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Working Paper Series No. 2012/ 21

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Abstract

This study aims to explore some key factors that affect the transfer of knowledge from business schools to business organizations through in-service training students. A model incorporating three major antecedents of knowledge transfer—students' intrinsic motivation for knowledge transfer, the knowledge and skills that students acquire from business schools (acquired knowledge), and the innovative culture of business organizations—is developed. The model was tested with a sample of 843 in-service training students by means of structural equation modeling. The results show that intrinsic motivation and acquired knowledge are determinants of knowledge transfer. Innovative culture enhances intrinsic motivation and acquired knowledge but does not directly improve knowledge transfer. Further, intrinsic motivation for knowledge transfer underlies the knowledge and skills acquired by students from business schools. Finally, competitive value positively moderates the relationship between students' intrinsic motivation for knowledge transfer and the transfer of knowledge from business schools to business organizations.

Key words

Knowledge transfer, innovative culture, intrinsic motivation

Introduction

Knowledge transfer is an area that has received attention by researchers in the past several years (e.g., Brivot 2011; Kane 2010; Ko et al. 2005; Tang 2011). There are several perspectives on knowledge transfer. For example, Tang (2011) examines knowledge transfer within intra-organization networks. Nguyen et al. (2006), based on Nonaka's (1994) internalization mode of knowledge conversion, explore the sharing of knowledge among employees working in different departments of an organization. Hau and Evangelista (2007) study knowledge transfer within international joint-ventures. Ko et al. (2005) examine knowledge transfer between firms and their consultants.

Another mode of knowledge transfer is the transfer of knowledge within universities and between universities and business organizations. For example, Nemanich et al. (2009) and Nguyen and Nguyen (2010), based on Bigg's (1999) 3Ps model (Pressage–Process–Product) examine factors affecting knowledge transfer between professors and students. Harrington and Kearny (2011) study the transfer of knowledge between universities and firms by means of research collaboration between academics and practitioners. Bekkersa et al. (2008) study the transfer of knowledge between universities and firms through research sponsorships and consultancies. However, to the best of our knowledge, the transfer of knowledge from universities to firms through in-service training students remain underexplored.

The transfer of knowledge from business schools to business organizations relates to three main parties: business schools, business organizations and business students. This study examines three main factors affecting knowledge transfer from business schools to business organizations through in-service training students, i.e., knowledge and skills acquired by students when studying in business schools, students' intrinsic motivation for transferring knowledge, and innovative culture of firms. In addition, the study also investigates the moderating effect of competitive value on the impact of intrinsic motivation on knowledge transfer. The rest of the paper is organized around four key points: literature review and hypotheses, research methods, data analysis and results, conclusions and implications.

Literature review and hypotheses

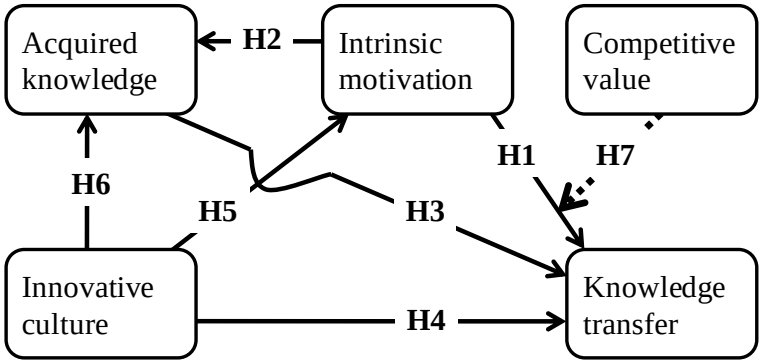
Conceptual model

Figure 1 depicts the theoretical model. In this model, students' intrinsic motivation for knowledge transfer, the knowledge and skills that students acquire from business schools (in short, acquired knowledge), and the innovative culture of business organizations are three main factors affecting the transfer of knowledge from business schools to business organizations through in-service training students. The model also proposes that the value of competition believed by employees moderates the relationship between intrinsic motivation and knowledge transfer.

