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The Correlation of Factors in Nature of Knowledge and their Effects on Knowledge Transfer in Private Finance Initiative Projects

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Abstract

This study empirically investigated the nature of the knowledge transfer process between Private Finance Initiative (PFI) partners, which, under a public private partnership arrangement, are from both public and private sector organizations. Most of the previous studies on Public Private Partnerships (PPPs) have focused on the procurement processes, examining specific issues such as risk management, legal aspects, finance and cost planning. This study fills a gap in the literature relating to knowledge transfer between PFI partners in the context of knowledge management, and contributes to the understanding of ways to develop expertise and facilitate improvements at different stages of the PFI process. As causal ambiguity and other antecedents are well recognized as obstacles to knowledge transfer, this study adopted a quantitative methodology to investigate the effects of causal ambiguity, tacitness and complexity on the transfer of knowledge in PFI projects. A questionnaire survey was conducted amongst private and public sector professional practitioners; the 602 valid responses, representing a 30% response rate, were divided almost equally between the two sectors. The statistical analyses found that four out of the six hypotheses of this study were supported. The hypothesis that tacitness of knowledge is negatively related to knowledge transfer was significantly supported but not the casual ambiguity and complexity of the nature of knowledge. It is interesting that within the context of the nature of knowledge, causal ambiguity has a weak effect on knowledge transfer, which may be due to the characteristics of PFI projects that they are new procurement approach; and public and private sectors are not in competition with one another.

Keywords: *knowledge transfer process, Private Finance Initiative etc.*

1. Introduction

Organizational knowledge is a major source of competitive advantage and sustainability of a developing organization in a business environment (Lyles and Salk, 1996; Tsai, 2001; Zahra, Ireland and Hitt, 2000). The sharing of knowledge, one of the most vital resources of companies (Nahapiet and Ghoshal, 1998), is a crucial phenomenon in companies (Sa´enz, Aramburu and Rivera, 2009) and an effective indicator for appraising company efficiency and effectiveness (Mohamed, 2008). Companies need to transfer and acquire new knowledge as they seek to develop new applications and survive (Henderson and Cockburn, 1994; Kogut and Zander, 1992). Organizational knowledge transfer refers to the exchange process through which organizational actors - teams, units, or organizations - are influenced by the experience and knowledge of others (Wijk, Jansen and Lyles., 2008). Since organizational knowledge transfer requires the integration of differentiated knowledge, it manifests itself through changes in the knowledge base or performance of recipients (Argote, Ingram, Levine and Moreland, 2000).

As found by McAdam and Reld (2000) and Robinson, Carrillo, Anumba and Bouchlaghem (2004), there are many perception variations in the use of knowledge between public and private sector organizations. Prior studies have investigated the role of knowledge characteristics, such as ambiguity, in determining knowledge transfer (Birkinshaw, Nobel and Ridderstråle, 2002). To explore the situation of knowledge transfer in private finance initiative (PFI) projects, this study investigated nature of knowledge: tacitness, ambiguity and complexity as the antecedents of the knowledge transfer. In addition, the research also studies the correlations between the components in nature of knowledge.

The study provides a further understanding of the process of knowledge transfer not only within the private sector, but also between public and private sector

organizations. The knowledge chief of both public and private organizations could review the areas of causal ambiguity, social ties and knowledge transfer to enable effective sharing of knowledge for both private and public organizations to offer efficient services to their customers. Moreover, as the full implication of the causal ambiguity concept is underdeveloped in PFI, this study provides knowledge chiefs in public and private organizations a better perspective of effective knowledge sharing between partnering organizations.

2. Literature Review

Causal ambiguity is well-recognized as an obstacle to knowledge transfer throughout all phases of the transfer process (Lippman and Rumelt, 1982). Since the extent to which is not well understood, many research studies have been conducted in order to find out its effect on strategic alliances and joint ventures in the private sector. Causal ambiguity refers to the inherent and irreducible uncertainty as to precisely what the underlying knowledge components and sources are and how they interact. It emerges from the simultaneous effects of tacitness, specificity and complexity of the underlying knowledge to be transferred (Reed and DeFilippi, 1990). While causal ambiguity contributes to protecting knowledge from being imitated by rivals, it also hinders knowledge transfer in an organization (Coff, Coff and Eastvold, 2006).

