

A Comparison of Prediction Results of The Models in Innovative Knowledge Productivity between Knowledge Sharing Behaviour and Absorptive Capacity, Members of Knowledge Management Network (CoPs) for Caring Patients with Diabetes in Public Hospitals of Thailand

— *Review of* —
**Integrative
 Business &
 Economics**
 — *Research* —

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ABSTRACT

The purposes of this research were to predict The Innovative Knowledge Productivity by the two models. The samples consisted of 428 Registered Nurses of the Knowledge Management Network for Caring Patients with Diabetes at Public Hospitals in the Northern Region of Thailand (Diabetes CoPs). The research instruments were the questionnaires containing background, Social capital (7 items) Knowledge sharing behaviour (3 items) Absorptive capacity (14 items), and Innovative Knowledge Productivity (4 items) The data was analysed by Structural Equation Modeling and Statistics Software. The research results were as follows. 1. (1) Both Model #1 (Knowledge sharing behaviour) and Model #2 (Absorptive capacity) are goodness of fit model. The comparison of the two models was made by using the three criteria— (1) CMIN/DF, (2) The coefficient of determination (R^2) of The Innovative Knowledge Productivity, and (3) Root Mean Square Residual: RMR. Model #1 has CMIN/DF= 1.254, $R^2 = 0.144$, and RMR = 0.035, and Total Effect= 0.221, while Model #2 has CMIN/DF= 1.141, $R^2 = 0.286$, and RMR = 0.020. Among the three criteria of Model #2 higher than Model #1. So Model #2 which has mediator variable is Absorptive capacity was good for the prediction of The Innovative Knowledge Productivity. Moreover we met , and The new finding Model #2 (Absorptive capacity is Mediator variable) has total effect to dependent variable 0.524 which more than Model #1 (Total effect= 0.221)
Keywords: Absorptive capacity, Model Fit, Peer-Assist, Knowledge Productivity

1. Introduction

Diabetes is a leading chronic, non- infectious diseases that is a health problem in all regions of Thailand, affecting many hospital health system managements (Attakrai, P., 2015). The trend is that the magnitude of the problem will increase. From a survey in 2009, diabetic patients was estimated to be more than 4 million in Thailand (roughly 9 % of the country's population) and possibly will be increased (Attakrai, P., 2013). Therefore, diabetes prevention requires the cooperation from both the public and private sectors working together as a network to share knowledge sharing and apply the acquired knowledge to develop innovation and continue to care for diabetic patients. The concept of knowledge management format that focuses on the benefits from Networking is from the need to create wide knowledge communities by creating

reliability, trust, and true friendship to exchange knowledge aiming at cultural knowledge to build a strong community of practice (Anuwat, S., Duangsamorn, B., Araya, T., Somkiat, P., & Valla, T., 2010).

There are many formats of Knowledge sharing behaviour among the members of the community e.g. Symposium, Knowledge Management Market Convention, Workshop, Peer-Assisted Learning, Computer-Based Learning, Seminar. Attakrai, P. (2013) studied the formats of Thai diabetes patient care knowledge management to be in 2 main formats; 1) Knowledge Management Market Convention. The author describes this activities based on the Knowledge sharing behaviour concept proposed by Van den Hooff (2003) and 2) Peer-Assisted Learning by applying Absorptive capacity concept by Todorova & Durisin (2007) (Figure 1).

The Knowledge Management Market Convention requires a location for the knowledge to be presented to those interested and besides the location, expert lectures and learners are also required. However, even if the format has the prominent point being that it can transfer knowledge to a large amount of audience at one, it faces problems with time control, the knowledge being presented is not interesting for the audience, etc. whereas, in Peer-Assisted Learning, a learner is a person participating in the sharing of knowledge, skills, expertise, experience, and opinions and willingly suggests good practices on issues need or requested by learners in the group. He or she also gives guidance, compliments, and motivation to co-learners regularly. Even if the knowledge being shared by peer-assisted learning is the knowledge interested by the learner. However, it would be effective only if it is conducted between 2 small groups; the teachers, the students. Therefore, it presents a problem when conducted in a wide knowledge management community.

