

## The Relationship between Cultural Intelligence and Psychological Well-being with the Moderating Effects of Mindfulness: A Study of International Students in Taiwan

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### Abstract

According to Ministry of Education of Taiwan, numbers of international students studying in Taiwan gradually increased. However, studies showed that their learning outcome is significantly influenced by their psychological well-being (PWB). Therefore, this study examines the factors affecting PWB. In this study, cultural intelligence (CQ) is seen as a potential predictor for PWB. CQ is defined as the ability to deal with different cultural context, and it includes four dimensions, namely cognitive CQ, metacognitive CQ, motivational CQ and behavioral CQ. Besides, as people pay more attention to unfamiliar exotic things when being abroad, their consciousness on the present moment, so-called mindfulness, plays an important role for their well-being. Therefore, mindfulness is examined as a moderator in the relationship between CQ and PWB. Quantitative approach is applied in this study. The samples are 110 international students studying in Taiwan. The self-report questionnaire composed by Ryff's 18-item scale, Cultural Intelligence Scale and Mindful Attention Awareness Scale is distributed on-line. The collected data go through descriptive analysis, correlation analysis and regression analysis. Results show that metacognitive CQ and PWB has a significant relationship with an  $R^2$  of .231. Besides, motivational CQ is positive related to PWB with an  $R^2$  of .142. According to the statistic result of this study, future research can put efforts on how to enhance metacognitive and motivational CQ, like designing related cultural program courses before students' departure, in order to better international students' PWB.

**Keywords:** cultural intelligence, psychological well-being, mindfulness, international student

### Introduction

The development of technology and the progress of the public transportation have facilitated the mobility of people around the world. Moving across nations becomes easier than before. It causes more and more interactions among people from different countries in different fields. From the educational perspective, more and more students decide to apply for studying abroad program. Take international students in Taiwan for instance, according to Ministry of Education in Taiwan, the statistical numbers of international students studying in college in Taiwan is increasing year by year. In 2011, there were 55463 international students in Taiwan, as time goes by, the number of international students studying in Taiwan went up to 110182 in 2016. Meanwhile, research on international students also become noteworthy nowadays.

Tseng and Newton (2002) indicated that it is worthwhile to find out what and how to make international students' life abroad better. Some researchers reported that students studying abroad expect to learn languages, experience adventures, gain cultural refinement, develop intercultural competence and learn about themselves (Bowman, 1987; Hoffa, 2007). A study whose participants are 551 international graduate students found out that among them, 44% responded that their academic performance was affected by emotional or stress-related problem during their life abroad (Hyun, Quinn, Madon, & Lustig,

2007). That is to say, a student's psychological feel is related to determine the condition of their studying abroad life. Therefore, this study aims to examine what might be the potential factors that could positively relate to psychological well-being (PWB) which was defined as an individual's positive mental state and his or her feeling of functioning well personally and interpersonally (Deci & Ryan, 2008; Ryff & Singer, 2008).

When going abroad, adjusting themselves to get adaptive to new environment is an important issue individuals need to deal with. Stepping into a different country refers to experiencing a different culture. The ability individuals possess to deal with different cultural context and to get themselves adaptive to new cultural environment is called Cultural Intelligence (CQ; Earley & Ang, 2003). CQ consists of four dimensions: cognitive CQ - knowledge and understanding of culture and how things done in cultural contexts, metacognitive CQ – an individual using his or her understanding of culture to plan, motivational CQ – an individual's interest and confidence in adjusting oneself into different cultural environment, and behavioral CQ – the ability to behave in different culture. The ability to adapt is related to academic outcomes, and non-academic outcomes as well, including class participation, school enjoyment, life satisfaction, and sense of meaning and purpose, etc (Martin, Nejad, Colmar, & Liem, 2013). Therefore, this study considered CQ a potential antecedent of psychological well-being. On the other hand, people tend to be curious about the unfamiliar and exotic things when studying abroad, and thus they will pay more attention to what is happening at the exact moment, which is called mindfulness – individuals keep their consciousness on the present moment (Hanh, 1976). A study indicated that mindfulness-based interventions are able to improve well-being (Gu, Strauss, Bond, & Cavanagh, 2015). And thus, this study also considers mindfulness a potential moderator in the relationship between CQ and PWB. In short, in order to find out the potential factors that improve international students PWB; meanwhile, to achieve the goal of improving their academic outcomes and their life studying abroad, this study examines the relationship between CQ and PWB and the moderating effect of mindfulness in the relationship between CQ and PWB.