Knowledge and knowledge transfer

Knowledge can be defined as personal justified belief that enhances the capability of an individual effective actions (Alavi and Leidner 2001; Huber 1991, Nonaka 1994). Knowledge can be explicit or implicit. Explicit knowledge is codified and can easily be transferred from entities to entities whereas implicit knowledge has personal quality which is difficult to be transmitted (Nonaka 1994).

Figure 1. Conceptual model



Knowledge transfer is a common concept that has attracted the attention of academics and practitioners over many years. There are several perspectives on knowledge transfer (Ko et al. 2005). Some researchers posit that knowledge transfer is the sharing of knowledge among participating members (e.g., Huber 1991). Others believe that knowledge transfer occurs whenever there are a source and a recipient and knowledge transfer is a process of transmitting knowledge from the source to the recipient, i.e., the source and recipient model of knowledge transfer. The recipient acquires and uses the transferred knowledge (Ko et al. 2005).

This study refers knowledge transfer based on the source and recipient model. Knowledge transfer takes place between a source (the business school) and a recipient (the business organization). However, there is a mediator of this process, that is, the in-service training student. In-service training students are students who are working in firms and, at the same time, are studying at business schools. During their study, students acquire knowledge and skills from their business schools. Then, students, while working for firms, apply the knowledge and skills obtained to their day-to-day operations in firms. The effectiveness of this type of knowledge transfer may be attributed to the knowledge and skills that students acquire from their business schools, their motivation to apply these knowledge and skills to their jobs to enhance their performance; and, the innovative culture of firms they are working with.

Intrinsic motivation to knowledge transfer

Motivation is used "to explain what gets people going, keeps them going, and helps them finish tasks" (Pintrich, 2003, 104). Motivation assists people in establishing and enhancing the quality of cognitive engagement, leading to success (Blumenfeld et al. 2006). Employee motivation can be extrinsic or intrinsic. Extrinsic motivation relates to "the motivation to work primarily in response to something apart from the work itself" whereas intrinsic motivation is "the motivation to engage in work primarily for its own sake, because the work itself is interesting, engaging, or in some way satisfying" (Amabile et al. 1994, 950). This study focuses on the intrinsic motivation of in-service training students for transferring knowledge and skills gained from business schools to business organizations.

Knowledge transfer when the source and recipient are intrinsically motivated (Ko et al. 2001). In the context of knowledge transfer from business schools to business organizations through in-service training students, students are the source as well as the recipient. Thus, high intrinsic motivated in-service training students is more likely to apply the knowledge and skills acquired from business schools to their work. Thus,

H1: *There is a positive relationship between intrinsic motivation and knowledge transfer.*

Acquired knowledge

During their study time, in-service training students obtain knowledge and skills from their business schools. This is a process of transferring knowledge from business schools to students. The effectiveness of process reflects in the knowledge and skills acquired by students. Several factors may contribute to the level of knowledge and skills acquired such as teaching staff's capability, students' absorptive capacity and motivation. This study focuses on students' motivation, specifically, the intrinsic motivation of students to transfer knowledge to their firms. Students with high intrinsic motivation tend to recognize and evaluate knowledge and skills provided by their business schools for application to their current jobs. Thus, they are likely to invest more on the acquisition of knowledge and skills during their study in business schools.

The perception of students on the knowledge and skills they acquire is important for the effectiveness of knowledge transfer by business schools (Ginns et al. 2007). When students perceive that their business schools provide them with knowledge and skills useful for and relevant to their current jobs, they are likely to apply these acquired knowledge and skills to their jobs because this is a main objective that stimulate them to go to business schools. Thus, the knowledge and skills acquired from business schools are an antecedent of knowledge transfer.