2.1 Knowledge

Polanyi (1962) was probably the first scholar to define the theory of knowledge. His suggestion that knowledge should be classified into explicit knowledge and tacit knowledge has become the most widely used classification of knowledge (Carrillo, Robinson, Anumba and Bouchlaghem, 2006), which are complementary and indispensable to knowledge creation (Tuan, 2012). Tacit knowledge is intuitive, unarticulated, stored inside people's heads and often is a case of knowing much more than we tell, i.e. not able to be verbalized (Li and Gao, 2003). Tacit knowledge can be technical (such as the know-how of an expert) or cognitive – based on values, beliefs and perceptions (Carrillo et al., 2006). Tacit knowledge is difficult to translate in the form of common language for easy retrieval, transfer, reuse or storage, since it is considered as subjective insights, intuitions and hunches (Polanyi, 1962). A more comprehensive definition of tacit knowledge provided by Davenport and Prusak (1998) is that tacit knowledge resides profoundly in the comprehensive cognizance of any human body to affect one's actions, procedures, routines, commitments, ideas, values, and emotions. Tacit knowledge is thus acquired through experience sharing, and through observation and imitation (Hall and Andriani, 2002; Kikoski and Kikoski, 2004; Seidler-de Alwis and Hartmann, 2008). The factors in the definition helped to create a mechanism for evaluating and incorporating new experience and information.

2.2 Knowledge Transfer and Sharing

Knowledge transfer is an area of increasing interest to many organizations, particularly those involved in PFI projects. Knowledge sharing is a way to enhance the access to knowledge (Tuan, 2012). The sharing of knowledge has also been considered the most crucial discipline in knowledge management (Bock and Kim, 2002). Dawson (2001) defined the goal of knowledge sharing as the transfer of employees' knowledge into organizational assets and resources. Unless individual knowledge is shared throughout an organization, it has a limited impact on the knowledge effect (Inkpen, 2000). Lee (2001) also defined knowledge sharing as activities of transferring or disseminating knowledge from one person, group, or organization to another.

The flow of knowledge and experience among people in work cells facilitates improvements in competency and creates new knowledge (Sveiby, 2001). Knowledge sharing has a positive effect on organizational culture and job satisfaction (Tong, Ip and Wong, 2013). It also creates a harmonious atmosphere in an organization conducive to successful sharing and the refining of knowledge through dialogue. Providing their staff with tacit knowledge awareness is the ultimate way for organizations to gain knowledge.

2.3 Nature of Knowledge

The nature of the knowledge being transferred, such as the degree of tacitness, ambiguity, or complexity, will also impact knowledge transfer. Argote, McEvily and Reagans (2003) establish that the properties of knowledge affect the ability to transfer that knowledge, the rate at which it will be assimilated, and how much is retained. For example, Simonin (2004) found that the ambiguity of knowledge is directly and negatively related to knowledge transfer, and ambiguity is associated more with tacit knowledge than with explicit knowledge.

2.3.1 Causal Ambiguity and Knowledge Transfer

According to various studies in the aspect of knowledge management, causal ambiguity is widely-recognised to be fundamental to the inimitability property of the firm-specific resources in advantage-generating and capabilities (Beleska-Spasova and Glaister, 2013; Reed and DeFillippi, 1990). These studies further show evidence that when the knowledge is ambiguously known by the transferring party, the receiving party will find it difficult to accept. This could eventually affect the relationship between the partners and efficiency of both organizations. If causal ambiguity in skill and resource

deployment creates barriers to imitation (Reed and DeFillippi, 1990), and by extension to the context of partnership projects, it lessens the propensity to learn from a partner. That is, when the degree of ambiguity associated with a partner's competence is high, chances of effectively repatriating and absorbing the competence are rather limited.

2.3.2 Tacitness and Causal Ambiguity

Reed and DeFillippi (1990) defined tacitness as the implicit and non-codified accumulation of skills that results from learning by doing. Tacit knowledge is knowledge that people carry in their minds, which cannot be easily shared, communicated and is difficult to access (Nonaka, 1994). Tacit knowledge is valuable because it provides context for people, places, ideas, and experiences (Nonaka, 1994). Effective transfer of tacit knowledge requires extensive personal contact and trust and involves a learning path that cannot be easily devised. Tacit knowledge embedded in an organization, is hard to identify, address, locate, quantify, value, or map. Mody (1989) provides theoretical support for equating the degree of tacitness of knowledge with the extent of its non-transferability. Reed and DeFillippi (1990) identified this construct as a source of ambiguity that raises barriers to imitation in a linear way. Tacitness is therefore a strong antecedent of causal ambiguity.

