

Cultivating Student Global Competence: A Pilot Experimental Study

A Submission to  
The 2012 Instructional Innovation Award Competition  
Of  
The Decision Sciences Institute Annual Conference

## **ABSTRACT:**

Although student global competence has been recognized as an important learning outcome in an increasingly large number of business schools, the internationalization initiatives remain fragmented and largely ineffective. In this study, we designed and tested a course project assignment that provided students with opportunities to virtually collaborate (using computer aided communication software) with college students in China on international business related research papers. The statistical results provided some initial evidence on American business students' significantly lower performance on global knowledge and attitude, and confirmed the proposed project assignment as an easy-to-use and cost-effective pedagogical intervention to develop student global competence.

## **INNOVATION HIGHLIGHTS:**

1. We operationalized global competence as a three dimensional concept including global attitudes, knowledge and skills. A measurement instrument specifically dedicated to college student population was also developed and empirically verified to test global competence.
2. Our proposed pedagogical intervention is cost-effective, as compared other internationalization initiatives such as study abroad, universally applicable to any foreign country/culture, and can be easily incorporated as a course component in a wide variety of business disciplines.

## INTRODUCTION

The current world we live in is increasingly characterized by economic, political, cultural, environmental and technological interconnectedness (Merryfield, 2008). Nations around the globe are experiencing growing interdependence as the result of trade, migratory flows, and increased communications. At the same time, unbalanced regional development, and the acceleration of religious and ethnic conflicts create an overwhelming number of emerging social and political challenges. If our students are expected to understand and resolve these global issues, it becomes crucial for educators to address parochialism and to cultivate student global competence.

However, even the educated American populace is often portrayed as “unprepared to engage the kinds of issues facing a transnational or global citizenry” (Holm and Farber, 2002). Our college curricula have been widely criticized as not adequately preparing students to master a multi-disciplinary, global body of knowledge about how the world works (Lohmann, et al., 2006). A recent study by the American Council on Education (ACE) (2008) found that very few higher education institutions demonstrate a significant level of internationalization. A separate study by the National Research Council also suggested that college programs should be redesigned to incorporate training opportunities for improving student global competence (Reimers, 2009).

Although the literature has an impressive deposit of studies on cross-cultural and globally oriented education, the higher education community has not yet reached an agreement on the operational definition of global competence (Hunter et al., 2006; Blumenthal and Grothus, 2008; Deardorff, 2011). Multiple terminologies have been employed in various occasions such as: “Intercultural competence”, “global mindset”, “global citizenship”, and “intercultural sensitivity”, to name a few. Since global competence has been very loosely defined, it is particularly difficult to identify the specific components of this complex concept (Shams and George, 2006). As a result, the internationalization initiatives on college campuses are often fragmented, lack clear focus, and are largely ineffective (Hunter et al., 2006). To streamline these isolated efforts into a

unified global education endeavor, faculty and administrators must address a number of key questions: how do institutions of higher education know if they are graduating students who can function appropriately in a global environment? How do institutions measure the effectiveness of their internationalization efforts? Even more importantly, what does it mean to be globally competent? Furthermore, how can we design a curriculum to enhance student global competence?

Study abroad programs have traditionally been prescribed as the primary educational tool to provide students with direct cross-cultural experiences and global perspectives (Hill, 1991). Studies such as Machorro (2009) documented the proven effectiveness of these programs for their ability to enhance cultural and global competence. However, study abroad programs do pose a number of fundamental limitations. Due to obvious constraints such as high costs and considerable time commitment, study abroad is often designed as an optional component in most higher education programs. Statistics show that only eleven percent of the graduates from U.S. institutions participated in an international academic experience in 2002-03 (Matador Network, 2009), and the majority of those who have participated are from a narrow range of programs or majors (Marklein, 2008). Blumental and Grothus (2008) argued that to fit a study abroad semester into a very tightly sequenced curriculum (such as accounting, engineering) remains a significant deterrent for some majors, as does the labor-intensive work required of home campus faculty seeking to develop exchange programs with international partners. It is thus an obvious challenge for educators that alternative pedagogical arrangements should be explored to cultivate global competence for a larger student population from a wider range of programs.