H2: *There is a positive relationship between intrinsic motivation and acquired knowledge.*

H3: *There is a positive relationship between acquired knowledge and knowledge transfer.*

Innovative culture

The business environment in today's flat world, apart from opportunities, always contains risks, uncertainties and fluctuations. These challenges require business organizations to be innovative and creative for survival and development, and a firm's innovative culture plays a key role to accomplish this task (Hurley and Hult 1998; Skerlavaj et al. 2010). Therefore, establishing and nurturing an innovative culture within the firm is essential for competitiveness. Innovative culture helps promote innovative capacity of all members in the firm (O'Cass and Ngo 2007; Skerlavaj et al. 2010). In this study, innovative culture refers to the perception of employees regarding innovative culture of the firm they are working for. When in-service training students believe that there is an innovative culture within their firm, they believe that the firm supports new knowledge and ideas, giving rise to their application of new knowledge and skills acquired from business schools to their job. Therefore, innovative culture stimulates the transfer of knowledge and the motivation to transfer. An innovative culture also stimulates students to acquire more knowledge and skills from universities because it emphasizes innovation and cultivates capabilities of members in an organization to adopt new ideas, processes, or new ways of performing tasks (O'cass and Ngo 2007).

H4: *There is a positive relationship between innovative culture and knowledge transfer.*

H5: *There is a positive relationship between innovative culture and intrinsic motivation.*

H6: *There is a positive relationship between innovative culture and acquired knowledge.*

The moderating effect of competitive value

This study also aims to examine the moderating role of competitive value in the relationship between intrinsic motivation and knowledge transfer. Employees believe in the value of competition differently (Chen et al. 1999). In this study, competitive value reflects the attitude of employees towards the reward, recognition, and promotion of a firm based on the results of work. When employees highly respect the value of competition, they tend to make themselves different from others through the results of the application of new knowledge and skills in their

work. As such, with the same level of intrinsic motivation for knowledge transfer, students who highly believe in the value of competition, will be more focused on the application of knowledge and skills gained from business schools to their work. As a result, the transfer of knowledge is improved. In other words, competitive value positively moderates the relationship between intrinsic motivation and knowledge transfer. Thus,

H7: *The impact of intrinsic motivation on knowledge transfer will increase when competitive value increases.*

Research methods

Research process

This study comprised two phases: a pilot study and a main survey. The pilot study included a qualitative study and a quantitative survey. Respondents were in-service training business students in the University of Economics, HCM City and the University of Economics and Law, Vietnam National University, HCM City.

The pilot qualitative study was undertaken using in-depth interviews with 12 in-service training students in the University of Economics, HCM City. Theoretical sampling (Coyne 1997) was employed in this study with a saturated point was 12. The purpose of this study was to modify the measures of the constructs in the model. The quantitative pilot study was undertaken by using face-to-face interviews with 129 in-service training students at the University of Economics, HCM City to refine the scales. Cronbach's alpha reliability and exploratory factor analysis (EFA) were used to preliminarily assess the scales. The main survey was also undertaken by using face-to-face interviews. A convenience sample of 843 students at the University of Economics, HCM City and the University of Economics and Law, Vietnam National University, HCM City. was interviewed in this survey. The purpose of this main survey was to validate the measures and to test the structural model. Confirmatory factor analysis (CFA) was utilized to assess the measures and structural equation modeling (SEM) were employed to test the theoretical model and hypotheses.

Measurement

Five unidimensional constructs were investigated: knowledge transfer, intrinsic motivation, acquired knowledge, innovative culture, and competitive value. Knowledge transfer was measured by four items, adapted from Ko et al. (1995). Intrinsic motivation were also measured by four items borrowed from Amabile et al. (1994). Acquired knowledge and skills (in short, acquired knowledge) was measured by six items from the Generic Skills Scale in the Course Experience Questionnaire (Wilson et al. 1997). Innovative culture was measured by eight items borrowed from O'Cass and Ngo (2009). Finally, competitive value was measured by four items adapted from Chen et al. (1999). All items were measured by a 7-point Likert scaling, anchored by 1: strongly disagree and 7: strongly agree.