2.3.4 Complexity and Causal Ambiguity

Organizational theorists long have recognized that institutional environments are complex and fragmented since they consist of multiple task environments (Galbraith, 1973; Lawrence & Lorsch, 1967; Thompson, 1967), multiple institutional "pillars" (Scott, 1995), multiple resource providers (Pfeffer and Salancik, 1978), and multiple stakeholders (Evan & Freeman, 1988). Institutional environments are fragmented and composed of different domains reflecting different types of institutions: regulatory, cognitive, and normative (Scott, 1995). Organizational researchers also have noted that organizations themselves can be complex and fragmented, which consist of multiple sub-units with varying levels of interdependence and independence (Ghoshal & Bartlett, 1990; Lawrence & Lorsch, 1967). This type of complexity can be apparent in PFI partners where the organization is fragmented by functions or tasks. The interaction between organizations and the environment from the social construction and symbolic interactionism perspectives is a complex social and cognitive process, subject to bounded rationality (Berger & Luckman, 1967; Stryker & Statham, 1985). Individual knowledge of employees is gradually transformed into organizational knowledge (Pemberton and Stonehouse, 2000) in a number of ways, not all of which are easily traceable. Complexity is thus also a strong antecedent of knowledge ambiguity. In PFI projects, partners with different perceptions are from both public sectors organization and private sectors organization.

2.3.5 Tacitness and Complexity

An organizational form of tacit knowledge can be found in routines, organizational culture and cognitive schemes. The need for externalization of tacit knowledge can be called into question, especially in PFI partnerships where the organization is fragmented by functions or tasks. Since tacitness is hard to diffuse, it is worth examining the conscious externalization of tacit knowledge across partner boundaries. The difficulties with transfer of tacit knowledge across partners may be an advantage for the organization. Tacit knowledge in crucial areas for the organization obstructs copying by partners and therefore maintains its competitive advantage (Leonard and Sensiper, 1998; Brown and Duguid, 1998).

2.4 Knowledge Transfer and its Antecedents

Consistent with prior literature, this study classified knowledge characteristics as antecedents of organizational knowledge transfer (Adler and Kwon, 2002; Inkpen and Tsang, 2005). Tenets of knowledge transfer have attracted a vast number of academic and non-academic research. Amongst these are the interest in investigating knowledge characteristics and its influence on the sharing of knowledge (Soberg, 2012; Simola, 2011; Li, 2007; Kang, 2007). In identifying the paradoxical characteristics of knowledge, researchers assert that characteristics of knowledge emanates from the tacitness and explicitness of knowledge (Soberg, 2012; Kang, 2007; Birkinshaw et al., 2002). However, in other studies, casual ambiguity, complexity and it strategic value have been regarded as essential characteristics that impede or alleviate knowledge transfer (Szulanski, Capetta and Jensen, 2004; Levin and Cross, 2004; Gupta and Govindarajan, 2000; Simonin, 1999; Zander and Kogut, 1995).

2.5 Hypotheses Development

Tacitness is an implicit and non-codified accumulation of skills that result from learning by doing (Reed and DeFillippi, 1990). Tacit knowledge is the knowledge that in people minds and cannot be easily shared or communicated, and is hard to access. However, effective transfer of tacit knowledge involves a learning path that cannot be easily devised. Tacit knowledge, which is embedded in each organization, is hard to identify, address, locate, quantify, value, and map (Simonin, 1999). So the following hypothesis is established.

Hypothesis H1: Tacitness of knowledge is negatively related to Knowledge Transfer.

Causal ambiguity, or simply "ambiguity", is well-recognized as an obstacle to knowledge transfer

throughout all phases of the transfer process (Lippman and Rumelt, 1982). It refers to the inherent and irreducible uncertainty as to precisely what the underlying knowledge components and sources are and how they interact. While causal ambiguity contributes to protecting knowledge from being imitated by rivals, it also hinders knowledge transfer within and between organizations (Coff et al., 2006).

Hypothesis H2: Ambiguity is negatively related to Knowledge Transfer.

Strategic Similarity of partners affects knowledge transfer: the larger the number of similar elements across the tasks, the greater the likelihood of successful transfer (Darr & Kurtzberg, 2000; Thorndike, 1906). So the more complexity of knowledge will hinder transfer of knowledge.

Hypothesis H3: Complexity is negatively related to Knowledge Transfer.

The three hypotheses below emerged from the simultaneous effects of tacitness, specificity and complexity of the underlying knowledge to be transferred (Reed and DeFilippi, 1990) and their correlations.

Hypothesis H4: Tacitness is positively related to Ambiguity.

Hypothesis H5: Complexity is positively related to Ambiguity.

Hypothesis H6: Tacitness is positively related to Complexity.

2.6 Conceptual Model

With reference to the reviewed literature above, a conceptual model shown as Figure 1 was developed for this research. It is described by how the hypotheses were developed.