Another major problem for study abroad is that most of these programs are concentrated on just a handful of hosting countries that traditionally have close cultural and political ties with the US. A report by USA Today indicated that 57% of all study abroad participants in 2008 had gone to Europe (Marklein, 2008). On the other hand, our students, particularly those in business schools, need a broad range of exposure to the increasingly diverse and global environment.

Experiences from the one or very few countries that students have physically visited in study abroad trips may be far from sufficient. It would be advantageous to develop some type of generic curricular component that can be easily and cost effectively applied to different cultural context and significantly improve students' global competence related to multiple countries.

This paper documents a pedagogical intervention we designed in 2011 spring semester. Based on limited data from this small scale pilot experiment, we obtained some initial evidence that by providing students with opportunities to virtually collaborate with peers from foreign cultures, we can improve student global competence in an easy to use and cost-effective way. In the remainder of the paper, we will first conduct a literature review on the concept of global competence in section two. Then, we will discuss the methodology and experimental design of the study in section three. Data analysis procedures and research findings will be summarized in section four. The last section (section five) will cover the conclusions from the study, pedagogical implications, limitations as well as suggestions for future research.

## **LITERATURE REVIEW ON GLOBAL COMPETENCE**

Considerable research and pedagogical efforts to explore the concept of global competence have been documented in the literature. It can be broadly defined as one's ability to transcend domain or discipline and properly comprehend cultural norms and global events so that one can interact, communicate and work effectively outside one's environment. Nearly all existing studies have acknowledged global competence as one of the most important learning outcomes in higher education. However, there is still high level of disagreement on what exactly constitutes the concept of student global competence (e.g. Hunter et al., 2006; Blumenthal and Grothus, 2008; Deardorff, 2011), and more importantly, such confusion in definition hinders the attempts to design pedagogical interventions that can promote student global competence and to evaluate whether such competence truly exists in our students (Fantini, 2009).

Bennett's Developmental Model of Intercultural Sensitivity (Bennett, 1993) is often credited as the theoretical foundation for the development of individual global competence. Utilizing concepts from constructivism and cognitive psychology, this model describes two stages of sensitivity to cultural differences. It is assumed that a person's intercultural competence increases as one progresses through the increasingly complex reactions to different cultures, from ethnocentric stage (including the sub-stages of Denial, Defense, and Minimization) to ethnorelative stage (including the sub-stages of Acceptance, Adaptation, and Integration). This model underlies the three independent dimensions of global competence:

First of all, students must have a positive *attitudes* toward other cultures (Green and Olson, 2005; Hunter et al., 2006; and Reimers, 2009). More specifically, authors such as Sue et al. (1982, 1992), Casas et al. (1986), Pedersen (1988), and Pope and Reynolds (1997) believed that students must be aware of global diversity and cultural plurality; while Hunter et al. (2006), and Mansilla and Jackson (2011) argued that students should also respect and appreciate foreign cultures and recognize the benefits of learning about other cultures. In order for an individual to truly understand global phenomena, she should demonstrate an inner curiosity in investigating the world beyond her immediate environment (Deardorff, 2009). More importantly, she should recognize other's perspectives and develop a nonjudgmental and open attitude toward foreign cultures. Reimers (2009) further emphasized the importance of one's willingness to accept the initial confusion and uncertainty from interacting with a new foreign culture. Thus, we would follow the definition proposed by Green and Olson (2005) and consider attitudes as a two-dimensional construct: 1) openness to intercultural opportunities, and 2) tolerance to cultural differences and ambiguity.

Secondly, students must possess the fundamental *knowledge* about the world. Hunter et al. (2006) and Bresciani (2008) considered it an important step in helping students become globally competent that they must acquire specific knowledge regarding the target foreign culture. It needs

to be noted that the knowledge should go beyond the conventional surface-level understanding to foods, greetings, customs, and so on (Deardorff, 2006). Such knowledge must be sufficiently in-depth to provide students with the imperative context to comprehend the complexity of global phenomena. Furthermore, Reimers (2009) affirmed the importance of knowledge on one's own culture in achieving cultural empathy. He believed that a firm understanding to one's own culture and perspective would facilitate the comprehension and sense-making to other cultures.

