Cross-Cultural Perspectives of Knowledge Sharing for Different Virtual Classroom Environments: A Case Study of Thai Students in Thai and Australian Universities

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ABSTRACT

Collaborative learning has been accepted as an effective learning style that can enhance students' and instructors' ability to create knowledge and develop understanding. The sharing of knowledge and experience through collaborative learning can be enhanced by use of information communication technologies (ICT). There are a number of ways in which culture influences the use of these information technologies. Among the cultural characteristics, which can be viewed as the factors that influence knowledge sharing in a virtual classroom, are power distance, uncertainty avoidance, and individualism/ collectivism.

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The main purpose of this study was to investigate how differences in cultural values affect the way Thai students in both Thailand and Australia access and share knowledge in a virtual classroom. According to Hofstede (2001), the culture of Thais and Australians is different in the degree of power distance, uncertainty avoidance, and individualism/collectivism. Thais are likely, for example, to exhibit high power distance, high uncertainty avoidance, and collectivism while Australians exhibit low power distance, low uncertainty avoidance, and individualism.

A quantitative method using t-test and Multiple Regression analysis was chosen to test the research hypotheses that Thai students in Thai universities have greater difficulty in knowledge sharing than Thai students in Australian universities. A questionnaire survey designed to identify cultural differences was administrated to 100 students in Thai universities and 100 students in Australian universities who used ICT for sharing knowledge in their virtual classroom. The research found that power distance and uncertainty avoidance were two cultural aspects that significantly inhibited knowledge sharing in these universities. On the other hand, collectivist culture could promote Thai students' knowledge sharing both in Thai and Australian universities. The research outcome of the study can assist project managers and teachers in implementing effective open-wide knowledge exchange systems by taking into account cultural differences. This can enhance the learning process as well as provide effective assessment tasks.

Keywords: *Cross Culture, Knowledge Sharing, Virtual classroom, Knowledge Management*

ลักษณะการข้ามวัฒนธรรมในการแลกเปลี่ยนเรียนรู้ของห้องเรียนเสมือนที่มีสภาพแวดล้อมแตกต่างกัน : กรณีศึกษานักเรียนไทยในมหาวิทยาลัยไทยและมหาวิทยาลัยออสเตรเลีย

นลินี ทองประเสริฐ

บทคัดย่อ

การใช้เทคโนโลยีสารสนเทศสนับสนุนการเรียนรู้ในรูปแบบของความร่วมมือระหว่างผู้เรียนด้วยกันและกับผู้สอนในห้องเรียนเสมือนได้รับการยอมรับว่าเป็นวิธีการเรียนที่มีประสิทธิภาพที่ส่งเสริมให้ผู้เรียนสามารถแลกเปลี่ยนเรียนรู้ ตลอดจนสร้างองค์ความรู้ใหม่ ๆ การแลกเปลี่ยนเรียนรู้ในห้องเรียนเสมือนจะมีประสิทธิภาพหรือไม่ขึ้นอยู่กับปัจจัยหลายประการ ปัจจัยหนึ่งที่ได้รับการยอมรับว่ามีอิทธิพลต่อการเรียนการสอนรูปแบบนี้ ได้แก่ปัจจัยทางวัฒนธรรมได้แก่ความเหลื่อมล้ำของอำนาจ การหลีกเลี่ยงความไม่แน่นอน และความเป็นปัจเจกนิยม/กลุ่มนิยม