From the mentioned reasons, the researcher focused on studying that under the social resource of professional nurse for diabetic patient care community knowledge management, which learning concept between Knowledge sharing behaviour and Absorptive capacity is more reliable to forecast the innovative knowledge productivity (figure 2).

2. Objectives

The objectives of this study were 1) Goodness of Fit test 2) The comparison of the two models was made by using the three criteria— (1) CMIN/DF (2) the coefficient of determination (R²) of The Innovative Knowledge Productivity, and (3) Root Mean Square Residual: RMR.

3. Literature review

Creating a working network based on improving and integrating both internal and

external knowledge to come up with innovative knowledge. Knowledge that is appropriate and can be used for creating inter-organisational networks with members relying on more than competing with each other. The theory and concepts that can be used to explain the creation of such network (Attakrai, P., 2013, 2015) under the framework of Situated Learning Theory based on Network Community of practice (Social theory of learning) of Lave, J. & Wenger, E. (1998). The theory was used to expand community of practice concept of not being a part of any official organisation but it is a networks of individuals that intend to participate in Knowledge and experience sharing activities to be used to solve similar problems. The knowledge management network reflects the same beliefs and attitudes. The social relationship among the members is based on the exchange of knowledge, experiences, and solution (Lave, J. & Wenger, E., 1998; Li, L.C. et al., 2009).

From the review on literature by Wang, S. & Noe, R.A. (2010) and Volberda, H.W. (2010), it was found that social capital affects innovative knowledge productivity through Knowledge sharing behaviour and Absorptive capacity, respectively. Additionally, from the study of research conducted on the relationship of in a group of deep seeded knowledge sharing behaviour conducted by Yang, S.C. & Farn, C.K. (2007), it was found that the knowledge sharing behaviour on deep seeded knowledge and experience that led to innovative knowledge productivity required connections between individual and social network. Additionally, it is consistent with the research on causal model based on the concept by Lin, H.F. (2007) that found that staffs in large organisation that share knowledge within the team resulted in them being able to continuously produce innovative knowledge.

While from the result of the study done by Carrion ,Navarro et. el., it was found that if large company develops absorptive capacity for each component, the Innovative Knowledge Productivity will increase (Carrion, C.G., Navarro, J.G.C. & Jimenez, D.J., 2012: 110-129).

4. Conceptual Framework

The conceptual framework was based on Situated Learning Theory based on Network Community of practice (Social theory of learning) Lave & Wenger (1991, 2002) (Figure 1, 2).

5. Methodology

5.1 Sampling and data collection

This study consists of 2 groups: 1) Registered Nurses who have experience in Diabetes Knowledge Management Market Convention activity 219 persons 2) Registered Nurses of the Knowledge Management Network for Caring Patients with

Diabetes at Public Hospitals in the Northern Region of Thailand (Diabetes CoPs) who have experience in Diabetes Peer-Assisted Learning activity 209 persons by Simple Random Sampling from Registered Nurses of the Knowledge Management Network for Caring Patients with Diabetes at Public Hospitals in the Northern Region of Thailand (Diabetes CoPs) list of each group.

5.2 Research Instruments

The questionnaire used contained answers with 5 levels of Likert scale starting with strongly agreement at level 5 and strongly disagreement at level 1. There were totally 28 questions divided into 5 parts as followed: Social capital of Nahapiet & Ghoshal (1998) 7 items, Knowledge sharing behaviour of Van den Hooff (2003) 3 items, Absorptive capacity of Todorova & Durisin (2007) 14 items, and Innovative Knowledge Productivity of Druckers, P. E. (1993) 4 items.

To determine the content validity of the questionnaire was done by using the acquired answers to figure out the consistency between the questions and variables to calculate for the Index of item objective congruence (IOC), which is higher than the benchmark set by the researcher at 0.6 or more (Rovinelli, RJ & Hambleton, RK 1977). Therefore, the quality of the research instruments is at a good level.