Additionally, students also need to have a holistic understanding to some of the globally significant topics such as health, sustainability, security conflicts, and economic development as well as how these issues are related to the relevant countries and regions (Hurtado et al., 1998; Olsen and Green, 2005). Therefore, we consider the construct of global knowledge has three dimensions: 1) the knowledge on one's own culture in the global context, 2) the knowledge about the other culture in question, and 3) the understanding to global issues, processes, trends and systems.

Thirdly, students must demonstrate a set of *skills* that are necessary for them to function competently in an intercultural environment. Although an important dimension that is well-recognized in nearly every global competence related study, there is substantial disagreement on what exactly these global skills are. They range very widely from personal characteristics such as leadership (Jayakumar, 2008; Willard, 2011), self-reliance and self-control (Willard, 2011), to acquired capabilities such as second language proficiency (Lohmann et al. 2008; Reimers, 2009), adapting to difficult situations, handling stress (Willard, 2011), and communication skills (Deardorff, 2006; Papadopoulo et al. 1998), and even to some trivial matters such as sense of humor (Willard, 2011). In order to categorize these large varieties of skills into meaningful sub-dimensions, the American Council on Education (2007) suggests a narrower focus on only those skills that are directly relevant to collecting new information and problem solving in a student learning scenario. We consider the construct of skills comprises three sub-dimensions: 1) the

ability to acquire, analyze and evaluate information and use cultural references to thinking critically and solve practical learning problems (Deardorff, 2006); 2) the cognitive skills to listen, observe, and relate so that one can communicate and connect with people from other cultural backgrounds (Bok, 2006); and 3) the capability to use acquired knowledge to extend one's access to learn the unknown. Table one summarizes the definitions and sub-constructs of the three dimensions of global competence.

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Insert Table 1 here

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In a Delphi study in which twenty-three well recognized intercultural scholars participated, Deardorff (2006) found a consensus that teachers should take an active leadership role in cultivating student global competence. Intercultural learning is a type of transformational learning which takes considerable time to convert one's disconnected knowledge and experiences (often beyond the classroom) into systemized behavioral outcomes and cognitive competence. Thus global learning should never be regarded as some standalone one-time initiatives. The efforts to "internationalize the campus" must be constantly integrated into our students' overall learning experiences (Deardorff, 2011). Hovland (2009) further argued that the infusion of global attitudes, knowledge and skills need to be carefully weaved into the day-to-day learning activities throughout every course students took. Therefore, we propose that:

*Proposition 1: Global competence is a teachable attribute that can be effectively cultivated by providing students with well-integrated learning opportunities.*

The pedagogical intervention we proposed in this study was a mandatory course project that students had already been familiar with. It supplemented a research paper assignment with an additional component that required students to communicate and collaborate virtually with international partners. The research topics were comprehensive in nature and encompassed an extensive range of business areas (e.g. finance, supply chain, marketing etc.), so that students would learn to integrate knowledge they acquire from multiple disciplines in the core curriculum

into meaningful business solutions. The global orientation fit meticulously with other learning objectives of the project, such as research skills, communication, and team work. Moreover, designed as a semester-long project, it required constant attention and actions from the students. They must interact online regularly with partners, and report project progress periodically back to the researcher. Such substantial level of commitment to this assignment would significantly reshape students' behaviors. Thus we believe the proposed pedagogical approach can effectively promote overall student global competence.