ความแตกต่างทางวัฒนธรรมของสังคมไทยและสังคมออสเตรเลียจึงเป็นประเด็นในการศึกษา โดยอ้างอิงถึงผลการศึกษาของ Hofstede ที่ว่าระดับของความเหลื่อมล้ำของอำนาจ การหลีกเลี่ยงความไม่แน่นอน และความเป็นกลุ่มนิยม ของสังคมไทยมีมากกว่าสังคมออสเตรเลีย การวิจัยเชิงปริมาณโดยการทดสอบความแตกต่างระหว่างค่าเฉลี่ยสองกลุ่ม และการวิเคราะห์ความถดถอยเชิงพหุ เพื่อทดสอบ สมมติฐานการวิจัยที่ว่า ปัจจัยทางวัฒนธรรมเหล่านี้มีอิทธิพลและเป็นอุปสรรคต่อการแลกเปลี่ยนเรียนรู้ของนักเรียนไทยที่ศึกษาในมหาวิทยาลัยไทย มากกว่านักเรียนไทยที่ศึกษาในมหาวิทยาลัยออสเตรเลีย โดยใช้แบบสอบถามกับกลุ่มตัวอย่างประเทศละ 100 คน ผลการวิจัยพบว่า ความเหลื่อมล้ำของอำนาจ การหลีกเลี่ยงความไม่แน่นอน เป็นอุปสรรคต่อการแลกเปลี่ยนเรียนรู้ในห้องเรียนเสมือนของนักเรียนไทยทั้งสองกลุ่ม ขณะที่ความเป็นกลุ่มนิยม เป็นวัฒนธรรมที่ส่งเสริมประสิทธิภาพการแลกเปลี่ยนเรียนรู้ของนักเรียนไทยทั้งในมหาวิทยาลัยไทยและออสเตรเลีย ซึ่งผลของการศึกษาดังกล่าวสามารถนำมาพัฒนากระบวนการเรียนการสอนแบบห้องเรียนเสมือนให้เหมาะสมกับสภาพแวดล้อมในแต่ละประเทศให้มีประสิทธิภาพยิ่งขึ้น

คำสำคัญ : *การข้ามวัฒนธรรม การเลกเปลี่ยนเรียนรู้ ห้องเรียนเสมือน การจัดการความรู้*

INTRODUCTION

In recent years, advances in multimedia computing networks and the Internet have brought about an educational revolution. The goal is to enable teaching and learning anytime and anywhere. Many universities try to overcome the restriction of using a physical classroom by conducting classes in a non-physical environment, which is referred to as the "virtual classroom." A virtual classroom is a learning environment that exists solely in the form of digital content that is stored, accessed, and exchanged through networked computer and information systems.

The virtual classroom can support the preparation and authoring of teaching materials, to effectively prepare teaching activities and students learning activities. Although the virtual classroom is positioned as a key source of effective learning, there is a question which has kept educational and psychology theorists pondering for decades.
The question is "Are cultural characteristics critical barriers to knowledge sharing behavior in a virtual classroom environment?"

These cultural characteristics, which can be viewed as the influencing factors on knowledge sharing behavior in a virtual classroom, include power distance, uncertainty avoidance, and individualism/collectivism. These three dimensions of cultural variability emerged from Hofstede (1991, 2001) in his study of 50 organizational life spanning countries and are defined in Table 1. Burn and Thongprasert (2005) investigated how these characteristics influence the quality and productivity of Thai students' online learning. Their research found that high power distance and high uncertainty avoidance were significant obstacles, while collectivism was a facilitator. According to Hofstede (2001), Thais and Australians are different in the degree of power distance, uncertainty avoidance. and individualism/collectivism. Thais are likely to exhibit high power distance, high uncertainty avoidance, and collectivism, while Australians exhibit low power distance, low uncertainty avoidance, and individualism.

Table 1: Meaning of Hofstede's cultural variables

Variable	Opposite	Meaning
Power Distance	N/A	A measure of the interpersonal power in society as perceived by the less powerful.
Uncertainty avoidance	N/A	A measure of uncertainty about the future that is perceived as threatening.
Collectivism	Individualism	A measure of the relationship between the individual and the collectivity.

