

THE IMPACT OF ONLINE COMMUNICATION ON UNCERTAINTY REDUCTION OF
INTERNATIONAL STUDENTS IN THE UNITED STATES

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A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Communication – Master of Arts

2013

ABSTRACT

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The current study investigates a relationship between international students' online communication use and their cultural adjustment in the U.S. Specifically, the study shows relationships among online communication use, perceived emotional support, satisfaction of studying abroad, perceived stress, and uncertainty about new culture. 55 international students in Michigan State University participated online survey and answered a questionnaire that included measurements for those variables. The results suggest that online communication is one of sources of emotional support for international students, and they have less stress when they are satisfied with their experience in the U.S. The study also shows a positive correlation between age and satisfaction, and a positive correlation between stress and uncertainty.

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INTRODUCTION

It is an international trend that more and more international students study abroad. Currently, there are over 4,000,000 students who study abroad worldwide, and the number of international students doubled since 2000 (OECD, 2012). However, the experience of international students has changed since technology has developed and communication with people from their own cultures has become easier through the Internet. Therefore, it is crucial for studies of international students' intercultural adjustment to consider influences of new online communication technology on their experience of studying abroad. Cemalcilar, Falbo, and Stapleton (2005) argue that computer-mediated communication (CMC) can provide unique experience for sojourners living in other countries because it helps sojourners to stay in contact with people at home and maintain their relationships with family and friends. Moreover, Ye (2006) suggests that the online social network has positive influences on sojourners intercultural adjustment. Especially, online communication can be one source of social support for young students who are facing stress in a foreign country (Wright, 2012).

A large body of previous research has shown that there is a relationship between international students' intercultural adjustment and communication with host nationals. It is said that if international students spend more time with host nationals rather than other expatriates, their sociocultural adjustment will be better (Caligiuri, 2000; Ward & Kennedy, 1993). On the other hand, there are some studies that show if international students perceive social support from their home culture via computer mediated communication (CMC) or interpersonal communication, students have an easier time adjusting to the host culture (Cemalcilar et al.,

2005; Ye, 2006). Cemalcilar et al. (2005) point out that besides social support through face-to-face communication with host nationals and other expatriates, international students can maintain existing social support even after they leave their home countries because of the development of communication technology. Consequently, their findings show that social support from the home country may enhance international students' intercultural adjustment directly. Moreover, Ye (2006) suggests that social support from online ethnic groups and international students' social difficulties have a negative correlation. Therefore, it can be said that both communication with nationals in the host culture and online communication with friends and family in their home culture are important factors that contribute to adjustment in the new culture.

This study aims to describe international students' intercultural transitions and adjustment to being a student in the United States. Specifically, the study will explain relationships among online communication use, emotional support, and international students' intercultural adjustment in terms of uncertainty reduction, stress reduction, and satisfaction. The uncertainty reduction theory (Berger & Calabrese, 1975) explains that the amount of communication has a negative relationship with uncertainty. In other words, it can be predicted that amount of contact with people via online communication may reduce uncertainty about culture, context, and individuals including oneself in intercultural communication (Gudykunst, 1985). In addition, it is important to understand how international students feel stress in the process of their intercultural adjustment, because starting a new life in a new environment can be very stressful for any people. Feeling stress may also interfere with uncertainty reduction. A few

previous studies have shown that online communication can be one source of emotional support that helps psychological well-being (Caligiuri, 2000; Wright, 2012; Ye, 2006). Furthermore, satisfaction with the decision to study abroad and reported happiness with studying at a particular university can also be a good indicator for international students' intercultural adjustment. Also, it is important for institutions to understand whether international students are satisfied in the university environment considering the growing number of international students who come to study in the U.S. In fact, satisfaction of any students is one of the major purposes of universities (Arambewela & Hall, 2009). The goal of this study is to show a relationship between online communication and international students' experience of intercultural adjustment.

The thesis will examine the following elements. First, the variables of the study (online communication, perception of emotional support, uncertainty, perceived stress, level of satisfaction) will be discussed. Second, uncertainty reduction theory will be explained to develop the hypotheses. Third, there will be a discussion about method of this study; and finally, the plan for data analysis will be presented.

