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Research into the Assessment of the Intercultural Sensitivity Among University Students of Science and Technology

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Globalization makes people from diverse cultural backgrounds communicate effectively. To be a global citizen has become the goal of our education. Landis and Bhagat (1996) argued that intercultural sensitivity is crucial to enable people to live and work with others from different cultural backgrounds. With higher intercultural sensitivity, one will be more global as his understanding of cultural difference becomes more sophisticated. In this present study, the intercultural sensitivity of different majors from a private institute of technology in the north of Taiwan was investigated, using the ISS (Intercultural Sensitivity Scale) developed by Chen and Starosta (2000). Based on a survey of 358 participants from Nursing Department and Department of Nutrition and Health Sciences, this study focused on five dimensions of the intercultural sensitivity and the participants' demographic factors affecting their performance on intercultural sensitivity. The five dimensions included in this study were: (1) interaction engagement, (2) interaction confidence, (3) respect for cultural differences, (4) interaction enjoyment, and (5) interaction attentiveness. Among the five dimensions of intercultural sensitivity, the participants had the highest score on the dimension of "respect for the cultural differences" and had the lowest score on the dimension of "interaction confidence". Results generated by stepwise multiple regression indicated "decision of studying abroad" and "experiences of living abroad" could effectively predict the participants' intercultural sensitivity.

Keywords: intercultural sensitivity, ISS (Intercultural Sensitivity Scale), cultural differences, university of science and technology

Introduction

Since globalization makes people from diverse cultural backgrounds communicate effectively, being a global citizen has become the goal of our education. Landis and Bhagat (1996) argued that intercultural sensitivity is crucial to enable people to live and work with others from different cultural backgrounds. With higher intercultural sensitivity, one will be more global as his understanding of cultural difference becomes more sophisticated. Bhawuk and Brislin (1992) defined Intercultural sensitivity as "sensitivity to the importance of cultural differences and to the points of view of people in other cultures" (p. 414).

Some people might not agree that intercultural sensitivity is necessary for their daily life. However, the students in Nursing Department and Department of Nutrition and Healthcare Sciences who would frequently

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meet people of diverse cultures in their academic studies and workplaces are highly suggested to gain higher intercultural sensitivity. Rosenbaum (1991) suggested that students need to increase their self-awareness of level of intercultural sensitivity for their patients in the culturally diverse hospitals in the future.

In this study, the researcher attempts to understand the intercultural sensitivity of students from a private university of technology and science in the north of Taiwan, using the ISS (Intercultural Sensitivity Scale) developed by Chen and Starosta (2000). Based on a survey of 358 participants from Nursing Department and Department of Nutrition and Healthcare Sciences, this study focused on five dimensions of the intercultural sensitivity and the participants' demographic factors affecting their performances on intercultural sensitivity. The results of this survey would be important reference for the teachers in Nursing Department and Department of Nutrition and Healthcare Sciences when they consider designing a culture course for their students.

Literature Review: Intercultural Sensitivity

For decades, many studies focused on intercultural communication competence. Relevant studies indicated intercultural communication competence was defined generally as the knowledge, motivation, and skills for effective communication (Morreale, Spitzberg, & Barge, 2007). Thus, "intercultural communication competence was confused, overlapped, and at least used indiscriminatingly with intercultural awareness, intercultural adroitness, and intercultural sensitivity" (Peng, 2006, p. 39). For example, Bhawuk and Brislin (1992) stated:

> To be effective in other cultures, people must be interested in other cultures, be sensitive enough to notice cultural differences and also be willing to modify their behavior as an indication of respect for people of other cultures. A reasonable term that summarizes these qualities of people is intercultural sensitivity. (p. 416)

The above statement implies that Bhawuk and Brislin viewed intercultural sensitivity as a developmental process. Bennett (1986) supported and elaborated this concept and suggested that intercultural sensitivity is composed of six developmental stages: denial, defense, minimizing, acceptance, adaptation, and integration of cultural difference. Hammer, Bennett, and Wiseman (2003) stated one's potential competence in intercultural relations increases as one's experience of cultural difference becomes more complex and sophisticated. To be more specific, Bennett (1986) described intercultural sensitivity as people's ability to transform them affectively, cognitively, and behaviorally from denial stage to integration stage in the developmental process of intercultural communication. In other words, intercultural sensitive people can reach the level of dual identity and enjoy cultural differences by gradually solving the problems of denying cultural differences and attempting to defend their own world views, and going on to develop empathic ability to accept and adapt cultural differences.