To test the validity and accuracy of the instruments after the questionnaire revision, it was tried on 35 diabetic patient care network members at state hospitals that were not in the sample group with each instrument reliability calculated Cronbach's alpha coefficient test with the Reliability at 0.788, 0.798, 0.887, and 0.902, respectively.

5.3 Research variables

The conceptual framework in this study (Figure 2) have two models—which have the same Independent Variables (Social capital) but different Mediator variable such as Knowledge sharing behaviour (Called Model #1 Members share knowledge to each other by Knowledge Management Market Convention) and Absorptive Capacity (Called Model #2 Members share knowledge to each other by Diabetes Peer-Assisted Learning)—examination model and The Innovative Knowledge Productivity model—and to compare them in sense of the ability of prediction and the error of prediction.

5.4 Data Analysis Procedures

The data analysis was done according to the table data analysis as followed;

Research Objectives	How to Analysis	Statistics for Analysis	Recommendations on Fit Indices
(1)	Structural	CMIN/DF less than 3.0 (Hair, J.F. et al. , 2010)	

Goodness of Fit test	Equation Modeling	P-value exceeds 0.05 (Byrne, 2001)
		GFI exceeds .90 (Byrne, 2001)
		AGFI exceeds .90 (Byrne, 2001)
		RMS should not exceed .08 (Hair, J.F. et al. , 2010)
		TLI exceeds .95 (Hu & Bentler, 1995).
		CFI exceeds .95 (Hair, J.F. et al. , 2010)
		RMSEA<0.05: close fit (Stieger, 1990, 2000)
<i>GFI: Goodness-of-Fit Index, AGFI: Adjust Goodness-of-Fit Index, RMS: Root Mean Square Residual, TLI: Tucker-Lewis Index, CFI= Comparative Fit Index, RMSEA: Root Mean Square Error of Approximation</i>		
	How to Analysis and Statistics for Analysis	Recommendations for comparison
(2) The comparison of the two models	(1) To compare Chi square/Degree of freedom	The smaller is The Better
	(2) To compare the coefficient of determination (R^2) of The Innovative Knowledge Productivity	The bigger is The Better
	(3) To compare Root Mean Square Residual: RMR	The smaller is The Better

6. Results and Discussions

Before the analysis according to the research objective, the researcher found that the data used has passed all assumptions; 1) Normal Distribution (P value from Shapiro-Wilks Results= 0.7226 which more than 0.05) and 2) Homogeneity of Variance (Levene Statistic Significance= 0.02 which less than 0.05). Thus, the Variance of both groups is not differently distributed and can be analysed according to the research objective.

Research Objectives	How to Analysis	Fit indices for modeling	Modle #1	Modle #2
		CMIN/DF	1.254	1.141
(1) Goodness of Fit test	Structural Equation Modeling	P	0.077	0.075
		GFI	0.947	0.919

		AGFI	0.918	0.901	
		RMS	0.035	0.020	
		TLI	0.981	0.984	
		CFI	0.986	0.987	
		RMSEA	0.035	0.026	
<i>Both Model #1 (Knowledge sharing behaviour) and Model #2 (Absorptive capacity) are goodness of fit model</i>					
(2) The comparison of the two models	(1) To compare CMIN/DF	CMIN/DF=	1.254	CMIN/DF=	1.141
	(2) To compare the coefficient of determination (R ²) of The Innovative Knowledge Productivity	R ² =	0.144	R ² =	0.286
	(3) To compare Root Mean Square Residual: RMR	RMS=	0.035	RMS=	0.020
<i>Model #2 has CMIN/DF, R², and RMS better than Model #1</i>					

7. Conclusion and Recommendation

7.1 Conclusion

Based on the statistical results, researchers had synthesised the data and present both two models are goodness of fit model. However, Th model #2 are better the model #1 because the three criteria— (1) CMIN/DF, (2) The coefficient of determination (R²) of The Innovative Knowledge Productivity, and (3) Root Mean Square Residual: RMR. have good results.