LITERATURE REVIEW

Online Communication

For international students, communication with host nationals is important because according to Gudykunst and Shapiro (1996), people have less uncertainty and anxiety, more positive expectations, better satisfaction, and better communication quality when they communicate with friends rather than strangers or acquaintances. Consequently, for international students, to have better communication and eventually to adjust to a new culture, they need to develop relationships and become friends with host nationals through communication. It often takes several semesters for international students to develop an effective network of American friends who can provide meaningful social, emotional, and tangible support to help them become adjusted to academic and social life in the U.S. (Ward & Kennedy, 1992).

In the meantime while this host friendship network is under development, international students who have only been in the US for only 6 or 7 months, may seek support from communication with people from their home country through the social media. This online communication with friends and family members back home and international students from their home country in the US and at their university may be important because they can maintain their home identity and perceive social support through online communication provided by the new social media (Cemalcilar et al., 2005). This availability of social support is especially important for international students' uncertainty and stress reduction in the first couple of semesters of their study abroad when they are likely not to have made very many friends in the host culture and when they are likely to feel confused and lonely on their own. Today, more

than ever, it is easy to maintain regular daily online contact with friends and family in the home culture and other internationals in the US at all points during a foreign sojourn but especially during the critical period of uncertainty when international students are new arrivals.

Communication with people from the home culture has been shown to help international students to adjust to the new environment (Lin, 2006). For instance, international students can talk candidly and freely about their negative experiences and what they are going through in their own language in their online communication with friends and family members. Online communication with friends, family members, and other international students from their home country is likely to be a strong source of encouragement, advice, and agreement.

According to Lin (2006), support from members of same cultural group helps international students' intercultural adjustment. He explains experiences of Chinese international students in the U.S. in terms of culture shock, social support, and intercultural competence. From observations, individual interviews, and focus group discussions, the study (Lin, 2006) supports the culture shock theory and concludes that international students experience uncertainty, stress, anxiety, etc. in their culture shock phase. Moreover, the findings suggests that a process of social support from organizations of international students from the same country can help international students to overcome culture shock, to gain intercultural competence, and eventually to adjust to the new environment. Specifically, social support includes informational, emotional, tangible, and intellectual support.

Besides face-to-face interpersonal communication, international students have access to more opportunities to communicate with people in their home country than ever before and

more opportunities for online communication with international students from their home country on their campus and at other universities in the US. The role of CMC in all likelihood has become more crucial for international students' intercultural transitions. CMC includes text, video, and audio exchanges and those technologies include online chatting, e-mail exchange, and the World Wide Web (Cemalcilar et al., 2005). These accessible technologies enable international students to keep close daily contacts with their family, friends, and other international students at their own and other American universities when they study abroad. Moreover, international students can keep involved and up-to-date in political, social, and cultural aspects of their home country through CMC. For instance, international students can talk to their parents whenever they want, read local newspapers from all over the world, and watch TV programs from their countries.

Therefore, in addition to face-to-face communication, online interpersonal communication with people from the home culture also can help international students to overcome their social difficulties in the new culture and to lessen adjustment difficulties and challenges (Ye, 2006). During their cultural transition, international students need to maintain sources for mental and social support to adjust to the new culture. Especially, when they first arrive in other countries, online communication can be one of the main supports for international students. According to Ye (2006), social network theory can explain the relationship between international students' intercultural adjustment and social support from online communication. International students naturally face social and psychological difficulties in the new environment; therefore, they seek support from their readily available social networks. Even

though online virtual communication with people in home countries and with other international students in universities in the U.S. may not help the immediate social functioning of international students in the host culture, it certainly helps their mental difficulties and stability through cultural transitions. Therefore, besides communication with host people, communication with people from their home country may be important for international students' intercultural adjustment.

Lin (2006) explains the influence of communication on intercultural adjustment of international students in terms of culture shock and intercultural competence while Ye (2006) explains it in online communication context in terms of social networks. In the present study, the focus is on online communication that international students use to maintain relationships with their friends and family back home and with other international students in the U.S. It may be possible to say that online communication is one source of emotional support for international students in the process of intercultural transition, and emotional support can provide better intercultural adjustment such as reducing uncertainty and stress, and enhancing their satisfaction with life in the new environment.