Reimers (2009) noted that global education is multidimensional. Given the three dimensions of global competence we have identified above, the question for educators boils down to how we can provide students with learning opportunities that are specifically addressing the outcomes and behaviors as illustrated by these three attributes. Erickson and O'Connor (2000) applied "intergroup contact theory" as a theoretical framework to the design of pedagogical interventions for intercultural learning. They suggested that when favorable contextual factors were presented (i.e. pursuit of common goals, provide a basis for friendship, equal status, mutual support and cooperation, long-term contact), then the contact between individuals representing different cultural identity would reduce negative stereotype, promote intergroup understanding, and strengthen intercultural functional skills. Thus, we propose that:

*Proposition 2: To provide student with meaningful and convenient hands-on contact opportunities with individuals from other cultural identity will effectively improve their global attitudes, knowledge and skills.*

By taking advantage of computer-aided communication tools, our proposed project provided students with an easily accessible and cost effective contact opportunity with peers in a foreign country. Each of the three global competence dimensions was attended either directly or indirectly in the study. It was learning by doing for the dimension of skills. With the opportunity to work intensively for a semester on a research project in a structured environment, students would be able to gain real world experience on how to function properly in an intercultural work

group setting. Issues such as time differences, diverse working styles, and low context communication in the virtual environment suddenly would become so real for students that they had to think critically and respond with improvisation. Our lecture on the virtual workplace at the overview meeting, as well as the feedback to their checkpoint reports, would serve as teaching points when many of those issues were addressed in a systematic manner. The dimension of knowledge was enhanced directly. When students were chatting online with their partners both formally on the assigned research paper and causally on topics of personal interest, they were actually collecting new knowledge about the other culture and making sense of the cultural context. Meanwhile, by interacting with the two cultures side by side, students could obtain new perspectives on their own culture as well. Their attitudes toward foreign cultures were also positively affected during the experiment. Communicating directly with a real person similar to their age would help students break the myths of the other culture and allowed them to better appreciate many of the abstract cultural concepts, hence significantly improve their tolerance level to cultural ambiguity and cultural clashes.

## **RESEARCH METHODOLOGY**

In this study, students from two countries were given a joint assignment which required them to use virtual communication technology for a semester to collaborate on international business related research papers. We then measured and compared participants' global competence level both before and after the assignment.

### **Design of Experiment**

The experiment involved two groups of college students representing two universities located in China and the US. The US group was from an AACSB accredited business school in a liberal arts university in the New England region. They were traditional sophomore and junior level undergraduates majoring in a variety of business disciplines and had registered to two sections of the sophomore level Principles of Management classes that the researcher was

teaching in spring 2011. The experiment was designed as a mandatory course component. Thus all thirty-four registered students participated in the study.

The other group was from a well-known national university of technology in China recruited with the help from the researcher's Chinese colleagues. Since the study required frequent communication in English between the two groups of students, the Chinese students' English proficiency was the primary selection criteria for the participants of this group. We invited thirty-four highly motivated senior undergraduates and first year master's students from the university's Business English program to participate in the study. All had accepted our participation invitation.

In February 2011, a one-and-half hour overview meeting was scheduled at each campus. In the meetings, students were first briefed about the procedures of the study. Then, based on Cynthia C. Froggatt's *Work Naked: Eight Essential Principles for Peak Performance in the Virtual Work Place* (2001), we introduced the etiquette and some basic techniques of intercultural virtual collaboration to the participants.

The Microsoft Windows Live<sup>®</sup> Messenger was chosen as the standard virtual communication platform for online collaboration between students. The main consideration was that the software is very versatile, equipped with a wide array of built-in communication functions, such as instant text messaging, audio and video conferencing, instant file sharing, and electronic whiteboard. At the same time, since it is pre-installed with a Windows operation system, the software is readily available to every Windows based computer. This was particularly important to our Chinese participants, since not every one of them owned a personal computer. They had to use university-owned public computers on which they could not download and install other third party communication software (e.g. Skype). In the overview meeting, we demonstrated the major functions of the software to all students. User's names were also supplied for those who did not already have one.