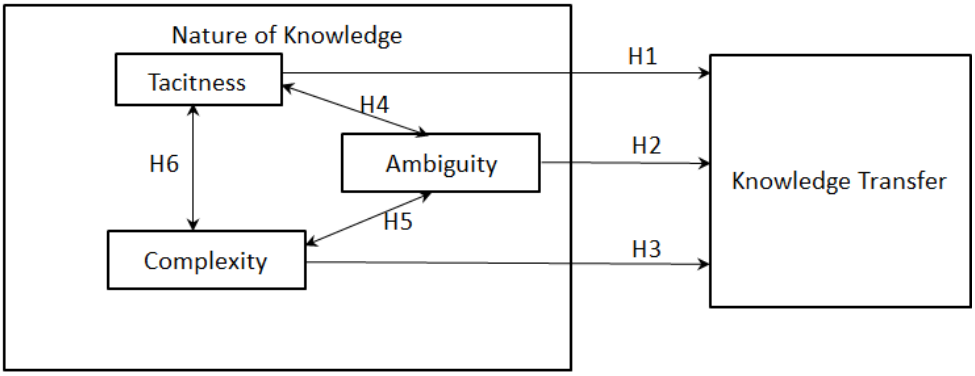

Figure 1: Conceptual Model

3. Methodology

3.1 Sample and Data Collection

In this research, a probability approach with simple random sampling was used. Since target respondents were all professionals having a high level of education, this survey required a paper-based self-administered questionnaire to be completed unsupervised. Questionnaires were distributed to potential participants who are the professional members of professional institutions in Hong Kong. Participants filled out the questionnaire and sent it back to the researcher directly. The result of each completed survey was saved by the researcher in a worksheet format. A counter-checking process was performed by a third party when inputting data in order to reduce human error. The researcher did not know the identity of participants because they completed the questionnaire without leaving a name, email address, or any other information that might identify them. More than 750 questionnaires were collected, from which 602 questionnaires were valid and usable yielding a response rate not atypical for this type of research.

3.2 Questionnaire Design

All questionnaire items, with minor modification of the terms, were basically adopted from a peer-reviewed study (Simonin, 1999) published in the Strategic Management Journal with satisfactory level of reliability and validity.

3.3 Data Analysis

SPSS was employed as the data analysis tool by using factor analytic techniques in order to find out the correlation between variables, by forming variance-covariance matrix (or Cofactor Matrix) for answering the six hypotheses.

4. Results and Analysis

4.1 Characteristics of Respondents

Table 1 below shows the demographic characteristics of the respondents.

Table 1: Characteristics of Respondents

	Frequency	Percentage	Cumulative Percentage
Employment Sector			
Public (Government)	296	49.2%	49.2%
Private	306	50.8%	100%
Total	602	100.0%	100%
Professional Affiliation			
HKIE	171	28.4%	28.4%
ICES	147	24.4%	52.8%
HKIA	112	18.6%	71.4%
HKIS	107	17.8%	89.2%
HKIP or HKILA	65	10.8%	100%
Total	602	100.0	
Years of PFI Partnership Experience			
1	27	4.5%	4.5%
2	61	10.1%	14.6%
3	50	8.3%	22.9%
4	47	7.8%	30.7%
5	55	9.1%	39.9%
6	46	7.6%	47.5%
7	66	11.0%	58.5%
8	51	8.5%	66.9%
9	58	9.6%	76.6%
10	70	11.6%	88.2%
11	60	10.0%	98.2%
12	4	0.7%	98.8%
13	2	0.3%	99.2%
14	1	0.2%	99.3%
15	1	0.2%	99.5%
16	2	0.3%	99.8%
18	1	0.2%	100.0%
Total	602	100.0%	

4.2 Testing of Hypothesis

The hypothesized casual relationships developed were tested as follows:

4.2.1 Direct Influences on Knowledge Transfer

Of the six hypotheses, three of them are related to their respective direct influences on knowledge transfer; they are:

Hypothesis H1: Tacitness of knowledge is negatively related to Knowledge Transfer

The linear regression test results in Table 2 and Table 3 confirm that "Tacitness" of knowledge has a significantly negative impact on "Knowledge Transfer" (Standardized beta = 0.828, $p < 0.05$). In other words, "Explicitness" of knowledge explains 68.5% (Adjusted $R^2 = 0.685$) of the variation in "Knowledge Transfer". Therefore, Hypothesis H1 is supported.

Table 2: Model Summary: Influence of Tacitness on Knowledge Transfer (H1) Model Summary (b)

Model	1
R	.828(a)
R Square	0.685
Adjusted R Square	0.685
Std. Error of the Estimate	0.48905

a Predictors: (Constant), Tacitness
b Dependent Variable: Knowledge Transfer

Table 3: Coefficients: Influence of Tacitness on Knowledge Transfer (H1) Coefficients (a)

Model		1	
		(Constant)	Tacitness
Unstandardized Coefficients	B	2.032	0.455
	Std. Error	0.044	0.013
Standardized Coefficients	Beta		0.828
t		46.359	36.15
Sig.		0	0

Dependent Variable: Knowledge Transfer

Hypothesis H2: Ambiguity is negatively related to Knowledge Transfer

The linear regression test results in Table 4 and Table 5 reveal that "Ambiguity" of knowledge has a significantly positive impact on "Knowledge Transfer" instead of negative (Standardized beta = 0.535, $p < 0.05$). In other words, rather than affecting "Knowledge Transfer", "Ambiguity" facilitates "Knowledge Transfer". "Ambiguity" explains 28.5% (Adjusted $R^2 = 0.285$) of the variation in "Knowledge Transfer". Therefore, Hypothesis H2 is rejected.