Satisfaction

Satisfaction of international students is important for institutions (Arambewela & Hall, 2009). For instance, from marketing point of view, Arambewela and Hall (2009) discuss that creating satisfactory environment for international students is crucial for universities in the current educational market because international education has benefits for universities, organizations, and nations. Therefore, it can be said that understanding satisfaction of

international students is one of major concerns for advising or counseling offices in universities (Hammer, 1992).

Naturally, satisfaction of international students is important for themselves too in terms of their intercultural adjustment. International students' satisfaction can be influenced by multiple constructs such as contact with host nationals, language skills, perceived discrimination, (Perrucci & Hu, 1995); number of friends, financial difficulties, and prior information about host culture (Sam, 2001). It may be able to say that if international students are satisfied with their overall experience and decision to study abroad, they are likely to feel less stress and less uncertainty. Perrucci and Hu (1995) point out that international students with high satisfaction cope with stress better as a student and as a sojourner to new culture. Also, Yeh and Inose (2003) show that higher satisfaction on social support predicts less acculturative stress. Moreover, Hammer (1992) explains that lower level of social satisfaction of international students is related to higher level of uncertainty and anxiety. Redmond and Bunyi (1993) argue that cultural adaptation is a predictor for communication effectiveness and satisfaction. Therefore, previous research show that there is a relationship between satisfaction and cultural adjustment.

Emotional Support

For sojourners like international students, it is important to adjust to the new environment. International students' transition and adaptation to the new environment influences psychological and physical well-being, social functioning, academic adaptation (Cemalcilar et al., 2005; Cemalcilar & Falbo, 2008), and students' physical and mental health (Zhang & Goodson, 2011).

Since it is difficult for international students to form social support systems in the new environment (Yeh & Inose, 2003), they tend to seek the primary social support of co-nationals (Sandhu & Asrabadi, 1994). Lin (2006) explains that social support from organizations of international students can be a way to cope with stress and facilitates their intercultural adjustment. He says that there are multiple dimensions to social support and emotional support can be one of them. Emotional support refers to support for a person's emotional state through thoughtful and sympathetic communication with other people (Wright, 2012). In addition to occasional parties and events sponsored by international student organizations on campus, many international student organizations have Facebook pages, blogs, chat rooms, and big ten/inter-university online information forums and social sites for international students from a particular country. Previous research focuses on emotional support through CMC; however, there have not been many studies focusing on emotional support via online communication tools such as social networking sites (Wright, 2012). In addition, there are studies that show the relationship between online communication and international students' intercultural adjustment (Ye, 2006), yet few studies examine emotional support from online communication in the intercultural communication context.

Burleson (2003) points out that emotional support is one of the main functions of interpersonal close relationships. He defines emotional support as "expressions of care, concern, love, and interest, especially during times of stress or upset" (Burleson, 2003). Also, emotional support can provide physical and psychological health (Burleson & Morteson, 2003). Therefore, it can be said that for international students in the new environment away from their home

countries, it is important for them to have online communication with friends, family, and other international students to gain emotional support. Moreover, studying emotional support for international students may be crucial to understand their interpersonal communication and its role in their intercultural adjustment. Especially, it may be important to note that online communication enables international students to gain emotional support from their home countries because the research (Burleson & Morteson, 2003) shows that there are some cultural differences in emotional support behaviors and evaluations. For instance, Burleson and Morteson (2003) show in their study that American students prefer person-centered comforting message more than Chinese students, and Chinese students regard solace behaviors as appropriate more than American students. In other words, it can be said that cultural differences between high context culture and low context culture, and between individualistic culture and collectivistic culture influence preferences for messages and behaviors of emotional support (Burleson & Morteson, 2003).