Chen and Starosta (1997) claimed intercultural communication competence is constructed by three concepts—intercultural awareness (cognitive aspect), intercultural sensitivity (affective aspect), and intercultural adroitness (the behavioral aspect). They argue the three are closely related but separate concepts. The affective aspect of intercultural communication competence is represented by the concept of intercultural sensitivity. That is, intercultural sensitivity refers to the subjects' "active desire to motivate themselves to understand, appreciate, and accept differences among cultures" (Chen & Starosta, 1997, p. 11).

Measuring Intercultural Sensitivity

For measuring intercultural sensitivity, there are two effective instruments—one is IDI (Intercultural

Development Inventory) and the other is ISS. These two important assessment instruments are described as follows:

Developed by Hammer and Bennett (2002), IDI—a self-assessment tool—is broadly used in the world. For example, it could be used with pre-service teachers to assess the effectiveness of course content and methodology (Van Hook, 2000). The IDI, an empirical measure of intercultural sensitivity, containing six stages, is usually applied to measure the six orientations toward intercultural sensitivity outlined in Bennett's (1986) developmental model. The six stages presented in a linear continuum and might infer that the development of intercultural sensitivity follows a continuous line of progress. In addition, the IDI may be used as a pre-test and post-test for assessing the effectiveness of a new curriculum. Scores on the IDI would reflect the stage at which a student has issues to resolve before progressing to the next stage.

A 24-item version of ISS formulated by Chen and Starosta (2000) includes five dimensions: (1) interaction engagement, (2) interaction confidence, (3) respect for cultural differences, (4) interaction enjoyment, and (5) interaction attentiveness. Items 2, 4, 7, 9, 23, 25, 28, 30, and 22 should be reverse-coded before summing the 24 items.

Scale examples of each dimension are as follows: (1) Interaction engagement: "I enjoy acting with people from different cultures"; (2) Respect for cultural differences: "I think people from different cultures are narrow-minded"; (3) Interaction confidence: "I am pretty sure of myself in interacting with people from different cultures"; (4) Interaction enjoyment: "I often get discouraged when I am with people from different cultures"; and (5) Interaction attentiveness: "I am very observant when interacting with people from different cultures".

Since ISS is also broadly used in different cultural settings (Fritz, Mollenberg, & Chen, 2002), it is translated into many language versions. Chinese version ISS translated by Peng (2006) was used to measure a survey of 382 Chinese subjects. The reliability analysis showed an overall Cronbach alpha of 0.799 on all 24 measures.

Factors Affecting Intercultural Sensitivity

Staffon (2003) conducted an exploratory study to measure the level of intercultural sensitivity of 336 high school students attending an international school. Results showed the length of time that a student had attended an international school was found to have a statistically significant relationship with the level of intercultural sensitivity in these students.

Peng's (2006) study found that English proficiency affects intercultural sensitivity in certain ways. In addition, intercultural experience had significant effects on the dimensionality of intercultural sensitivity. Study abroad experience significantly improved the level of intercultural sensitivity (Anderson, Lawton, Rexeisen, & Hubbard, 2006). Moreover, preparation program or curriculum would help students progress in their intercultural sensitivity (Van Hook, 2000). Kelly (1963) even argued that a person can witness an event, such as participating in a study abroad program, without ever experiencing the culture to enhance his intercultural sensitivity. In summary, factors such as language proficiency (foreign or English language), experiences of interacting with foreign cultures, and culture education affect the level of intercultural sensitivity.

Based on the above statement, both the IDI and ISS are valid, culture-free, and effective instruments to assess people's intercultural sensitivity and situate people's status on the stages of acculturation. However, users are required to take training workshop before using the IDI whereas ISS is easier to retrieve on the Internet. Therefore, the researcher used ISS as the instrument in this study.