Table 4: Model Summary: Influence of Ambiguity on Knowledge Transfer (H2) Model Summary (b)

Model	1
R	.535(a)
R Square	0.287
Adjusted R Square	0.285
Std. Error of the Estimate	0.73638

a Predictors: (Constant), Ambiguity
b Dependent Variable: Knowledge Transfer

Table 5: Coefficients: Influence of Ambiguity on Knowledge Transfer (H2) Coefficients (a)

Model		1	
		(Constant)	Ambiguity
Unstandardized Coefficients	B	1.278	0.697
	Std. Error	0.143	0.045
Standardized Coefficients	Beta		0.535
t		8.961	15.526
Sig.		0	0

Dependent Variable: Knowledge Transfer

Hypothesis H3: Complexity is negatively related to Knowledge Transfer

The linear regression test results in Table 6 and Table 7 reveal that "Complexity" of knowledge has a significantly positive impact on "Knowledge Transfer" instead of negative (Standardized beta = 0.736, $p < 0.05$). In other words, rather than affecting "Knowledge Transfer", "Complexity" facilitates "Knowledge Transfer". "Complexity" explains 54.1% (Adjusted $R^2 = 0.541$) of the variation in "Knowledge Transfer". Therefore, Hypothesis H3 is rejected.

Table 6: Model Summary: Influence of Complexity on Knowledge Transfer (H3) Model Summary (b)

Model	1
R	.736(a)
R Square	0.542
Adjusted R Square	0.541
Std. Error of the Estimate	0.59015

a Predictors: (Constant), Complexity
b Dependent Variable: Knowledge Transfer

Table 7: Coefficients: Influence of Complexity on Knowledge Transfer (H3) Coefficients (a)

Model		1	
		(Constant)	Complexity
Unstandardized Coefficients	B	-1.145	1.452
	Std. Error	0.174	0.055
Standardized Coefficients	Beta		0.736
t		-6.585	26.636
Sig.		0	0

Dependent Variable: Knowledge Transfer

4.2.2 Correlations among Tacitness, Ambiguity and Complexity

Correlations among "Tacitness", "Ambiguity" and "Complexity" are examined. The related hypotheses are:

Hypothesis H4: Tacitness is positively related to Ambiguity

Hypothesis H5: Complexity is positively related to Ambiguity

Hypothesis H6: Tacitness is positively related to Complexity

Table 8: Correlations among Ambiguity, Tacitness and Complexity (H4, H5 and H6) Correlations

		Ambiguity	Tacitness	Complexity
Ambiguity	Pearson Correlation	1	.609(**)	.513(**)
	Sig. (2-tailed)		0	0
	N	602	602	602
Tacitness	Pearson Correlation	.609(**)	1	.801(**)
	Sig. (2-tailed)	0		0
	N	602	602	602
Complexity	Pearson Correlation	.513(**)	.801(**)	1
	Sig. (2-tailed)	0	0	
	N	602	602	602

** Correlation is significant at the 0.01 level (2-tailed).

The Pearson correlation results in Table 8 above confirm the existence of significantly positive associations

between "Tacitness" of knowledge and "Ambiguity" ($R = 0.609$, $p < 0.05$), between "Complexity" of knowledge and "Ambiguity" ($R = 0.513$, $p < 0.05$) and between "Tacitness" of knowledge and "Complexity" ($R = 0.801$, $p < 0.05$). Therefore hypotheses H4, H5 and H6 are all supported.