We randomly paired each American student with a Chinese counterpart to form 34 teams, and exchanged their Windows Live® IDs. Each pair was then instructed to collaborate on a randomly assigned China-US business related research topic. They worked on the topic for the rest of the semester and co-authored a paper which was submitted back to the researcher in early May. Some of the research topic examples are listed below:

- A comparative study on Internet for business use in China and USA
- A comparative study on consumer spending and saving habits in China and USA
- A comparative study on real estate markets in China and USA
- A comparative study on hiring practices in China and USA
- A comparative study on new product development practices in China and USA

To make sure each pair was making satisfactory progress continuously throughout the semester, three checkpoints at one month interval were scheduled. At those checkpoints, each pair would submit a progress report to the researcher, documenting what had been achieved in the previous month and what was planned for the following month. Any questions and concerns related to either the research paper itself or virtual communication were addressed accordingly by the researcher, face-to-face, to the corresponding American students. At the end of the semester in early May 2011, all thirty-four pairs had successfully finished the research papers as directed.

### **Development of Measurement Instrument**

Since one of the primary objectives of this study was to test whether the above mentioned pedagogical intervention would significantly improve student global competence, it was obviously very important that participants must be accurately measured with a reliable instrument. However, our literature review indicated that although multiple studies have been based on the three-dimensional framework discussed in the previous section (e.g. Lohmann and Hoey, 2006; Lohmann et al, 2008; and DeGarmo and Siemer, 2009), they were just general grading rubrics

only appropriate for preliminary third party evaluation. No actual measurement items have been created for each dimension of global competence. On the other hand, the assessment tools that are commercially available and widely used in the corporate world and government agencies, such as Global Competence Aptitude Assessment by Global Leadership Excellence LLC, and the Global Competencies Inventory by Kozai Group, had been found to be oriented toward helping organizations screen potential expatriates, thus not particularly applicable to the higher education context. We finally decided to create our own version of measurement questions on the basis of the three-dimensional taxonomy to measure global attitudes, skills and knowledge.

Since the same sets of attitudes and skills characteristics are believed to affect an individual's global competence in an identical way regardless of which foreign culture is involved, while the actual knowledge required for a particular communication scenario is however culturally specific, we took different approaches to measure the three dimensions of global competence. Attitudes and skills were measured indirectly by using each participant's self-perceived performance ratings on the items underlying each dimension. Based on literature review, we created 17 items for the five sub-dimensions of the two constructs. Table 1 lists the questionnaire items we used in the survey.

On the other hand, the dimension of knowledge was measured directly by 20 fact-based multiple choice questions, which were adopted and revised from multiple sources such as the web quizzes of BBC, National Geographic, PBS, and Franklin Institute. Because we wanted to measure participants' knowledge on both their own culture as well as the other culture, the questions covered some basic information on the national geography, culture, history, role in international relations, and economic and political structures of both China and the US.

After the measurement items were drafted, we took rigorous validation procedures to pre-test the instrument. Firstly, considering that half of the audience was from a non-native speaking background and the research topics' international business context, a professor of Chinese

linguistics from the foreign languages department and another faculty member from the business school were invited to evaluate the item appropriateness, understandability, and brevity. Some minor modifications were made based on their feedbacks. Secondly, we followed the Q-sort methodology to further assess the construct validity and reliability. Introduced by Stephenson (1953), Q-sort methodology examines the degree of agreement in sorting measurement items into various dimensions by evaluators similar to the intended respondents. Nahm et al. (2002) testified that this iterative procedure would accurately assess and potentially improve construct validity and reliability.

All 17 measurement items for the 5 sub-constructs of the attitudes and skills dimensions were first mixed and placed in a common pool. Due to their prior experiences in communicating with Chinese and similarity to our experiment participants, three pairs of American undergraduate students in International Business program were invited as judges to evaluate the items in three rounds. They were first introduced to the conceptual model and the definition of each sub-construct in a face-to-face meeting with the researcher. In each round, each pair of judges were asked to sort out the 17 items into six categories that they believed each item was intended to measure. The six categories corresponded to the five sub-constructs and an extra non-applicable (N/A) category. The N/A category was provided to minimize the possibility of forcing the judges to place any items into a particular category that they did not feel strongly about.