Measurement refinement

As previously mentioned, the measures were refined via Cronbach's alpha reliability and EFA, using the data collected from 129 in-service training students in the pilot study. The results showed that all scales satisfied the requirement for Cronbach's alpha reliability. Specifically, Cronbach's alphas of the scales measuring knowledge transfer, intrinsic motivation, acquired knowledge, innovative culture, and competitive value were .87, .87, .88, .82, and .89, respectively. Note that there was one item measuring innovative culture (My firm delegates

decision making to the lowest possible level) was deleted due to its low item-total correlation (.23).

EFA (principal components with varimax rotation) extracted five factors from the items measuring five constructs in the model with 60.09 percent of variance extracted at an eigen-value of 1.21. In addition, all factor loadings were high (≥ .56). In sum, the results of the preliminary assessment indicated that all the scales used in this study satisfied the requirements for reliability and validity. Thus, these measures were used in the main survey.

Sample Characteristics

The sample included 843 in-service training business students. In terms of gender, there were 496 (64.8%) female and 296 (35.1%) male students. In terms of firm size, there were 428 (50.8%) students working for firms which had less than 100 employees and 415 (49.2%) students working for firms which had from 100 or more employees. In terms of firm ownership, there were 607 (72%) students working for local firms and 236 (27%) students working for international joint-venture companies.

Data analysis and results

CFA was used to validate the measures and, then, SEM followed to test the theoretical model and hypotheses. The screening process showed that the data exhibited slight deviations from normality, however, most of the univariate kurtoses and skewnesses were within the range of [-1, 1]. Consequently, maximum likelihood estimation was used (Muthen and Kaplan 1985).

Measurement validation

The model comprised five constructs: knowledge transfer, intrinsic motivation, acquired knowledge, innovative culture, and competitive value. The scales measuring these constructs were refined via Cronbach's alpha reliability and EFA using the data set collected from 129 in-service training students in the pilot study. These scales were then assessed via CFA using the data set collected from 843 in-service training students in the main survey. The saturated model (final measurement model) received an acceptable fit to the data: $\chi^2_{[265]} = 994.49$ (p = .000); GFI = .912; CFI = .921; and RMSEA = .057. The factor loadings of all items measuring all the constructs in the model were high (≥ .54) and significant (p <.001). These findings indicate that the scales measuring these constructs were unidimensional and the within-method convergent validity was achieved. Table 1 presents the CFA factor loadings of items, composite reliability and average variance extracted of the scales. The correlations between constructs, together with their standard errors (Table 2), indicate that they were significantly different from unity, thus, supporting the construct discriminant validity (Steenkamp and van Trijp 1991).

Structural Results

SEM was used to test the theoretical model and hypotheses. The proposed model received an acceptable fit to the data: $\chi^2_{[202]} = 803.49$ (p = .000); GFI = .919; CFI = .921; and RMSEA = .060. In this model, the moderator (competitive value), based on Cortina et al. (2001), was incorporated in the theoretical model. Competitive value was hypothesized as a pure moderator, i.e., it only moderated the relationship between intrinsic motivation and knowledge transfer (Sharma et al. 1981). The procedure for testing the moderating effect was as follows.