Although the use of information communication technologies (ICT) within a virtual classroom is accepted to be the facilitator in knowledge sharing, the success of using these technologies is still ambiguous. Recent research indicates that knowledge sharing is profoundly influenced by the cultural values of students (Hambrick et al., 1998; Pfeffer & Sutton, 2000; Hofstede, 2001; Hutchings & Michailova, 2004). The cultural characteristics, power distance, uncertainty avoidance and collectivism, can be viewed as the critical factors that influence knowledge sharing behavior in a virtual classroom. In this study we compare Thai students studying in international programs in Thailand and in Australia in order to identify any differences between the cultural characteristics and the influence these characteristics have on the perceived knowledge sharing in a virtual classroom environment. The main emphasis of this study is to investigate whether the cultural values associated with power distance, uncertainty avoidance, and individualism/collectivism influence knowledge sharing behavior. In addition,

we explore how knowledge sharing for Thai students studying in a virtual classroom in Thailand and Australia differs as a consequence of differences in cultural values.
Therefore the study findings could be of special interest to project managers and teachers in implementing open-wide knowledge exchange systems and successful virtual classrooms.

RESEARCH OVERVIEW

This study focuses on the characteristics of power distance, uncertainty avoidance, and individualism/collectivism which may facilitate knowledge sharing behavior in a virtual classroom for Thai students in Thailand and Australia. According to Hofstede (2001), Thais are likely to exhibit high power distance, high uncertainty avoidance, and higher levels of collectivism compared to Australian students (Hofstede, 1991; Thanasankit, 1999). The research objective is to find out the possible cultural values that might affect knowledge sharing behavior in a virtual classroom for Thai students who study in international degree programs in Thai and Australian universities.

Research Questions

1. Is there a different attitude towards knowledge sharing for Thai students in Thai and Australian universities?
2. Do the cultural values associated with power distance, uncertainty avoidance, and collectivism significantly influence knowledge sharing behavior?
3. How do differences in cultural values affect the way in which Thai students in both countries access and share knowledge?

Research Methods

The study utilized a quantitative methodology. Following a review of the influence of culture in knowledge sharing, an exploratory study was conducted through a questionnaire survey. Two objectives were determined from the conceptual framework; First to explore whether there is a different knowledge sharing behaviors between Thai students in Thai universities and Australia universities; secondly, to test whether the three dimensions of culture power distance, uncertainty avoidance, and collectivism/individualism in each country affect knowledge sharing behavior through participation tools in a virtual classroom environment.

Population and Sample

The population included 440 Thai students that were taking visual classrooms in two international programs: 203 Engineering students at Chulalongkorn University and Business Administration students at Thammasat University; and 217 Thai students studying in three universities in Australia. A total of 200 students, selected by using a disproportionate stratified random sampling technique and resulting from 100 students from the international programs in two universities in Thailand and 100 Thai students from three universities in Australia, were employed as the sample of the study.

Data Collection

The questionnaire consisted of questions that assessed the three cultural dimensions (power distance, uncertainty avoidance, and individualism/collectivism) and six demographic questions (sex, age category, university/faculty, years of study, and time living in the country where they were studying). The questionnaire and consent letter were posted online and administrated to both respondent groups by email. There were respectively 85 and 70 questionnaires completed, providing a response rate of 77.5 %.

Measures

In this study, the questionnaire items were mainly adapted from previous studies and modified for use in the knowledge sharing context, focusing on three independent and one dependent variable. The three independent variables were cultural dimensions, power distance, uncertainty avoidance, and individualism/collectivism. The dependent variable was the degree of knowledge sharing behavior as measured by attitudes of the respondents. All variables were measured using 30 items and all items were measured using a five-point Likert-type scale (ranging from 1= strongly disagree to 5 = strongly agree).

RESEARCH OUTCOMES

In order to strengthen the quality of the research design, internal reliability was evaluated by assessing the internal consistency of 30 items representing each factor using Cronbach's alpha reliability coefficients. The Cronbach's alpha for the 30-item instrument was 0.81, exceeding the minimum standard of 0.70 suggested for basic research (Cavana et al., 2001). Construct validity was obtained through a thorough grounding of all questionnaire items within the existing literature (Creswell, 1994). Concerning the tolerance and variance inflation factor: as used to test discriminate validity.