Method

The intercultural sensitivity of 358 students of Nursing Department and Department of Nutrition and Healthcare Sciences from a university of science and technology in the north of Taiwan was investigated, using the ISS (Cronbach $\alpha = 0.88$) developed by Chen and Starosta (2000). Based on a survey of 358 participants from Nursing Department and Department of Nutrition and Healthcare Sciences, this study focused on five dimensions of the intercultural sensitivity and the participants' demographic factors affecting their performance on intercultural sensitivity.

Demographic variables such as English proficiency, experiences of study abroad, etc., were added in front of the ISS in order to find out the differences between groups and the possible factors affecting students' intercultural sensitivity. A five-point Likert scale was used to respond to each item: 5 = strongly agree, 4 = agree, 3 = uncertain, 2 = disagree, and 1 = strongly disagree. Participants completed the 24-item version of ISS during the semester of the class. Higher scores of this measure are suggestive of being more inter-culturally sensitive. Data collected were computed by SPSS (Statistical Package for the Social Science) 12.0 for Windows.

Results and Discussion

In this study, the Cronbach alpha reliability coefficient of this scale was 0.812. Among the five dimensions of intercultural sensitivity, the participants had the highest score on "Respect for the cultural differences" (3.934) and had the lowest score on "Interaction confidence" (2.822). Descriptive statistics showed there were 81 students from Department of Nutrition and Healthcare Sciences and 277 students from Nursing Department, there were only 27 students who have lived abroad, and 258 out of 358 students have taken English proficiency tests.

Table 1 summarized the mean scores on each dimension of this scale. From Table 1, the second dimension "Respect for cultural differences" has the highest mean score 3.934 whereas "Interaction confidence" has the lowest score 2.822. The total mean score on the ISS is 3.148.

Table 1

Mean Scores on Each Dimension of ISS

Items	Minimum	Maximum	Mean	S.D.
Intercultural engagement	3	5	3.763	0.474
Respect for cultural differences	3	5	3.934	0.615
Interaction confidence	1	5	2.822	0.369
Interaction enjoyment items	3	5	3.661	0.478
Interaction attentiveness	2	5	3.729	0.534
Total average	3	5	3.148	0.385

From result of *t*-test on the future plan of studying abroad, there is a significant difference on the four factors of intercultural sensitivity between 144 students who are planning to study abroad and those who are not planning to except respect on cultural differences (see Table 2). That is, the students who are planning to study abroad hold higher intercultural sensitivity than those who are not. It is probably because those students preparing for study abroad are more willing to accept foreign cultures.

Table 2

Results of T-Test on the Students' Plan of Study Abroad

Items	*t*	Sig. (2-tailed)
Intercultural engagement	4.885	0.000***
Respect for cultural differences	0.797	0.423***
Interaction confidence	3.718	0.000***
Interaction enjoyment items	2.071	0.043*
Interaction attentiveness	3.735	0.000***
Total average	4.176	0.000***

Notes. * $p < 0.05$; *** $p < 0.001$.

Between students in Nursing Department and students in Department of Nutrition and Healthcare Sciences the significant difference was found on "Respect for cultural differences". As shown in Table 3, students from Nursing Department had higher score than students of Department of Nutrition and Healthcare on only one factor—"Respect for cultural differences" of ISS.

Table 3

Results of T-Test on the Students of Different Majors

Items	*t*	Sig. (2-tailed)
Intercultural engagement	0.167	0.864
Respect for cultural differences	-2.023	0.046*
Interaction confidence	0.206	0.841
Interaction enjoyment items	0.074	0.952
Interaction attentiveness	0.329	0.734
Total average	-0.412	0.688

Note. * $p < 0.05$.

Table 4 demonstrated that there was a significant difference between students who have foreign relative and those who had not ($t = 2.892$, $p = 0.004$). Students who had foreign relative had higher scores on "Interaction confidence" ($t = 3.521$, $p = 0.001$) and "Interaction enjoyment" ($t = 2.618$, $p = 0.01$) than those who had not.