7.2 Recommendation

To be success in Knowledge Productivity in The Knowledge Management Network for Caring Patients with Diabetes at Public Hospitals in the Northern Region of Thailand (Diabetes CoPs). The target of knowledge management activities Diabetes CoPs in should have good Strategies following the guidelines: Diabetes CoPs should select sharing knowledge to each other by Diabetes Peer-Assisted Learning activity more than sharing knowledge to each other by Knowledge Management Market Convention activity

7.3 The new finding

Model #2 (Absorptive capacity is Mediator variable) has total effect to dependent variable 0.524 which more than Model #1 (Total effect= 0.221)

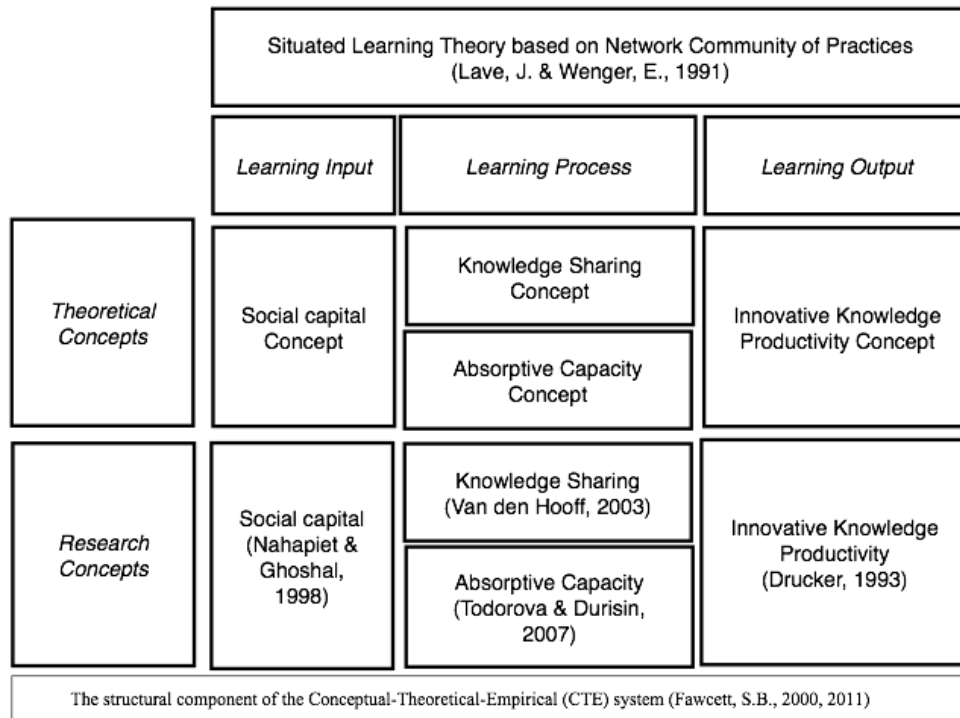
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FIGURES

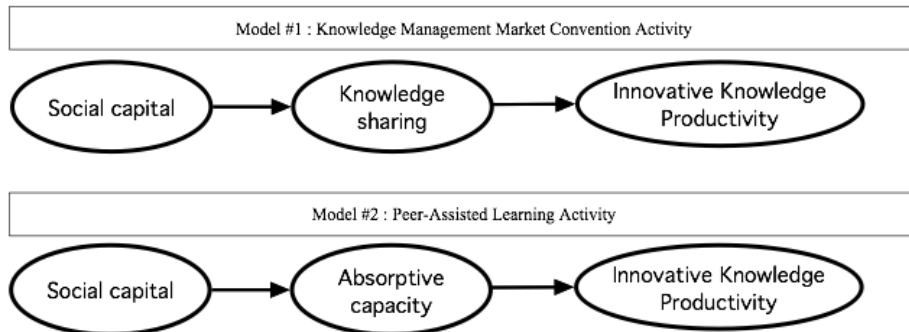


Figure 1: Theoretical Framework
 Figure 2: Conceptual Framework