Perceived Stress

For international students, starting a new life in the new environment can be difficult and stressful. Previous research shows that international students have more psychological issues than domestic students (Sandhu & Asrabadi, 1994; Yeh & Inose, 2003). Yeh and Inose (2003) list possible issues of international students, for instance, language issues, academic, financial, and interpersonal difficulties, homesickness, and loss of social support. Also, Chiu (1995) explains that international students who feel fear from intercultural transitions experience emotional stress. Therefore, the intercultural transition for international students can result in

stress. Perceived stress can be measured as an outcome of those objective stressful events (Cohen, Kamarck, & Mermelstein, 1983).

There are multiple factors to reduce perceived stress (Yeh & Inose, 2003). Emotional support can be one of the resources to reduce psychological stress and to enhance physical and emotional health (Wright, 2012). The research by Yeh and Inose (2003) shows that international students who feel connectedness and satisfaction from social networks experience less stress in the intercultural context. Therefore, it can be predicted that the perception of receiving emotional support will reduce perceived stress of international students who are likely to be in very stressful situations during intercultural transitions.

Uncertainty

When people encounter a new culture, they experience concerns about hosts (Stephan & Stephan, 1999). Those concerns may arouse uncertainty, and it may lead to difficulties and awkward behaviors for sojourners. Therefore, to adapt to a new culture, international students need to develop coping abilities for uncertainties (Ye, 2006). Stephan and Stephan (1999) define uncertainty as “a cognitive phenomenon [that] influences the way people think about others”. People generally have uncertainty when they communicate with others; however, there is greater uncertainty when people communicate with outgroup members (Stephan & Stephan, 1999).

Berger and Calabrese (1975) introduced uncertainty reduction theory that explained uncertainty reduction and relationships between uncertainty and several other constructs. The uncertainty reduction theory has been used in a variety of areas in the communication discipline: e.g. uncertainty increasing events (Planalp, Rutherford & Honeycutt, 1988), network support

(Parks & Adelman, 1983), and global uncertainty (Douglas, 1991). The central assumption of this theory is that uncertainty reduction is the main goal for initial interactions between people because uncertainty is an uncomfortable feeling and can lead to stress (Berger & Calabrese, 1975). The theory also classifies types of uncertainty in different categories. For instance, there is predictive uncertainty, which is the uncertainty about predicting future behaviors, attitudes, and feelings of others or self, and explanatory uncertainty, which refers to the uncertainty about explaining behaviors attitudes and feelings of others or self that has occurred (Berger & Calabrese 1975; Stephan & Stephan, 1999). In other words, to reduce uncertainty, people can predict behaviors, feelings, and attitudes before those happen, or people can also explain behaviors, feelings, and attitudes after those happen. These predictions and explanations about what behaviors mean are often problematic in cross-cultural contexts. Both predictions about how people will behave and explanations for behavior that has occurred are often off-target in intercultural contexts contributing to greater uncertainty about what to do next.

Furthermore, the theory explains relationships with uncertainty for seven constructs including verbal communication, nonverbal communication, intimacy, similarity, liking, information seeking, and reciprocity (Berger & Calabrese, 1975). It explains that there are positive relationships with level of uncertainty for five constructs: amount of verbal communication, amount of nonverbal communication, level of intimacy, level of similarity, and level of liking. There are also negative relationships between levels of uncertainty with two constructs: amount of information seeking and level of reciprocity.

Even though uncertainty reduction theory was originally developed to describe

uncertainty reduction in initial interactions, researchers have expanded this theory to larger relationships between people. For instance, Parks and Adelman (1983) explain uncertainty reduction in romantic partners. They assert that communication not only with a partner, but also with the partner's social network can reduce uncertainty, and this communication both with the partner and his/her social network creates stability.

In addition, Gudykunst (1985) extended uncertainty reduction theory to the intercultural communication context. He explained that frequency of communication, cultural similarity, and interpersonal attraction predict uncertainty reduction. Therefore, it can be concluded that uncertainty reduction theory can explain the intercultural communication context even though it is different from communication between people from same culture in terms of cultural differences, language difference, and influence of prior intercultural experiences on current interaction. Therefore, from this discussion, it is possible to hypothesize:

H1: International students' amount of online communication with friends, family and other international students will be associated with (a) less degree of perceived stress and (b) less degree of uncertainty.