5. Discussion

The significance of the relation between tacitness and knowledge transfer supports the results of Zander and Kogut (1995). Tacit knowledge is the significant construct affecting the process of knowledge transfer between public sector and private sector organizations. With regard to the nature of knowledge in the context of PFI projects, the degree to which causal ambiguity is exerted has no real impact on its knowledge transferability. Unlike previous studies in the private sector, this research illustrated an interesting finding for future related studies. Since the objectives, structures and processes of public projects under PFI arrangement are defined by central bureaucratic agencies or constrained by legislation (Blumenthal, 1983; Cole, 1988), the effect of causal ambiguity may be counter-balanced, especially during the new stage of project implementation when knowledge is still in the generation phase. Moreover, political requirements, such as accountable to the public and conflicting demands from multiple public interests in the form of social movements and interest groups (Hughes, 1994), may induce the transparency of all information, which is more vulnerable to imitation (Simonin, 1999) by PFI partners. In addition, as PFI partners will never be in competition with each other, neither partner is concerned with imitation. The hypotheses findings support that causal ambiguity, tacitness and complexity affect the process of knowledge transfer between partners in PFI projects and the strength of causal ambiguity, tacitness and complexity affect the process of knowledge transfer between partners in PFI projects. Similar to the previous studies, both the postulated antecedents - tacitness and complexity - display a significant positive effect on causal ambiguity, which is consistence with established theory.

This study brings out a different view on assertions that causal ambiguity of knowledge must hinder its subsequent transfer. It appears that a different situation may exist in PFI projects. The finding indicates that causal ambiguity is not detrimental to organizational knowledge transfer between PFI partners. Organizational knowledge transfer depends on how easily the underlying knowledge sources can be communicated, interpreted, and absorbed (Kogut and Zander, 1992). Though causal ambiguity makes knowledge hard for competitors to imitate, private and public sector partners seem not to be affected by it. This is probably because PFI is still a new approach that requires further knowledge creation, and public and private sector organizations are not in competition with each other. This study made use of the communities of practice by measuring the knowledge transfer process among construction professionals with PFI experience. Wenger and Snyder (2000) argued that wherever communities of practice occur, they add value to organizations through the ability of such groups to solve problems fast and effectively, stimulating the transfer of best practice and the development of personal skills, as well as helping to recruit and retain talents. Furthermore they serve as knowledge banks, contribute to strategic development, and stimulate innovation and new business development.

To facilitate knowledge transfer, clear specifications and guidelines (codifications) in the implementation of public projects appear able to overcome the traditional barrier of causal ambiguity. Continuing to accumulate experience by doing is critical. To this end, proper and further resource commitment is necessary. The mindset of the public sector needs to be more market-driven for PFI projects. Partners in PFI projects should be probed proactively by articulating specific requests from time to time. Progress must be continuously re-assessed to match the evolution of knowledge dissemination capability and the possible reinvestment by partners in inter-organization dynamics.

6. Limitations and Recommendations

The first limitation of this research is that it was not a causal study. Among many important factors associated with knowledge transfer, the conceptual model was designed to treat these as antecedent or independent constructs. Second, this research was conducted among members from professional bodies in Hong Kong who had experience of PFI projects. Cross-sectional data were collected to test the hypotheses but because the effects of organizational knowledge transfer may take time to notify, especially the new PFI partnership approach, a longitudinal design may be needed to assess the long-term effect on knowledge transfer in order to justify the reliability and validity of the collected research data. Even though the recently collected research data were found to be reliable and valid by statistical analysis before, generalization of the results to other countries may not be possible. Thus, further study in other countries can be conducted in order to improve the possibility of generalization. Finally, external conditions such as economic development, construction industrial factor, government policy, and conditions of job market may have a significant impact on organizational culture.

Conclusion

The aim of this study was to advance the understanding of the process of knowledge transfer in PFI projects. The study constitutes a detailed and empirical investigation of the knowledge transfer process between public sector and private sector organizations that had not been previously undertaken. It revealed that tacitness and

knowledge dissemination capability impact the knowledge transfer process in PFI projects. The study established their critical role in knowledge transfer by showing its supportive effect on the process. It is interesting that within the context of the nature of knowledge, causal ambiguity has a weak effect on knowledge transfer, which may indicate two characteristics of PFI projects: (1) PFI is still a new procurement approach; and (2) the public and private sectors are not in competition mode with one another.

References

[1] Argote, L., Ingram, P., Levine, J. and Moreland, R., 2000, Knowledge transfer in organisations: learning from the experiences of others, Organisation Behaviour and Human Decision Processes, 82(1), pp. 1-8.

[2] Argote, L., McEvily, B., and Reagans, R., 2003, Managing knowledge in organizations: an integrative framework and review of emerging themes, Management Science, 49(4), pp. 571-582.

[3] Beleska-Spasova, E., and Glaister, K. W. 2013, Intrafirm causal ambiguity in an international context, International Business Review, 22(1), pp. 32-46.

[4] Berger, P., and Luckman, T., (1967). The social construction of reality, New York: Doubleday.

[5] Birkinshaw, J., Nobel, R., and Ridderstråle, J., 2002, Knowledge as a contingency variable: do the characteristics of knowledge predict organization structure?, Organization Science, 13(3), pp. 274–289

[6] Blumenthal, J.M., (1983). Candid reflections of a businessman in Washington, in Perry, J.L. and Kraemer, K.L. (Eds), Public Management: Public and Private Perspectives, Mayfield, Palo Alto, CA.

