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**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. To enhance an effective collaboration learning environment needs the sharing of similar knowledge, background and experience through information communication technologies (ICT). There are a number of ways in which culture influences the use of these information technologies. The cultural characteristics, which can be viewed as the influencing factors on knowledge sharing in a virtual classroom, are power distance, uncertainty avoidance, individualism and collectivism.

The main purpose of this study was to investigate how the 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, the national culture between Thais and Australians are different in the degree of power distance, uncertainty avoidance and individualism/collectivism. Thais are likely to have high power distance, high uncertainty avoidance and collectivism while Australians have low power distance, low uncertainty avoidance and individualism.

A qualitative 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 findings of the study and recommendations will be outlined. The research outcome of the study can assist project managers in implementing effective open-wide knowledge exchange systems.

## **INTRODUCTION**

In recent years, advances in multimedia computing network and Internet techniques have brought about an education revolution, i.e. global teaching and learning, which means that teachers and students can conduct their teaching/learning activities anytime and anywhere so long as they have computers connected to the Internet. To enable global teaching and learning, a networked computer based education system has been proposed and is under development.

The virtual classroom is a system to support preparation and authoring of teaching materials, to effectively organize teaching activities, and to ease 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 some characteristics of culture and negative perceived value of computer-based information critical barriers to knowledge sharing behavior in a virtual classroom environment?’

The cultural characteristics, which can be viewed as the influencing factors on knowledge sharing behavior in a virtual classroom include power distance, uncertainty avoidance, 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. The 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 have high power distance, high uncertainty avoidance and collectivism while Australians have low power distance, low uncertainty avoidance and individualism.

<b>Variable</b>	<b>Opposite</b>	<b>Meaning</b>
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.

*Table 1: Meaning of Hofstede’s cultural variables*

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 this medium is still ambiguous. Recent research indicates that knowledge sharing is profoundly influenced by cultural values of students. (Hambrick, Davison et al. 1998); (Pfeffer and Sutton 2000); (Hofstede 2001); (Hutchings and Michailova 2004). The cultural characteristics, power distance, uncertainty avoidance and collectivism, can be viewed as the critical influencing factors on knowledge sharing behavior in a virtual classroom. In this study we compare Thai students studying international programs in Thailand and in Australia 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 how the Thais can adapt to a new culture to facilitate their knowledge sharing through synchronous and asynchronous communication technologies. Therefore the study findings will be of special interest to project managers in implementing open-wide knowledge exchange systems and successful virtual classroom.

## **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, Thais are likely to have 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 international degree programs in Thai and Australia 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 behaviour?
3. How do differences in cultural values affect the way Thai students in both countries access and share knowledge?

### **Research Methods**

The study utilised a quantitative methodology. Following a review of the influence of culture in knowledge sharing, an exploratory study was conducted through a closed-end questionnaire survey. Two objectives were determined from the conceptual framework. Firstly, to explore whether there is a different knowledge sharing behaviour 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 behaviour through participation tools in a virtual classroom environment.

#### ***Sample and data collection***

The questionnaire consisted of questions that assess 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 to live in the country where they were studying). The questionnaire and consent letter were posted online and administrated to both respondent groups by email. The sample consisted of 100 Thai students who were studying an international program in a Thai university and 100 Thai students who were studying in Australian university. 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 behaviour as measured by attitudes of 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**

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 alpha statistic. The reliability coefficient of 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). Tolerance and variance inflation factor: VIF) was used to test discriminate validity.

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

### Collinearity Diagnostics

Table 2: Discriminate validity

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 to 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.

#### Gender

Male	40.0%
Female	60.0%

#### Age

< 18 years	-
18 – 24 years	89.00%
25– 34 years	11.00%
35– 44 years	-
>44 years	-

#### Faculty

Engineering	33.5%
Business Administration	41.9%
Social Science	3.9%
Science	9.7%
Information Technology	9.7%

#### Education level

Postgraduate	6.5%	Undergraduate	93.5%
		First year	14.2%
		Second year	61.9%
		Third year	11.6%
		Fourth year	5.8%

#### No of years living in country

	Thailand	Australia
1-2 years	-	71.4%
3-5 years	-	17.2%
6-10years	-	10.0%
>10 years	100%	1.4%

#### Location

Thai university	54.8%
Australian university	45.2%

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

## Results

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

\*  $p < 0.05$

	Thai university (n=85)		Australian university (n=70)		<i>t</i>	<i>p</i>	Mean Difference
	Mean	S	Mean	S			
Knowledge sharing	3.25		3.74	.57			
Power distance	2.97	.59	2.39	.44	-5.15	.00*	-.48
Uncertainty avoidance	3.00	.37	2.86	.41			
Collectivism	3.22	.37	3.18	.28	8.66	.00*	.57
		.32			2.24	.02*	.14
					0.87	.38	.04

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

The data in table 4 indicated that knowledge sharing behavior of Thai students studying in Thai universities is lower than Thai students studying in Australia 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 are 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 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 *t*-test shows that there is no significant difference between those who study in Thai universities and Australian universities.