The statistical evaluation of the sorting results was based on three parameters: 1) the inter-judge agreement level was a raw agreement ratio, calculated by counting the number of items that both judges agreed to place into a certain category, even if the category might not be the one the researcher intended to measure; 2) Moore and Benbasat's hit ratio (Moore and Benbasat, 1991) was computed in the similar manner, but only counting the items that were correctly sorted into the intended theoretical construct by the two judges and divided by two times the total number of the items ( $2 \times 17 = 34$ ); 3) Cohen's Kappa Coefficient (Cohen, 1960) measures of the proportion of

joint judgment after excluding chance agreement. Table 2 summaries the statistical results of the three Q-sort rounds. Landis and Koch (1977) argued that a Cohen's Kappa value between 0.76 to 1.00 would indicate good inter-rater reliability; while above 80% for the other two ratios could be considered as "high" (Nahm et al., 2002). Our final (third) round achieved 94% for both the inter-judge agreement ratio and the Moore and Benbasat's hit ratio, and 0.91 for the Cohen's Kappa coefficient, thus demonstrated that the instrument had appropriate level of construct validity and measurement reliability.

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The verified instrument was administrated to all participating students both before and after the experiment. Then their performances were compared and analyzed in the following section.

## **DATA ANALYSIS AND RESULTS**

In order to detect the statistical differences between before and after the experimental treatment, we first conducted a series of paired comparison t-tests. The group means of each global competence categories before and after the treatment were compared and summarized in Table 3. Attitudes and skills were measured on a 1 to 5 Likert scale, with 1 for the lowest and 5 for the highest level. The knowledge dimension was measured by the number of correctly answered questions out of the 20 being administered. The total global competence score is the summation of one's performance in all three dimensions, including the means for attitudes (8 questions) and skills (9 questions) and  $\frac{1}{4}$  of what one had received for knowledge (out of 20). It needs to be noted that we had made the  $\frac{1}{4}$  conversion to the dimension of knowledge, so that it would carry the same weight as the other two dimensions in the total global competence scores. Except knowledge dimension for Chinese students, the post-treatment group average scores in all categories appeared to be statistically higher than the corresponding pre-treatment scores

(significant at the 0.05 level), thus indicating an improvement in global competence after the treatment for both the Chinese and American students.

During the course of our experiment, there were other global initiatives and program going on at the American campus, such as a university-wide public lecture series focused on various global issues, Business School's one-week-long International Business Seminars, and other globally oriented course projects assigned in different classes. In order to confirm that the students' performance improvements identified above was truly due to our experimental treatment, we designed and measured a control group (24 students), which was a different class the researcher was teaching in the same American university. The same global competence test was administered twice as extra credit assignments to the control group at the same time frame as the experimental treatment group. As summarized in Table 3, none of the dimensions were statistically different between test 1 to test 2 for the control group. It thus confirmed that the experimental treatment did significantly improve student global competence for both the US and Chinese participants.

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It is interesting to notice that no significant improvement had been made in the global knowledge dimension for the Chinese students in the experiment. We first looked into the demographics of the participants in the group. As high performing senior and master's students major in English, these individuals appeared to have known the US fairly well even before participating to the program (scored about 80%), thus might have limited room for further improvement in a relatively short period of time (a semester).

To further explore the performance differences between students from the two countries, we conducted additional two-sample t-tests (assuming equal variance) for each of the global competence dimensions. The results were reported in Table 4. Chinese participants appeared to

have significantly out-performed their US counterparts in knowledge and attitudes dimensions both before and after the experiment. We believe a number of factors might have contributed to the discrepancy: Firstly, the selected Chinese participants were individuals highly motivated to connect with American partners and to learn about the US. It was thus not surprising that they held strong interests in the US related topics and issues, maintained positive attitude to the experiment, and demonstrated better than average general knowledge about the US; Secondly, as the only superpower in the current world, the US has tremendous political, economic, and cultural influence on the population far beyond its border. Chinese students tend to have relatively greater exposure to American pop culture and other related topics in their daily lives than the US students to China related issues. Thirdly, from a curriculum design perspective, the US institutions have traditionally put primary emphasis on western culture/European countries in their international initiatives; while the Chinese universities, on the other hand, have always placed more attention on America.