H2: International students' perceived emotional support will be associated with (a) less degree of perceived stress and (b) less degree of uncertainty.

H3: International students' satisfaction with the decision to study abroad will be associated with (a) less degree of perceived stress and (b) less degree of uncertainty.

H4: International students' amount of online communication with friends, family and other international students will be associated with greater perceived emotional support.

RQ1: Will international students' satisfaction of the decision to study abroad be associated with perceived emotional support?

METHOD

Participants and Procedure

A self-report survey that contains five measures for variables was given to international students from foreign countries in web-survey form in spring semester in 2013. International students studying in Michigan State University for less than two semesters were recruited through several international students' online message boards, bulletin boards on campus, and personal contacts. 55 international students answered the questionnaires (17 male and 38 female). Their average age was 24.3 years old ($SD = 2.91$, $Min = 19$, $Max = 30$). Participants came from China (52.2%), Taiwan (9.0%), Japan (7.5%), Korea (4.5%) etc. The length of time in the U.S. was controlled and international students who have been in the U.S. more than one year were excluded because it is one of the major predictors of intercultural adjustment (Ward & Kennedy, 1993). Therefore, participants who answered that they have been in the U.S. more than 12 months ($N = 5$) were excluded from the analysis. Most of the participants (72.7%) have been in the U.S. for seven to twelve months. Even though participants' first language was not English, the survey was administered in English, as international students from multiple countries were included in the sample.

Measurement

All measures used in the survey are shown in the Appendix (see Appendix). Variables include online communication usage, perceived emotional support, perceived stress, uncertainty, and satisfaction of their decision to study abroad. In addition to the measurements for the variables above, participants were asked to fill demographic information. Demographic

information included age, gender, nationality, native language, and length of stay in the U.S.

The CMC use measurement of Cemalcilar, Falbo, & Stapleton (2005) was adapted and revised to measure online communication use for international students in the U.S. The amount of online communication is measured as the frequency of Internet technologies use to communicate with friends or family members as well as of online media and informational resources use. Participants were asked to indicate how often they use online communication tools with a seven point Likert scale (1 = *Not at all* and 7 = *All the time*). In this study, the alpha reliability of Online Communication Use scale was found to be $\alpha = .73$. In addition, an item that asks the percentage of CMC use to contact with people from home country is added to see how much of their online communication is for communication with home.

For perceived emotional support, perceived stress, uncertainty, and satisfaction, a five-point Likert scale was used. Perceived emotional support was measured by six items of Emotional Support Scale developed by Weber and Patterson (1996) that was revised for this study. The six items asked feelings of receiving emotional and social support by participants while using online communication tool. Participants were asked to indicate how true is the each statement is for them (1 = *Almost never true* and 5 = *Almost always true*). In this study, the alpha reliability of Perceived Emotional Support scale was found to be $\alpha = .76$.

Uncertainty was measured with seven items based on Parks and Adelman's (1983) Partner Uncertainty scale. The items were modified to reflect international students' experience. Participants were asked about uncertainty about living in the U.S., and uncertainty about the environment and people in the U.S. They answered each question by the degree of agreement (1

= *Strongly disagree* and 5 = *Strongly agree*). In this study, the alpha reliability of Uncertainty scale was found to be $\alpha = .87$.

Perceived stress was measured with eight items of the Perceived Stress Scale developed by Cohen, Kamarck, & Mermelstein (1983) that was revised for this study. The eight items asked about stress in various contexts for international students in the U.S. Participants were asked to indicate how often they felt stress (1 = *Never* and 5 = *Very often*). In this study, the alpha reliability of Perceived Stress scale was found to be $\alpha = .86$.

Finally, to measure satisfaction about participants' decision to study abroad, the measurement with four items developed for this study was used. These items asked how participants felt about decision and experience of studying abroad. Participants were asked to indicate how much they agree with the each statement (1 = *Strongly disagree* and 5 = *Strongly agree*). In this study, the alpha reliability of Satisfaction scale was found to be $\alpha = .82$.

