0.374359	Not Accepted
H_{5b}	1.796683	Accepted ($p < 0.1$)
H_{6a}	1.966251	Accepted ($p < 0.05$) *
H_{6b}	0.079318	Not Accepted
H_{7a}	0.428985	Not Accepted
H_{7b}	2.0156138	Accepted ($p < 0.05$) *

Source: By the researcher depending on the output of SPSS.V20.

Data analysis was performed in this paper using the PLS (partial least square) and several other statistical methods. Follow the application of statistical methods that test the reliability and validity, measurement and evaluation model, and the evaluation of the structural model.

First, the application of CFA to test the suitability of measurement model, which was evaluated according to the criteria model, validity convergent and discriminatory validityUsing alpha Cronbach to evaluate internal reliability. Alpha Cronbach value ranged from 0.70 to 0.90, exceeding the standard of 0.7. To check the validity of converged; it was a CFA and checks the parameter estimates and t values associated with them. All of the elements of a valid measurement ($p < 0.001$) are higher than 0.7, which also show not yet. The examination of the CR and the lowest value for CR is higher than 0.81, which exceeded the recommended value of 0.79. As the average variation calculation extracted (AVE) and was all higher than 0.6 AVE, which exceeds the should value of 0.5.

The discriminatory assessment of construction standards distinct and the indicators have been uploaded to the appropriate structure or not. Has been verified that the square root of all AVE greater inter-links, which provided evidence of discriminatory sufficient (Chin, 1998). Table above wich appears that the inclining components, the square root of AVE, were more noteworthy than the comparing components.

Test results are presented hypotheses detailed in Table above. Of the hypotheses, most of which support. It was examined variation R^2 through

the tracks and the results are presented in Table above whichindicates that. The R^2 of the personal creativity .63. In addition, the R^2 for Nature of share knowledge, which was the most important independent element, supports personal innovativeness .80. The value of R^2 indicates that the model explained a significant of variation in the contribution of knowledge sharing through the technical factors.

6. CONCLUSION

After empirical analysis, we obtained a set of results. The result was the most important that the nature of the sharing knowledge was positively linked to personal innovation and played a mediator role between the social and technical factors and personal innovativeness, but the power of knowledge sharing were not as well.

- The results indicated that links of social cooperation, information technology evidence , and final user concerns was linked positively with the ability of knowledge sharing, and links to social cooperation, social trust, social recognition, and the smart device which was positively linked with the nature of knowledge sharing .
- Strengthened social cooperation relations with power of personal sharing knowledge. This analogy was looked like (Tsai & Ghoshal, 1998), where they found that social cooperation relations have had a strong impact on the trust in the context of asset of sharing and productive of innovation within the company.
- Social trust and social features have not a significant impact on the strength of the knowledge sharing, but had an impact on the strength of the knowledge sharing.
- It was one possible explanation is that people were willing to share personal knowledge because of the close and frequent interaction between members, and equity in the knowledge sharing, strong feelings toward the university, without necessarily to trust other university members.
- Maybe possible explanation is that trust and social features have not been critical in less serious knowledge-sharing relationships.
- The evidence associated with information technology and the concerns of final user related positively with power of knowledge sharing, but not with the nature of knowledge sharing.
- It has been on the positive impact of information technology on the knowledge sharing. However, it is not enabled, "the nature of knowledge sharing", which means that information technology guides

and final-user concerns were not of the enabling factors of the nature of knowledge sharing.

- It can be explained by the fact that the infrastructure of information technology was a platform of the knowledge sharing, but they did not occupy "the nature of the knowledge sharing", which was more closely motivated to knowledge sharing.
- Contrary to expectation, the smart device linked to a positive nature of knowledge sharing, but not strongly knowledge sharing.
- One explanation is that the smart device has the ability to help students to learn and getting knowledge just in time and with appropriate manner, increasing the nature of knowledge sharing on the other hand, the smart device does not change the character perceived so ability to share knowledge.
- It was the nature of knowledge that explains the effect of the knowledge sharing as a mediator, as shown in Table above.

The results showed that the nature of knowledge sharing played a main role as mediator between the social and technical factors and personal innovativeness. This means that personal innovativeness can be improved through increasing social networks approach, support of their members, identified the values and build the trust, and promote the use of smart devices to share of knowledge.

In addition, by examining the relationship between knowledge sharing and personal innovativeness that enabled this later through knowledge sharing. According to the results, the nature of knowledge sharing is the key factor which facilitated personal innovativeness, rather than the power of knowledge sharing. We pointed out that nature was more important than the power of knowledge.

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