Collinearity Diagnostics

Table 2 : Discriminate validity

Dependent variable	Collinearity Statistics	
	Tolerance	**VIF**
Power distance	.896	1.117
Uncertainty avoidance	.782	1.279
Collectivism	.866	1.154

The data in Table 2 showed low multi-collinearity (Tolerance > 0.2, VIF < 10). This implied that all variables are distinctly different concepts and not correlated with each other (Field, 2000). The participants' background is provided in Table 3. Participants were selected from 2 universities in Thailand which offer international programs and 3 universities in Australia.

Table 3: Characteristics of student participants (n=155)

Gender	**Percent**
Male	40.0
Female	60.0
Age	
18 – 24 years	89.00
25 – 34 years	11.00

Table 3: Characteristics of student participants (n=155) (Continued)

Faculty	**Percent**
Engineer	33.5
Business Administration	41.9
Social Science	3.9
Science	9.7
Information Technology	9.7
Education level	**Percent**
Undergraduate	93.5
First year	14.2
Second year	61.9
Third year	11.6
Fourth year	5.8
Graduate	6.5
Number of years living in Thailand	
>10 years	100
In **Australia**	
1-2 years	71.4
3-5 years	17.2
6-10 years	10.0
>10 years	1.4
No. of students separated by country	
Thai university	54.8
Australian university	45.2

RESULTS

A *t*-test of the mean scores for each variable was used to indicate if the knowledge sharing behavior is significantly different between Thai students in Thai universities and Australian universities. The results of the *t*-test are shown in table 4.

Table 4 : Descriptive statistics and result of t-test in knowledge sharing behavior and cultural factors between students in Thai universities and Australian universities

	Thai university (n=85)		**Australian university (n=70)**		**t**	**p**	**Mean Difference**
	Mean	**s**	**Mean**	**s**			
Knowledge sharing	3.25	.59	3.74	.57	-5.15	.00	-.48**
Power distance	2.97	.37	2.39	.44	.86	.00	.57**
Uncertainty avoidance	3.00	.37	2.86	.41	2.24	.02	.14*
Collectivism	3.22	.32	3.18	.28	0.87	.38	.04

** $p < 0.01$, * $p < 0.05$

The data in table 4 indicated that the knowledge sharing behavior of Thai students studying in Thai universities is lower than Thai students studying in Australian universities (3.25 and 3.74 respectively). The *t*-test confirms that the mean difference of -.48 is significant at the 95% confidence level. The mean of power distance and uncertainty avoidance of Thai students in Thai universities is higher than for Thai students in Australian universities, indicating that there is a higher power distance and uncertainty avoidance among Thai students in the Thai universities than in Australian universities. The *t*-test confirms a significant difference in the mean scores at the 95% confidence level.

Finally, the means of both groups are almost equal in collectivism and the result of the *t*-test shows that there is no significant difference between those that study in Thai universities and Australian universities.

Cultural Values That Influence Knowledge Sharing

Three cultural factors were tested to determine if they affected the way students in both countries accessed and shared knowledge. Multiple regression analysis was used to test the relationship between dependent and independent variables. The dependent variable was students' attitudes towards knowledge sharing and the independent variables were power distance, uncertainty avoidance, and collectivism. The analysis was divided into two sample groups; the first group was Thai students studying in Thai universities (n= 85) and the second group was Thai students studying in Australian universities (n=70). The results are shown Figure 1.