RESULT

Table 1. *Mean scores and standard deviations of Perceived Emotional Support, Satisfaction, Perceived Stress, and Uncertainty by frequency of Online Communication Use.*

	Low Online Communication Use (2.00 ~ 3.75) (N = 16)		Moderate Online Communication Use (4.00 ~ 5.33) (N=14)		High Online Communication Use (5.50 ~ 7.00) (N=20)		Total (N=50)	
	M	SD	M	SD	M	SD	M	SD
Emotional Support	3.39	0.69	3.77	0.43	4.05	0.63	3.76	0.66
Satisfaction	4.14	0.46	3.71	0.87	4.10	0.53	4.00	0.64
Stress	2.93	0.44	3.30	0.80	3.01	0.73	3.07	0.68
Uncertainty	2.64	0.87	2.91	0.67	2.71	0.71	2.74	0.75

Table 1 shows mean scores for each variable (perceived emotional support, satisfaction, perceived stress, and uncertainty) by frequency of online communication use ($M = 4.76$, $SD = 1.41$). To compare high, moderate, and low online communication use groups, the data were analyzed by ANOVA. The analysis showed a significant relationship between online communication use and perceived emotional support, $F(2, 47) = 5.39$, $p = .008$, $\eta^2 = .19$. Post hoc comparison using Tukey's HSD test at $p < .05$ showed that low online communication use group perceived less emotional support ($M = 3.39$, $SD = 0.69$) than high online communication use group ($M = 4.05$, $SD = 0.63$), but moderate online communication group ($M = 3.77$, $SD = 0.43$) did not differ from neither low and high online communication use groups. In addition, satisfaction ($F(2, 47) = 2.12$, $p = .13$, $\eta^2 = .08$), perceived stress ($F(2, 47) = 1.27$, $p = .29$, $\eta^2 = .05$), and uncertainty ($F(2, 47) = 0.50$, $p = .61$, $\eta^2 = .02$) did not have a significant

relationship with online communication use.

Table 2. *Correlations of Variables.*

	Online Communication	Emotional Support	Satisfaction	Stress
Emotional Support	.450 ^{**}			
Satisfaction	.068	.199		
Stress	.046	-.075	-.337 [*]	
Uncertainty	-.014	.010	-.186	.313 [*]

Note. ^{**}. Correlation is significant at the 0.01 level (two-tailed).

^{*}. Correlation is significant at the 0.05 level (two-tailed).

The four hypotheses and one research question were tested by correlation. Table 2 shows correlations for each variable. Hypothesis 1 predicted that international students' amount of online communication with friends, family and other international students would be associated with degree of perceived stress and degree of uncertainty. The analysis did not show a significant negative relationship between amount of online communication and perceived stress, $r(48) = .05, p = .75$. The analysis did not show a significant negative relationship between amount of online communication and uncertainty, $r(48) = -.01, p = .93$. Therefore, as same as the ANOVA analysis above, the data were not consistent with the hypothesis.

Hypothesis 2 predicted that international students' perceived emotional support would be associated with degree of perceived stress and degree of uncertainty. The analysis did not show a significant negative relationship between emotional support and perceived stress, $r(48) = -.08, p = .61$. The analysis did not show a significant negative relationship between emotional

support and uncertainty $r(48) = .01, p = .95$. Therefore, the data were not consistent with the hypothesis.

Hypothesis 3 predicted that international students' satisfaction with the decision to study abroad would be associated with degree of perceived stress and degree of uncertainty. The analysis showed a significant negative relationship between satisfaction and perceived stress, $r(48) = -.34, p = .02$. The analysis did not show a significant negative relationship between satisfaction and uncertainty, $r(48) = -.19, p = .20$. Therefore, the data were partially consistent with the hypothesis.

Hypothesis 4 predicted that international students' amount of online communication with friends, family and other international students would be associated with greater perceived emotional support. The analysis showed a significant negative relationship between amount of online communication and emotional support, $r(48) = .45, p = .001$. Therefore, the data were consistent with the hypothesis.

Research question 1 asked whether international students' satisfaction with the decision to study abroad would be associated with perceived emotional support. The analysis did not show a significant relationship between satisfaction and emotional support, $r(48) = .20, p = .17$. Therefore, it can be said that international students' satisfaction was not associated with perceived emotional support.