Table 1. Standardized CFA loadings

Item	Mean	Std Dev	CFA loading	t-stat
Knowledge transfer: $\rho_c = .83$; $\rho_{vc} = .55$				
I acquire a lot of knowledge and skills needed for my current job	5.27	1.187	0.72	-
I acquire a lot of knowledge and skills applicable for my current job	5.04	1.245	0.79	20.74
I acquire a lot of knowledge and skills that helps me to enhance my job performance	4.94	1.291	0.81	21.25
I have effectively applied my knowledge and skills gained from business school to my current job	4.81	1.210	0.66	17.52
Intrinsic motivation: $\rho_c = .81$; $\rho_{vc} = .53$				
I enjoy applying the knowledge and skills learned from my business school to my current job	4.99	1.279	0.76	-
I am interested in my effective application of knowledge and skills acquired from my school to my current job	5.10	1.264	0.85	22.61
I feel that I am personally benefitting from applying the knowledge and skills acquired from my business schools to my job	5.27	1.174	0.68	18.67
I am more comfortable when I can apply the knowledge and skills acquired from my business school to my job	5.18	1.295	0.60	16.29
Acquired knowledge: $\rho_c = 87$; $\rho_{vc} = .52$				
The business degree course has developed my problem-solving skills	5.16	1.227	0.74	-
The business degree course has sharpened my analytic skills	5.35	1.098	0.74	20.32
The business degree course has helped me develop my ability to work as a team member	5.29	1.269	0.66	18.22
As a result of my business degree course, I feel confident about tackling unfamiliar problems	5.14	1.232	0.74	20.47
The business degree course has improved my skills in communication	5.26	1.262	0.72	20.03
My business degree course has helped me to develop the ability to plan my own work	5.35	1.242	0.73	20.13
Innovative culture: $\rho_c = .84$; $\rho_{vc} = .44$				
My firm always encourages creativity and innovation	5.67	1.099	0.71	16.64
My firm is always receptive to new ways of doing things	5.24	1.312	0.73	16.86
My firm always stresses teamwork among all departments	5.34	1.251	0.63	-
My firm always allows employees to adopt their own approach to the job	4.89	1.449	0.54	13.44
My firm always takes long-term view even at expense of short-term performance	4.85	1.363	0.67	16.02
My firm communicates how each employee's work contributes to the firm's big picture	5.44	1.238	0.70	16.63
My firm valuates effectiveness more than adherence to rules and procedures	5.27	1.398	0.64	15.58
Competitive value: $\rho_c = .84$; $\rho_{vc} = .58$				
It is possible to rank people against each other according to how much they contribute	5.89	1.086	0.604	-
Ranking is a good means to provide feedback	5.65	1.114	0.852	17.86
Ranking is good for productivity	5.60	1.158	0.799	17.34
Ranking ensures that people are rewarded proportional to their contributions	5.83	1.097	0.763	16.86

Table 2. Correlations between constructs

Correlation	Estimate (r)	Std Err	1-r	t(1-r)
Innovative culture ↔ Intrinsic motivation	0.24	0.043	0.76	17.55
Acquired knowledge ↔ Intrinsic motivation	0.51	0.049	0.49	10.04
Innovative culture ↔ Acquired knowledge	0.34	0.046	0.66	14.50
Innovative culture ↔ Competitive value	0.45	0.052	0.55	10.71
Knowledge transfer ↔ Competitive value	0.17	0.042	0.83	19.72
Knowledge transfer ↔ Intrinsic motivation	0.69	0.057	0.31	5.42
Knowledge transfer ↔ Acquired knowledge	0.64	0.054	0.36	6.70
Intrinsic motivation ↔ Competitive value	0.16	0.042	0.84	19.99
Acquired knowledge ↔ Competitive value	0.28	0.044	0.72	16.37
Knowledge transfer ↔ Innovative culture	0.28	0.044	0.72	16.32