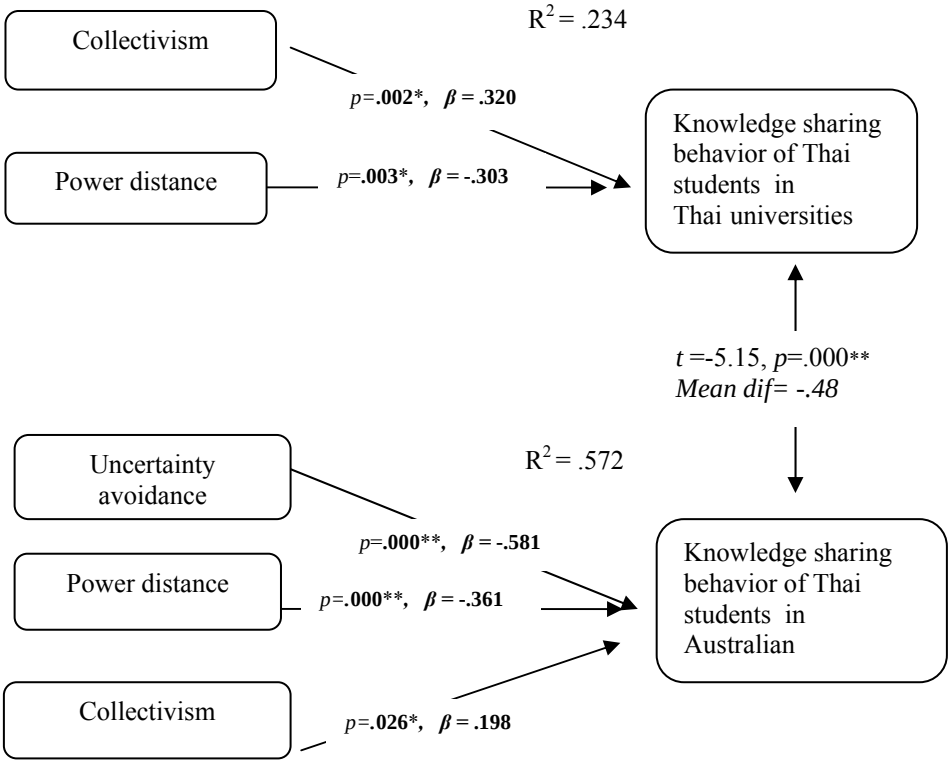

Figure 1: *Results of Regression Analysis – Knowledge sharing behavior*

Multiple regression analysis was undertaken to identify the relationship between the variables.

Thai Universities

It can be observed that 23.4 % of the variance in knowledge sharing behavior of Thai students in Thai universities accounts for two independent variables: power distance; and collectivism. For these two cultural factors, the highest beta (β) value is .320 for the collectivism, which is significant at the 95% confidence level (p=.002). The positive beta weight indicates that if knowledge sharing behavior is to be enhanced, increasing the collectivism of Thai students is necessary.

The second important variable is the power distance, with a beta (β) value of -.303, which is significant at the 95% confidence level. The negative beta of power distance indicates that if greater knowledge sharing behavior is needed, reducing the power distance of Thai students is necessary.

Australian Universities

The output in figure 1 indicates that three independent variables provided the best regression model. In this case 57.2 % of the variance in knowledge sharing behavior of Thai students in Australian universities accounts for three independent variables: power distance, uncertainty avoidance, and collectivism.

Examining the independent variables, the uncertainty avoidance is the most important in explaining the variance in knowledge sharing behavior, with a beta (β) value of -.581, which is significant at the 95% significance level (p=.000) The negative beta weight indicates that if knowledge sharing behavior is to be increased, reducing the uncertainty avoidance of Thai students is necessary. The second important variable is power distance, with

a beta (β) value of -.361, which is significantly at the .001 level. The negative beta of power distance indicates that if knowledge sharing behavior is to be increased, reducing the power distance of Thai students is necessary.

Finally, the positive beta weight of collectivism is .198, which is significant at the 95% confidence level, indicating that student working in group-based orientation can enhance students' access and knowledge sharing in their virtual class.

Factors That Influence Knowledge Sharing

Power distance

The results from this study show that power distance significantly impedes knowledge sharing behavior of Thai students both in Thai universities and Australian universities. This mode of evaluation suggests that lower power distance could enhance knowledge sharing of Thai students. This finding is confirmed by many researches (Rohitratana, 1998; Dimmock, 1998; Thanasankit, 1999; Hofstede, 2001). According to the data, students are more likely to respect the direction and control of instructors and therefore, it is not surprising that a teacher-centred approach is found to be more acceptable as the preferred learning style among Thai students (Mckena, 1995; Triandis 1996; Bhagat et al., 2002). The research finding shows that the power distance is strong for Thais studying in Australia, where the cultural aspects are different. However, the degree of power distance of Thai students in Thai universities is greater than that of those that are studying in Australian universities, and this might result in different knowledge sharing behavior.