In addition to the hypotheses, there were some significant findings. First, there was a significant relationship between age and satisfaction, $r(47) = .29, p = .046$. Therefore, it can be said that younger international students are less satisfied with their experience in the U.S. and

those who are older are more satisfied. The mean score for satisfaction among participants who are 21 years old or younger is 3.71 ($SD = .86$) and one among participants who are 22 years old or older is 4.08 ($SD = .57$). Second, there was a significant relationship between perceived stress and uncertainty, $r(48) = .31, p = .03$. It shows that perceived stress correlates with uncertainty; therefore, international students who perceived greater level of stress also have greater level of uncertainty about life in the U.S.

DISCUSSION

Major Findings and Implications

As H4 predicted, the analysis showed that there was a relatively strong correlation between perceived emotional support and online communication. From the findings, it can be said that international students who use online communication tools more perceive greater emotional support from it. Therefore, online communication may be one of the major support systems for international students. Since international students are away from their friends and family in home country when they are in new environment, online communication can be important for emotional support. In addition, more than half of participants answered that 60% or more of their online communication use is with people or sites in home country. It also shows that online communication tools can be major source for connecting international students and their home culture. It implies that research on international students' cultural adjustment needs to have focus not only on communication with host nationals but also on communication with people in home country as well.

This finding is consistent with previous research that says that online communication is important for international students because communicating with family and friends through online communication tools can maintain their cultural identity and it can give them social support (Cemalcilar et. al., 2005). Ye (2006) also suggests that online social networks are important for international students' cross-cultural adjustment. The current study shows that in fact online communication can be a source of emotional support for international students.

Second, there was a significant relationship between satisfaction and stress as it was stated in H3 (a). The result shows that there is a negative correlation between satisfaction and perceived stress. In other words, the current study indicates that participants who have greater satisfaction of their experience in the U.S. as an international student have less perceived stress. It implies that international students' stress may have an influence on satisfaction. Moreover, it is also possible to say that those who are not satisfied with their experience have tendency to be stressed. This finding is consistent with previous studies. It is said that international students who are satisfied with their experience have less stress at their experience in new culture (Perrucci & Hu, 1995).

Furthermore, stress and uncertainty also had a significant relationship. Cultural transition for sojourners like international students can be stressful because of cultural difference, language difference, life change, etc. In other words, uncertainty about new environment can be one of the factors of international students' stress. Therefore, it can be explained that participants who have less uncertainty or have reduced uncertainty about culture or people in the U.S. have less stress. The relationship between stress and uncertainty of international students needs to be examined further in future studies.

Another finding is that there is a correlation between age and satisfaction of experience as an international student. It shows that older international students have higher satisfaction than younger international students, and it may be able to say that graduate international students have higher satisfaction than undergraduate international students. There may be some possible explanations. First, for example, international students in undergraduate level and those in

graduate level may have different characteristics such as motivation, academic level, and engagement. Second, it may be able to say that programs at graduate level are more satisfying than programs at undergraduate level. It would be important to point out that institutions should focus on satisfaction of international students who are in undergraduate level because from this study, undergraduate international students have less satisfaction.

Limitations

The research did not find relationships between online communication and cultural adjustment measurements (uncertainty and stress) nor relationships between emotional support and cultural adjustment as those were stated in H1 and H2. It can be pointed out that participants for this study had relatively low uncertainty level ($M = 2.74$, $SD = 0.75$) and stress level ($M = 3.07$, $SD = 0.68$). In other words, participants were not uncertain about culture in the U.S. and did not have particularly high stress in their lives in the U.S. One possible explanation is that international students who participated in current study may have already gone through cultural adjustment, since most of the participants has been in the U.S. more than seven months. In the future studies, a relationship between online communication and cultural adjustment may be found if participants are at an early stage of cultural adjustment.