A comparison of students from the Science/Technology and the Business/Social Science disciplines showed that there was no significant difference in knowledge sharing, power distance, uncertainty avoidance and collectivism for students studying in Thailand. For students studying in Australia there was also no significant difference in knowledge sharing, power distance and collectivism but it was found that there was a significant difference in uncertainty avoidance with mean score of 3.00 for Science/Technology compared to 2.74 for Business/Social Science.

Non parametric testing was also undertaken using the modes for each category. The same outcomes were confirmed except for the uncertainty avoidance which was found not to significantly differ.

### Cultural values that influence knowledge sharing

Three cultural factors were tested 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). It is reasonable that any cultural values that might affect knowledge sharing behavior in each group depend on their virtual classroom environments. The results are shown Figure 1.

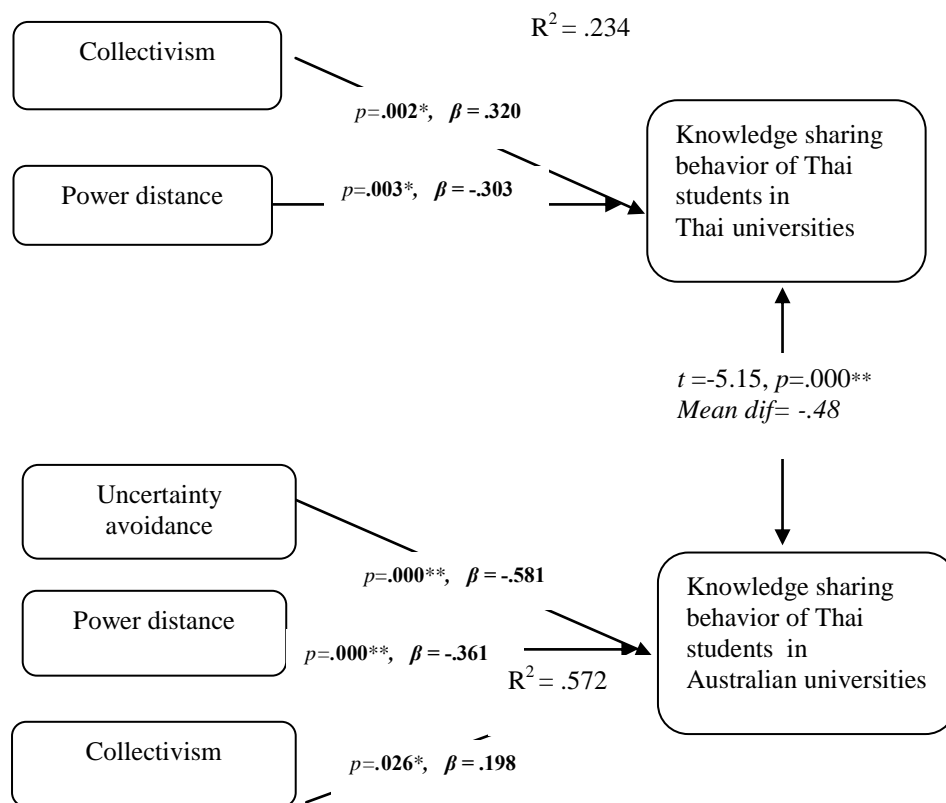


Figure 1: Results of Regression Analysis – Knowledge sharing behavior

Multiple regression analysis was undertaken to identify a 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 is explained by two independent variables; power distance; and collectivism.

For these two cultural factors, the highest beta ( $\beta$ ) value is .320 for the collectivism, which is significantly 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 ( $\beta$ ) value of  $-.303$ , which is significantly 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 is explained by 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 ( $\beta$ ) value of  $-.581$ , which is significantly 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 the power distance with a beta ( $\beta$ ) 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 significantly 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, T, 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 those who are studying in Australian universities and this might result in a different knowledge sharing behavior.

#### *Uncertainty avoidance*

The results show that the uncertainty avoidance significantly impedes knowledge sharing behavior of Thai students in Australian universities. This implies that Thai students in Australian universities, where the uncertainty avoidance for Australian students is assumed to be low, did not adapt to the local 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 or phone calls rather than used low media-richness such as e-mails 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 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 and Thongprasert , 2005) They were more likely to maintain relationships among friends and avoided 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 cultural values of students. Power distance is the first cultural aspect that significantly inhibits knowledge sharing in Thai universities and Australian universities. In the students' view the attitudes to 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 they should be expert and know everything. Not surprisingly, they are more likely to accept teacher-centre as their learning styles and are not comfortable to ask question or present 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 promote 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 to participate 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 values and cultural preference of students in each country. Some suggestions are stated below:

- 1) The coping strategies that can be used to overcome the problems is to motivate and encourage students to use collaborative ICT tools such as e-mail, 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- working rather than individual-working.
- 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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