## Literature Review

### Cultural Intelligence and Well-Being

Between adaptability and well-being, a positive correlation exists. (Maggiori, Johnston, Krings, Massodi, & Rossier, 2013). In addition, adaptability serves as the antecedent of well-being has also been discussed in several research (Mackey, Ellen, Hochwarter, & Ferris, 2013; Stoltz, Wolff, Monroe, Mazahreh, & Farris, 2013; Wang, Zhan, Mccune, & Truxillo, 2011). In terms of adaptability, specifically, Kelly and Meyer (1995) defined the adaptability of different culture as cross cultural adaptability – the ability to not only adapt oneself into but also function well in different cultural context. It is divided into four dimensions including Emotional Resilience (ER), Flexibility/Openness (FO), Perceptual Acuity (PAC), and Personal Autonomy (PA) when individuals' cross cultural adaptability is assessed by Cross Cultural Adaptability Inventory (CCAI). There are two studies using CCAI to assess international students cross cultural adaptability. One study discovered that ER and FO were associated with psychological and sociocultural adaption problems, while PAC and PA were related to fewer sociocultural difficulties. And in the second study, ER was discovered to be the strongest predictor of psychological well-being and PAC was an important main factor in sociocultural adaptation. The results turned out that cross cultural adaptability is related to psychological and sociocultural context (Ward, Berno, & Main, 2000). Similar with cross cultural adaptability, Early and Ang (2003) defined cultural intelligence as the capability to function effectively in different countries, in other words, in different culture so that this study views cultural intelligence which can also predict an individual's cross cultural functionality as a similar concept with cross cultural adaptability. Therefore, due to the similarity which is shared between cultural intelligence and cross cultural adaptability, this study builds hypothesis listed below:

#### Hypothesis 1:

Students' cultural intelligence is positively related to their psychological well-being when studying abroad.

#### The Role of Mindfulness as a Moderator

Kabat-Zinn (1994) defined mindfulness as the way an individual pay attention to the experiences at the present moment non-judgmentally. It contains five attributes which are experience of being present, awareness, acceptance, attention and transformative process (White, 2013). Researchers pointed out that cultivating mindfulness is positively related to good psychological and physical results (Kabat-Zinn, 1990; Shapiro, Schwartz, & Bonner, 1998). LeBel and Dubé (2001) made an experiment about two groups of participants eating chocolate in different situations. Group which focused on the sensory experiences of eating reported that all participants were more enjoyable than the other group which simultaneously needed to work with other tasks. In addition, flow activities, which was defined as an operating mental state where participants pay attention to and fully engage with what is occurring were also reported bringing considerable joyfulness (Csikszentmihalyi, 1990).

There were also studies related to mindfulness and cultural intelligence. Elizabeth (2014) demonstrated that an individual becomes more culturally sensitive through increasing mindfulness in predeparture sessions for introducing cultural competence model.

As above, mindfulness may play a moderating role which results in the enhancement of cultural intelligence and well-being. On the other hand, on account of mindfulness, the relationship between cultural intelligence and psychological well-being may be influenced. Therefore, this study builds the following hypothesis.

Hypothesis 2:

Mindfulness moderates the relationship between cultural intelligence and psychological well-being.

### Methodology

#### Research Framework and Hypothesis

The research framework was developed according to the relevant literature review. Cultural intelligence (X) serves as independent variable, while psychological well-being otherwise serves as dependent variable (Y). The study first examines the relationship between X and Y. In addition, mindfulness, as moderator (MO), is used to examine the moderating effect of the relationship between X and Y. Figure 1 shown below illustrates the framework for this study:

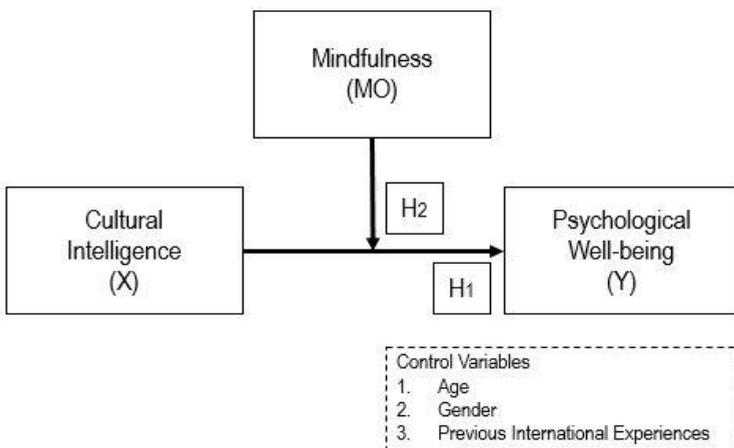


Figure 1. Research Framework of this Study

Besides, research hypotheses built by the previous session are also illustrated in figure 1.