CONCLUSION

The current study shows that online communication is a source for emotional support for international students in the U.S. Since communication technology developed, international students' experience have changed. It is now easy for them to maintain relationships in their home country. Therefore, for research that focuses on international students' social support and cultural adjustment, it is important to consider not only their relationships with host nationals but also ongoing relationships with family and friends in home country. Moreover, institutions may need to be reminded that international students' satisfaction with their experience have many factors and aspects such as their online communication use, social support, age, and their cultural adjustment level.

APPENDIX

Online Communication

(Adaption of Cemalcilar, Falbo, & Stapleton's (2005) CMC Use Scale)

This set of questions will ask you about how often you use online communication and computer mediated communication (CMC) tools to communicate with your friends, family, and other international students. CMC tools include text, e-mail, video chat, blog, social media, and website.

Since your first days in the U.S. how often have you done following activities?

(1) Not at all (2) A few times a month (3) A few times a week (4) Several times a week
(5) Once per day (6) Several times per day (7) All the time

1. Send e-mail to friends and family
2. Use the Internet to access websites
3. Read on-line newspapers and magazines
4. Listen to on-line music broadcasted
5. Communicate with your family via CMC tools
6. Communicate with your friends back home via CMC tools
7. Communicate with other international students in the U.S. via CMC
8. Communicate with American students and friends via CMC

What percent of your CMC use is with people and sites in your home country?

(1) 0-20% (2) 20-40% (3) 40-60% (4) 60-80% (5) 80-100%

Perceived Emotional Support

(Adaptation of Weber & Patterson's (1996) Emotional Support Scale)

The next set of questions will ask you about how using online communication affects your feelings and helps you. Online communication includes text, e-mail, blog, etc. As you read each question, think about how you feel after using online communication.

(1) Almost never true (2) Rarely true (3) Occasionally true (4) Often true (5) Almost always true

1. Access to online communication helps me work through my thoughts and feelings about being a student at this university.
2. When I am upset or lonely I often turn to friends and family through online communication for support.
3. I get good advice from my friends and family through online communication.
4. Contact with friends and family through online communication makes me feel happy and hopeful.
5. People in online communication show genuine concern for me.
6. Online communication gives me confidence about living in a foreign country.
7. I often share my experiences about being a student at this university with family and friends at home through online communication.
8. Online communication gives me an opportunity to express my true feelings.

Uncertainty

(1) Strongly disagree (2) Disagree (3) Uncertain (4) Agree (5) Strongly agree

1. I am unsure about my ability to act properly in the U.S.
2. My values and preferences for living do not work well in the U.S..
3. I am confused about how to behave in most situations in the U.S.
4. I am uncertain about my ability to accurately predict American people's behavior.
5. I often have trouble understanding why American people do what they do.
6. I have difficulty in accurately predicting how Americans will respond to me in most situations.
7. Sometimes I am confused about what is expected of me at this university.

Perceived Stress

(Adaptation of Cohen, Kamarck, & Mermelstein's (1983) Perceived Stress Scale)

The next set of questions will ask you about your feelings and thoughts during your stay at the U.S. In each case, you will be asked to indicate how often you felt or thought a certain way.

(1) Never (2) Almost Never (3) Sometimes (4) Fairly often (5) Very often

1. Since you have been at this university, how often have you been upset about something that happened unexpectedly?
2. Since you have been at this university, how often have you felt unable to control important things in your life?
3. Since you have been at this university, how often have you felt nervous and stressed?
4. Since you have been at this university, to what extent are you able to effectively cope with important changes in your life?
5. Since you have been at this university, how often have you felt you lacked confidence about

your ability to handle your personal problems?

6. Since you have been at this university, how often have you felt that things were not going your way?

7. Since you have been at this university, how often have you felt that you were unable to cope with all the things that you had to do?

8. Since you have been at this university, how often have you found yourself thinking about things that you have yet to accomplish?

9. Since you have been at this university, how often have you been unable to control the way you spend your time?

10. Since you have been at this university, how often have you thought that difficulties were piling up so high that you could not overcome them?

Satisfaction of decision to study abroad

(1) Strongly disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly agree

1. I think I made a good decision to study abroad.

2. I am very happy that I decided to come to this university.

3. This university is a welcoming place.

4. I regret my decision to study in the US.

5. I would advise other students to study at this university.

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