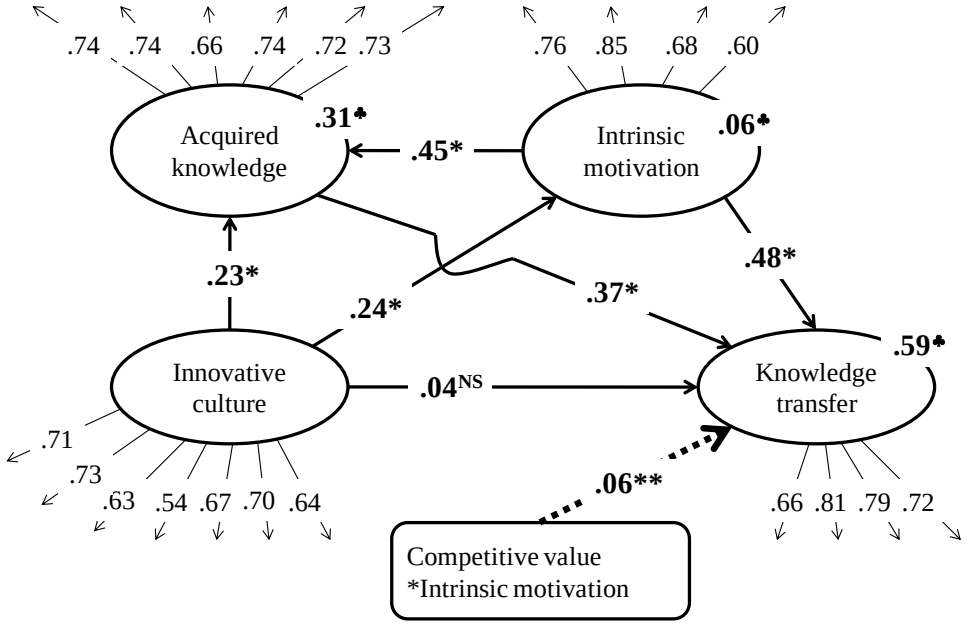
Following Ping (1995), we used one indicator for the interaction between intrinsic motivation and competitive value. Intrinsic motivation and competitive value were unidimensional constructs, therefore, summates (the sum of all items measuring each construct) were used (Gerbing and Anderson 1988) for calculating the interaction between intrinsic motivation and competitive value (intrinsic motivation*competitive value). To avoid multicolinearity, mean-deviated variables were used for the interaction (Cronbach 1987). Note that no improper solution was found in any model: Heywood cases were absent; all error-term variances were significant; and, all standardized residuals were less than |2.58|. Table 2 shows the unstandardized estimates of the structural paths and Figure 2 presents the standardized ones.

Hypothesis Testing

Consistent with H1, a positive relationship between intrinsic motivation and knowledge transfer was found (β =.48, p <.001). H2 proposed a positive relationship between intrinsic motivation and acquired knowledge. The estimated structural path between these two constructs was also significant (β =.45, p <.001), supporting H2. H3 proposed a positive relationship between acquired knowledge and knowledge transfer. The results revealed that this hypothesis also received support from the data (β =.37, p <.001). A positive relationship between innovative culture and knowledge transfer was proposed in H4. The estimated structural path between these two constructs was not significant (γ = .04, p >.05). Therefore, H4 was rejected. The relationship between innovative culture and intrinsic motivation suggested in H5 was found significant (γ =.24, p <.001). The relationship between innovative culture and acquired knowledge proposed in H6 was also significant (γ = .23, p <.001). Finally, consistent with H7, the moderating effect of competitive value on the relationships between intrinsic motivation and knowledge transfer was also supported (γ =.06, p <.05).

The results also indicate that innovative culture was a key factor predicting knowledge transfer (γ_{total} =.652, Table 4) from business schools to business organizations through in-service training students. The second important factor was acquired knowledge (γ_{total} = .371, Table 4). Intrinsic motivation, acquired knowledge, innovative culture explained 59 percent of the variance of knowledge transfer from business schools to business organizations (Figure 2).

Figure 2. Standardized SEM results



$\chi^2_{(202)}$ = 803.49 (p = .000); GFI = .919; CFI = .921; RMSEA = .060
*p < .001; **p < .05, ^{NS}p > .05; ♣Squared multiple correlation

Table 3. Unstandardized structural paths

Hypothesis	Structural path	Estimate	Std Err	t-stat	p-value
H1	Intrinsic motivation → Knowledge transfer	0.426	0.039	10.99	0.000
H3	Acquired knowledge → Knowledge transfer	0.378	0.044	8.66	0.000
H3	Intrinsic motivation → Acquired knowledge	0.392	0.037	10.46	0.000
H4	Innovative culture → Knowledge transfer	0.038	0.036	1.07	0.283
H5	Innovative culture → Intrinsic motivation	0.299	0.050	5.94	0.000
H6	Innovative culture → Acquired knowledge	0.245	0.041	5.91	0.000
H7	Competitive value*Intrinsic motivation → Knowledge transfer	0.004	0.002	2.14	0.032