H1: Students' cultural intelligence is positively related to their psychological well-being when studying abroad.

H2: Mindfulness moderates the relationship between cultural intelligence and psychological well-being.

In addition, age, gender, and previous international experience are considered control variables for this study.

### **Research Sample**

The sample population of this study are international students who are currently studying in Taiwan, including bachelor degree students, master degree students, and doctor degree students. Convenience sampling and snowball sampling are used to reach the sample population. A total of 110 participants filled online self-rated questionnaires.

Two criteria are set for data collecting process. First, students need to be currently studying in Taiwan. Second, selected students have all been studying abroad for at least six months, namely they might have gone through honeymoon and culture shock stages and were experiencing adjustment stage which resulted in a more stable condition according to U-Curve Theory (UCT; Black & Mendenhall, 1991).

The requirements of the participants are described clearly in the questionnaire at first to make sure the participants meet the criterion of this study. For example, I am currently studying in Taiwan and I have been studying in Taiwan for at least six months.

### **Research Instrument**

#### **Psychological Well-Being**

Psychological Well-Being scale consists of 18 items developed by Ryff (1989) is used in this study. 18 items are all examined with Cronbach's alpha value of the collecting data .72. After reading through the item statement, participants answer the questions from 1 (Strongly disagree) to 6 (Strongly agree) according to their current condition.

#### **Cultural Intelligence**

Cultural Intelligence Scale (CQS) developed by Van Dyne, Ang, and Koh (2008) is used to measure participants' cultural intelligence. It is a 20-item scale that measures four dimensions of CQ as mentioned: cognitive CQ, metacognitive CQ, motivational CQ, and behavioral CQ with 6 items, 4 items, 5 items, and 5 items respectively. A 7-point Likert type scale from 1 (strongly disagree) to 7 (strongly agree) is used for participant assessing their current condition based on the item statement. The Cronbach's alpha value of the collecting data for the overall CQ is .87 and for four dimensions, cognitive CQ, metacognitive CQ, motivational CQ and behavioral CQ, are .86, .81, .83, and .82.

#### **Mindfulness**

Mindful Attention Awareness Scale (MAAS), a psychological self-survey developed by Brown and Ryan (2003), is used to assess participants' mindfulness. It was created to capture attention and awareness in daily life specifically (Brown & Ryan, 2003). In this questionnaire, 15 descriptive questions with Cronbach's alpha value of the collecting data .84 are examined. And the participants answer from 1 (almost always) to 6 (almost never) based on the level they think corresponding to their current condition.

#### **Data Collection**

An online questionnaire composed by all the items and demographic survey questions is made in advance. A clear research purpose description and target participants' requirements are stated in the very beginning of the questionnaire. And it is distributed online to participants. After all the data collection, the complete responses were analyzed through the way discussed in the next session.

## Data Analysis

This study uses "IBM SPSS Statistics 23" to analyze the collecting data. The analyzing process goes through descriptive statistics analysis to describe the frequencies of the demographic data, correlation analysis to see the relationship between the independent variable, cultural intelligence and the dependent variable, psychological well-being, and hierarchical regression analysis to see the causality between the independent variable, cultural intelligence and the dependent variable, psychological well-being.

## Results

### Descriptive Statistics

This study contains a total number of 110 participants. The age ranges from 18 to 51 years old with the mean 27.57. There are 47 female respondents (43%) and 63 male respondents (57%). Their studying program in Taiwan are 2 exchange students (1.8%), 29 bachelor degree students (26.4%), 46 master degree students (41.8%), 32 doctor degree students (29.1%), and 1 high school student (.9%). Among them, 21 respondents (19.1%) had never had international experience before this studying program; 68 (61.8%) had had at least 1-time experience; and the other 21 respondents (19.1%) had had over 10 times international experience before.

### Correlation Analysis

Means standard deviations, correlations, and Cronbach's alpha value of each variable are listed below in Table 1. The results showed that the overall CQ is not significantly correlated with psychological well-being. However, further examining the four dimensions of CQ respectively, the results demonstrates that metacognitive CQ is significantly and positively correlated with psychological well-being ( $r = 0.26, p < 0.01$ ). And motivational CQ is also positively and significantly correlated with psychological well-being ( $r = 0.36, p < 0.01$ ). Regarding control variables, age and gender are positively and significantly correlated with psychological well-being ( $r = 0.26, p < 0.01$ ;  $r = 0.22, p < 0.05$  respectively).