[7] Bock, G.W., and Kim, Y.G., 2002, Breaking the myths of rewards: an exploratory study of attitudes about knowledge sharing', Information Resources Management Journal, 15(2), pp. 14-21.

[8] Brown, J.S., and Duguid, P., 1998, Organizing knowledge, California Management Review, 42(3), pp. 90-111.

[9] Carrillo, P.M., Robinson, H.S., Anumba, C.J., and Bouchlaghem, N.M., 2006, A knowledge transfer framework: the PFI context, Construction Management and Economics, 24(10), pp. 1045-1056.

[10] Coff, R., Coff, D., and Eastvold, R., 2006, The knowledge leveraging paradox: how to achieve scale without making knowledge imitable, Academy of Management Review, 31(2), pp. 452–465.

[11] Cole, R.W., 1988, The public sector: the conflict between accountability and efficiency, Australian journal of Public Administration, 47(3), pp. 223-232.

[12] Darr, E.D., and Kurtzberg, T.R., 2000, An investigating of partner similarity dimensions on knowledge transfer, Organisation Behaviour and Human Decision Processes, 82(1), pp. 28-44.

[13] Davenport, T.H., and Prusak, L., (1998). Working Knowledge: How organizations manage what they know, Harvard Business School Press.

[14] Dawson, R., 2001, Knowledge capabilities as the focus of organizational development and strategy, Journal of Knowledge Management, 4(4), pp. 320-327.

[15] Evan, W., and Freeman, E., (1988). A stakeholder theory of the modern corporation: Kantian capitalism. In T. Beauchamp & N. Bowie (Eds.) ', Ethical theory and business, pp. 75-93, Englewood Cliffs, NJ: Prentice-Hall.

[16] Galbraith, J., (1973). Designing complex organizations, Reading, MA: Addison-Wesley.

[17] Ghoshal, S., and Bartlett, C., 1990, The multinational corporation as an interorganizational network, Academy of Management Review, 15(4), pp. 603- 626.

[18] Gupta, A.K., and Govindarajan, V., 2000, Knowledge flows within multinational corporations, Strategic Management Journal, 21(4), pp. 473–496.

[19] Hall, R., and Andriani, P., 2002, Managing knowledge for innovation, Long Range Planning, 35(1), pp. 29-48

[20] Henderson, R., and Cockburn, I., 1994, Measuring competence? Exploring firm effects in pharmaceutical research, Strategic Management Journal, 15, pp. 63–84.

[21] Hughes, O., (1994). Public Management and Administration, Macmillan, London.

[22] Inkpen, A.C., 2000, Learning through joint ventures: A framework of knowledge acquisition, Journal of Management Studies, 37(7), pp.1019-1043.

[23] Inkpen, A.C., and Tsang, E., 2005, Social capital, networks, and knowledge transfer, Academy of Management Review, 30(1), pp. 146–165.

[24] Kang, J., 2007, Testing impact of knowledge characteristics and relationship ties on project performance, Journal of Knowledge Management, 11(3), pp. 126-144.

[25] Kikoski, C.K., and Kikoski, J.F., 2004, The Inquiring Organization: Tacit Knowledge, Conversation, and Knowledge Creation Skills for 21st-century Organizations, Praeger, Westport, CT.

[26] Kogut, B., and Zander, U., 1992, Knowledge of the firm, combinative capabilities, and the replication of technology, Organisation Science, 3(3), pp. 383-397.

[27] Lawrence, P., and Lorsch, J., 1967, Differentiation and integration in complex organizations, Administrative Science Quarterly, 12(1), pp. 1-47.

[28] Lee, J., 2001, The impact of knowledge sharing, organizational capability and partnership quality on IS outsourcing success, Information & Management, 38(5), pp. 323-335.

[29] Leonard-Barton, D., and Sensiper, S., 1998, The role of tacit knowledge in group innovation, California Management Review, 40(3), pp. 112-132.

[30] Levin, D.Z., and Cross, R., 2004, The strength of weak ties you can trust: the mediating role of trust in effective knowledge transfer, Management Science, 50(11), pp. 1477–1490.

[31] Li, M., and Gao, F., 2003, Why Nonaka highlights tacit knowledge: a critical review, Journal of Knowledge Management, 7(4), pp. 6-14.

[32] Li, P.P., 2007, Social tie, social capital, and social behavior: Toward an integrative model of informal exchange, Asia Pacific Journal of Management, 24(2), pp. 227 – 246.

[33] Lippman, S., and Rumelt, R., 1982, Uncertain imitability: An analysis of interfirm differences in efficiency under competition, Bell Journal of Economics, 13(2), pp. 418-438.