Uncertainty avoidance

The results show that uncertainty avoidance significantly impedes knowledge sharing behavior of Thai students in Australian universities. This implies that Thai students in Australian universities, where the national culture is basically low uncertainty avoidance, did not adapt to the local learning environment due to cultural differences. Thai students are reluctant to cause any discomfort and tend to worry about losing face, so they prefer informal communication channels. The finding is similar to Bhagat et al.'s study of Chinese students. Similar to Thai students. Chinese students rely more on the communication media with high media-richness, such as face-to-face communication or phone calls rather than using low media-richness, such as e-mail or online discussion boards (Bhagat, 2002). Thai students are more likely to shy away from contributing to online community discussions because of worries about face, modesty, and the lack of language proficiency, which are major barriers to knowledge sharing. It should be noted that most of the students have spent only 1-2 years studying in an Australian university and have not yet adapted to the Australian culture.

Collectivism/Individualism

The positive beta weights for collectivism in both groups were high and were significant at the 95% confidence level. This suggests that Thai students in Thai universities and Australian universities were not different in relation to collectivism. The literature suggests that Australians are characterized as individualists (Hofstede, 1991). However, this study and other research shows that Thai students in Australia prefer to continue to work in groups rather than as individuals (Traindis, 1995; Burn & Thongprasert, 2005). They were more likely to maintain relationships among friends and to avoid disagreement with others. Many researchers have stated that collectivist cultures, where members tend to have a strong sense of in-group members and distrust of out-group members, could be a barrier to knowledge sharing (Chow,2000). However, it seems that, instead of being a barrier, the research indicates that the

collectivist culture could facilitate knowledge sharing. This supports the view that strategies for knowledge sharing in the virtual class should be developed following a cultural needs assessment.

CONCLUSION

The study suggests that methods of knowledge sharing, communication, and learning in the virtual classroom are profoundly influenced by the cultural values of students. Power distance is the first cultural aspect that significantly inhibits knowledge sharing in Thai universities and Australian universities. From the students‘ view, the attitudes toward hierarchy and rank could impact their intention to communicate and share what they know online. Students expect that their lecturers are higher in status and qualification, so according to them, they should be expert and know everything. Not surprisingly, they are more likely to accept a teacher-centred style as their learning style and are not comfortable asking questions or presenting their ideas. The second cultural value is uncertainty avoidance, which was found to be a significant impediment of students‘ knowledge sharing in Australian universities. This indicates that Thai students in Australia are less hesitant to post a comment or an answer to someone else‘s question on the discussion board.

Finally, the research found that collectivist culture could help Thai students to share their knowledge through online communication, both in Thai universities and Australian universities. This seems to be a strong cultural value that shapes students’ knowledge sharing patterns. Although knowledge sharing of Thais studying in Australian universities is influenced by power distance and uncertainty avoidance, their attitude toward participating in knowledge sharing through online communication tools is greater than Thais studying in Thai universities. This warrants further investigation. The results suggest that knowledge sharing strategies in the

online environment for Thai students in Thai and Australian universities should be tailored to the values and cultural preference of students in each country. Some suggestions are stated below:

1) The coping strategies that can be used to overcome problems are to motivate and encourage students to use collaborative ICT tools, such as e-mail and discussion boards, to enhance knowledge sharing and integrating the use of ICT in day-to-day work.

2) Thai students are more likely to learn by group-based orientation. Therefore, any assignments should be designed in group work rather than individual work.

3) Websites, online community, or web pages should be designed based on a cultural needs assessment and identification of culture-specific barriers to knowledge exchange.

4) Conducting training on acceptable online communication and flexible rules for posting questions and sharing knowledge or ideas should be adjusted to meet the local environment.

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