Table 4. Direct, indirect and total effects on knowledge transfer

Construct	Effect	*Innovative culture*	*Intrinsic motivation*	*Acquired knowledge*
Intrinsic motivation	Direct	0.245	-	-
	Indirect	0.000	-	-
	Total	0.245	-	-
Acquired knowledge	Direct	0.232	0.453	-
	Indirect	0.111	0.000	-
	Total	0.343	0.453	-
Knowledge transfer	Direct	0.036	0.484	0.371
	Indirect	0.246	0.168	0.000
	Total	0.282	0.652	0.371

Conclusions and implications

The purpose of this study is to examine the roles of intrinsic motivation, acquired knowledge and innovative culture on knowledge transfer from business schools to business organizations through in-service training students. It also investigates the moderating effect of competitive value on the relationship between intrinsic motivation and knowledge transfer. Using a sample of 843 in-service training business students, we find that intrinsic motivation and acquired knowledge are determinants of knowledge transfer. Innovative culture enhances intrinsic motivation and acquired knowledge but does not directly improve knowledge transfer. Further, intrinsic motivation for knowledge transfer improves the knowledge and skills acquired by in-service training students. Finally, competitive value positively moderates the impact of intrinsic motivation on knowledge transfer between business students and business organizations via in-service training students. The results of this study offer a number of implications for theory and practice.

Theoretically, this study fills a gap in knowledge transfer: the transfer of knowledge between universities and firms through in-service training students. The results of this study help clarify the role of in-service training students as a channel of knowledge transfer between universities and firms (Harrington and Kearny 2011).

In practice, the results of this study assist the parties involved, directly or indirectly, in the transfer of knowledge (in-service training students, universities and firms) in understanding their roles in the knowledge transfer process. First, knowledge can be transferred from universities to firms through in-service training students. Thus, a firm should encourage its employees who still are students at universities to apply their knowledge and skills gained from universities to their work by establishing an innovative culture within the firm. Innovative culture not only stimulates the firm's employees to transfer knowledge but also motivates them to invest properly in the acquisition of knowledge and skills from universities. Innovative culture also enhance the intrinsic motivation of in-service training students to transfer knowledge to the firm.

The results of this study also alert universities to recognize its central role in knowledge transfer. Knowledge and skills acquired by in-service training students play an important role in knowledge transfer. Therefore, universities should understand to need of this type of students, i.e., in-service training students, in order to be able to design appropriate programs for them. Programs that focus on problem solving such as living case studies, in which students have opportunities to identify and analyze problems in their business may be appropriate for in-service training students.

In conclusion, the transfer of knowledge from universities into business organizations through in-service training students is a form of knowledge transfer in which students is the focus. In transition economies like Vietnam, the economy has just been transformed from a centrally planned economy to a market-oriented economy, making the demand of business schools is very high. There are several employees who are willing to go back to universities when working for firms. Those students have opportunities to transfer their knowledge and skills acquired from universities to firms. The results of this study will help participating partners (universities, firms and in-service training students) to recognize key factors that enhance the transfer of knowledge from universities to business organizations in order to have appropriate strategies and policies to nurture and develop them.

Limitations and future research directions

This study has several limitations. First, the theoretical model was tested only with in-service training business students at two universities of economics in Ho Chi Minh City. In-service training students in other regions of the country may have different attitudes toward knowledge transfer. Moreover, this study only examines undergraduates, who may be different with graduate students. Therefore, future research should test the model with different types of in-service training students and in different cities in Vietnam in order to enhance its generalizability. Second, this study only examines three key antecedents of the transfer of knowledge from business schools to business organizations. There may be several other factors contributing to this mode of knowledge transfer such as psychological capital of students (Luthans et al. 2007), teaching capability of professors (Biggs 1999); organizational learning (Argyris 1992), etc. This is another direction for future research.

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