[34] Lyles, M.A., and Salk, J.E., 1996, Knowledge acquisition from foreign parents in international joint ventures: An empirical examination in the Hungarian context, Journal of International Business Studies, 27(5), pp. 877-905.

[35] McAdam, R., and Reld, R., 2000, A comparison of public and private sector perceptions and use of knowledge

management, Journal of European Industrial Training, 24(6), pp. 317-329.
[36] Mody, A., 1989, Firm strategies for costly engineering learning', Management Sciences, 35(4), pp. 496-512.
[37] Mohamed, H.B., 2008, Leadership, knowledge sharing, and organizational benefit within the UAE, Journal of American Academy of Business, 22(2), pp. 227-236.
[38] Nahapiet, J., and Ghoshal, S., 1998, Social capital, intellectual capital, and the organizational advantage, Academy of Management Review, 23(2), pp. 242–266.
[39] Nonaka, I., 1994, A dynamic theory of organisational knowledge creation, Organisation Science, 5(1), pp. 14-37.
[40] Pemberton, J.D., and Stonehouse, G.H., 2000, Organisational learning and knowledge assets, The Learning Organization, 7(4), pp. 184-93.
[41] Pfeffer, J., and Salancik, G., (1978). The External Control of Organizations: A Resource Dependence Perspective, New York: Harper & Row.
[42] Polanyi, M., 1962, Tacit knowing, Review of Modern Physics, 34, pp. 601-661.
[43] Reed, R., and DeFillippi, R.J., 1990, Causal Ambiguity, barriers to imitation, and sustainable competitive advantage, Academy of Management Review, 15(1), pp. 88-102.
[44] Robinson, H.S., Carrillo, P.M., Anumba, C.J., and Bouchlaghem, M.N., 2004, Investigating Current Practices, Participation and Opportunities in Private Finance Initiative, Loughborough University, Leicestershire.
[45] Sa´enz, J., Aramburu, N., and Rivera, O., 2009, Knowledge sharing and innovation performance; a comparison between high-tech and low-tech companies, Journal of Intellectual Capital, 10(1), pp. 22–36.
[46] Scott, R., 1995, Institutions and organizations, Thousand Oaks, CA: Sage.
[47] Seidler-de Alwis, R., and Hartmann, E., 2008, The use of tacit knowledge within innovative companies: knowledge management in innovative enterprises, Journal of Knowledge Management, 12(1), pp. 133-147.
[48] Simonin, B.L., 2004, An empirical investigation of the process of knowledge transfer in international strategic alliances, Journal of International Business Studies, 35, pp. 407–427.
[49] Simonin, B.L., 1999, Ambiguity and the process of knowledge transfer in strategic alliances, Strategic Managment Journal, 20(7), pp. 595-623.
[50] Soberg, P.V., 2012, Activity specific knowledge characteristics in the internationalization process, Baltic Journal of Management, 7(3), pp. 251-267.
[51] Stryker, S., and Statham, A., (1985). Symbolic interaction and role theory, In G. Lindzay & E. Aronson (Eds.), Handbook of social psychology (3rd ed.), 1, pp. 311-378. New York: Random House.
[52] Sveiby, K., 2001, A knowledge-based theory of the firm to guide in strategy formulation, Journal of Intellectual Capital, 2(4), pp. 344-350.
[53] Szulanski, G., Capetta, R., and Jensen, R.J., 2004, When and how trustworthiness matters: knowledge transfer and the moderating effect of causal ambiguity, Organization Science, 15(5), pp. 600–613.
[54] Thompson, J., (1967). Organizations in action, New York: McGraw-Hill.
[55] Thorndike, E.L., (1906). Principles of teaching, New York, Mason Henry.
[56] Tsai, W., 2001, Knowledge transfer in intra-organizational networks: effects of network position and absorptive capacity on business unit innovation and performance, Academy of Management Journal, 44(5), pp. 996–1004.
[57] Tuan, L.T., 2012, Behind knowledge transfer, Management Decision, 50(3), pp. 459-478.
[58] Wijk, R., Jansen, J.J.P., and Lyles, M.A., 2008, Inter- and Intra-organizational knowledge transfer: A meta-analytic review and assessment of its antecedents and consequences, Journal of Management Studies, 45(4), pp. 677-690.
[59] Zander, U., and Kogut, B., 1995, Knowledge and the speed of the transfer and imitation of organisational capabilities: An empirical test, Organisation Science, 6(1), pp. 79-92.
[60] Zahra, S.A., Ireland, R.D., and Hitt, M.A., 2000, International expansion by new venture firms: international diversity, mode of market entry, technological learning, and performance, Academy of Management Journal, 43(5), pp. 925–950.