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1.Age	27.75	6.38										
2.Gender	0.57	0.50	0.20*									
3.Previous International Experience	3.44	2.12	-0.10	-0.09								
4.Cultural Intelligence	5.08	0.74	0.01	0.12	0.12	(0.87)						
5.Cognitive CQ	4.31	1.21	-0.09	0.05	0.14	0.72**	(0.86)					
6. Metacognitive CQ	5.42	1.02	0.09	0.16	0.08	0.77**	0.37**	(0.81)				
7.Motivational CQ	5.70	0.83	0.09	0.03	0.03	0.63**	0.16	0.48**	(0.83)			
8.Behavioral CQ	5.11	1.06	-0.001	0.14	0.04	0.71**	0.22*	0.49**	0.36**	(0.82)		
9.Psychological Well-being	4.51	0.53	0.26**	0.22*	-	0.17	0.01	0.26**	0.36**	-0.01	(0.72)	
10.Mindfulness	3.93	0.77	0.24*	0.18	0.01	-0.15	-0.27**	-0.03	0.18	-0.16	0.36**	(0.84)

Table 1. Means, Standard Deviations, Correlations and Reliability

Note: Numbers in parentheses represent Cronbach's alpha value. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

### Hierarchical Regression Analysis

This part further examines the relationship between metacognitive CQ and psychological well-being and between motivational CQ and psychological well-being. Besides, whether or not mindfulness serves as a moderator in this relationship is also examined. Table 2 and 3 below show the hierarchical regression analysis result of this study.

In Table 2, according to model 2, metacognitive CQ is significantly and positively related to psychological well-being ( $\beta = 0.22$ ,  $p < 0.05$ ) when controlling for age, gender, and previous international experience. Therefore, metacognitive CQ has a positive effect on psychological well-being. However, mindfulness does not moderate the relationship

Table 2. Result of Regression Analyses for Moderating Effect of Mindfulness (N=110)

Psychological well-being			
Variables	Model 1	Model 2	Model 3
Step1			
Age	0.23*	0.21*	0.22*
Gender	0.17	0.14	0.14
Previous International Experience	0.02	-0.01	-0.01
Step2			
Metacognitive CQ		0.22*	0.21*
Step 3			
Metacognitive CQ x Mindfulness			0.03
R <sup>2</sup>	0.10	0.14	0.14
Adjusted R <sup>2</sup>	0.07	0.11	0.10
$\Delta R^2$	0.10	0.05	0.001
F	3.82*	4.35**	3.46**
$\Delta F$	3.82*	5.46*	0.07

Note. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

In Table 3, according to model 2, motivational CQ is significantly and positively related to psychological well-being ( $\beta = 0.34$ ,  $p < 0.001$ ) when controlling for age, gender, and previous international experience. However, mindfulness does not moderate the relationship.

Table 3. Result of Regression Analyses for Moderating Effect of Mindfulness (N=110)

Psychological well-being			
Variables	Model 1	Model 2	Model 3
Step1			
Age	0.23*	0.20*	0.21*
Gender	0.17	0.17	0.16
Previous International Experience	0.02	0.002	0.02
Step2			
Motivational CQ		0.34***	
Step 3			
Motivational CQ x Mindfulness			0.09
R <sup>2</sup>	0.10	0.21	0.22
Adjusted R <sup>2</sup>	0.07	0.18	0.18
$\Delta R^2$	0.10	0.12	0.01
F	3.82*	7.09***	5.86***
$\Delta F$	3.82*	15.35***	0.99

Note. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

### Implications

An individual with higher metacognitive CQ score is able to use cultural understanding to strategize his or her action in different cultural context. Besides, an individual with higher motivational CQ score has more interest in adjusting himself or herself into different cultural environment. According to the statistic result of this study, future research can further examine how to enhance this two sub-dimensions of CQ, like designing related cultural program courses before students' departure, in order to positively increase international students' psychological well-being. By doing so, international students could have more positive outcomes during their studying abroad experience.

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## Tables

Table 1. Means, Standard Deviations, Correlations and Reliability

Table 2. Result of Regression Analyses for Moderating Effect of Mindfulness (N=110)

Table 3. Result of Regression Analyses for Moderating effect of Mindfulness (N=110)

## Figures

Figure 1. The Research Framework of this Study