Table 4

Results of T-Test on if or not the Students Having Foreign Relatives

Items	*t*	Sig. (2-tailed)
Intercultural engagement	1.868	0.064
Respect for cultural differences	0.708	0.487
Interaction confidence	3.521	0.001**
Interaction enjoyment	2.618	0.010*
Interaction attentiveness	1.969	0.054
Total average	2.892	0.004**

Notes. * $p < 0.05$; ** $p < 0.01$.

There were 258 students in this study taking English proficiency tests before, whereas 100 students had not. Results of *t*-test showed that there was not significant difference between these students. That is, the experiences of taking English proficiency tests did not influence the students' intercultural sensitivity.

Results generated by stepwise multiple regression indicated "planning to study abroad" and "experiences of living abroad" could effectively predict the participants' intercultural sensitivity. The results found in this study were similar to previous studies reviewed. Students who are planning to study abroad tend to have higher foreign language learning motivation and are more willing to accept foreign cultures. Therefore, they are more sensitive to cultural diverse people or situations. The multiple correlation coefficient is .487, and the stepwise regression revealed quite a good fit (R-Square = 0.237) which meant 23.7% of the criterion variable's variation is accounted for by the predictors (see Table 5).

Table 5

Model Summary

Model	R	R-square	Adjusted R-square	Std. error of the estimate
	0.487	0.237	0.217	8.113

Note. Predictors: (Constant), Study Abroad, Live Abroad.

Table 6 showed the p-value < 0.001 and the linear relationship between these variables is statistically significant ($F(4, 353) = 12.817$, $p < 0.001$). As shown in Table 7, planning to study abroad and experiences of living abroad contribute to this multivariate model. That is, the multiple regression results showed there is a significant negative relationship between planning to study abroad and the sum of ISS; there is a significant negative relationship between experiences of living abroad and the sum of ISS. The multiple regression equation is: *Sum of ISS* = 117.675 + *planning to study abroad* *(-7.166) + *experiences of living abroad* *(-11.62).

Table 6

ANOVA (Analysis of Variance)

Model	Sum of squares	*df*	Mean square	*F*	Sig.
Regression	3,117.005	4	779.251	12.817	0.000***
Residual	21,461.608	353	60.798		
Total	24,578.673	357			

Notes. Predictors: (Constant), Study Abroad, Live Abroad. Dependent variable: Sum of ISS. *** $p < 0.001$.

Table 7

Coefficients

Model	Unstandardized coefficients		Standardized coefficients	*t*	Sig.
	B	Std. error	Beta		
(Constant)	117.675	8.310		14.023	0.000
Study abroad	-7.160	1.904	-0.316	-3.512	0.000***
Live abroad	-11.020	4.202	-0.214	-2.374	0.012*

Notes. Dependent variable: Sum. * $p < 0.05$; *** $p < 0.001$.

Conclusions and Suggestions

In conclusion, the 358 participants in Nursing Department and Department of Nutrition and Healthcare Sciences were investigated to see their current performance on intercultural sensitivity.

(1) From results of *t*-tests, there is a significant difference on the four factors of intercultural sensitivity between 144 students who are planning to study abroad and those who are not planning to except respect on cultural differences.

(2) The significant difference between the students of different majors was on “Respect for cultural differences”.

(3) Students who had foreign relative had higher scores on “Interaction confidence” (t = 3.521, p = 0.001) and “Interaction enjoyment” (t = 2.618, p = 0.01) than those who had not.

(4) The experiences of taking English proficiency tests did not have the impact on the students’ intercultural sensitivity.

(5) Results of stepwise multiple regression indicated “planning to study abroad” and “experiences of living abroad” could effectively predict the participants’ intercultural sensitivity.

The teachers teaching in Nursing Department and Department of Nutrition and Healthcare Sciences are highly recommended to design a course for enhancing students’ intercultural sensitivity in order to prepare students for their academic studies and workplaces with diverse cultural backgrounds. The school administrators are recommended to provide students with opportunities to study abroad, short-term study abroad or exchange student program, according to the result of this study. Furthermore, another empirical study using ISS could be conducted in more universities of technology and science in Taiwan in order to find out more factors affecting intercultural sensitivity. For more detailed information, qualitative data from oral interview or observations are needed in the future studies.

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