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Another noticeable finding is that the American students were consistently performed significantly better than the Chinese counterparts in terms of their global skills both before and after the experimental treatment. Follow-up demographic analysis revealed that 25 American participants (73.5%) had travelled internationally in the past, while only 1 Chinese (3%) had such experience. Additionally, all American students (100%) indicated regular experience on working with foreign-born professors and/or international classmates before the experiment. On the other hand, eighty-eight percent of the Chinese group claimed to have no previous opportunities to really work with foreigners extensively on any project, although they did mention some brief exposures to native speaking English tutors in the past. We believe the experiences the American

students gained from past occasions provided them with a higher comfort level to intercultural tasks as well as the skills to function in an intercultural environment.

Surprisingly, despite the considerably lower performance by American students in total global competence before the treatment, we found no significant difference between the two groups in this category after the treatment. In order to understand why both groups of participants performed similarly in terms of total global competence after the experiment, we computed the net improvements (the change between before and after the treatment) that participants had made in each of the global competence dimensions. The third block of Table Four reports the amount of change each group had achieved by calculating their average before and after treatment performance differences in each dimension of global competence. The t-statistics demonstrated that both groups of students had made similar level of increase (statistically not significant) in knowledge and skills dimensions, but the American students had gained significantly more in attitudes, thus reduced the differences from the Chinese in the total combined scores of global competence. It demonstrated that our pedagogical intervention appeared to be more effective for the American students, particularly in improving their attitudes toward a foreign culture.

## **CONCLUSIONS AND RESEARCH LIMITATIONS**

The experimental treatment results clearly confirmed the two propositions of the study: Global competence is teachable by providing students with appropriate learning opportunities. A true challenge in campus globalization is to make sure professors, particularly those from areas that typically do not have a global focus, truly believe in the value of global competence (Jayakumar, 2008). Educators must be motivated to engage in the globalization endeavors both inside and outside the classroom. At the same time, they should also be aware that cultivating student global competence is, albeit challenging, an achievable objective that they can make a difference with some simple pedagogical interventions. They should actively explore innovative

approaches on curriculum and coursework design so that global competence becomes an integrated part of students' overall learning experience.

The study also reaffirmed the applicability of Erickson and O'Connor's (2000) "intergroup contact theory" in developing student global competence. Educators should work on creating learning opportunities to expose our students as much as they can with meaningful and in-depth contact with people of foreign cultures. More importantly, the current study has pinpointed an alternative direction for the global contact, which does not necessarily have to be face-to-face and involves expensive international travel. With computer aided communication technologies so readily available these days, and the technology savvy of this generation of students, we can conveniently and cost-effective establish virtual global contacts across international borders and reach equally powerful results. Our proposed pedagogical intervention is a generic project template that can be easily inserted into existing course designs of a wide variety of courses in different disciplines. It is thus highly generalizable.

It however needs to be noted that we, by no means, suggest replacing the existing campus globalization initiatives (e.g. study abroad), but to propose a supplementary intervention program that fellow educators can try to introduce into their classrooms. All types of intercultural contacts are good, as long as they allow students to develop close and collaborative relationship and substantially exchange knowledge and ideas for an extended period of time; we can effectively promote intercultural attitudes, knowledge and skills.

Based on extensive literature review, our study has created and empirically tested a measurement instrument for the elusive concept of global competence. Deardroff (2011) pointed out that the development of global competence is an ongoing process, it is thus imperative for educators to be able to reflect and assess the development of student global competence on the regular basis. We believe our instrument can be easily used in a classroom setting to provide teachers with an idea on the actual global competence level of their students. The measurement

information can also provide teachers with useful guidance on what specific aspects of global competence their students are still behind the targeted objective so that focused pedagogical attention can be more precisely applied.

Finally, the current study has indicated that before our pedagogical intervention, the surveyed American students perform considerably lower than their Chinese counterparts in total global competence, particularly in terms of knowledge and attitudes. Although a small sample from a single university by no means fully represents the large college student population in either of the two enormous countries, the results do provide some initial evidence that should serve as a wake-up call to the higher education community. Despite the considerably higher per student educational spending, our students are not performing on par with their global peers. It thus re-emphasized the necessity of globally focused education, particularly with regard to the emerging markets such as the BRIC counties (i.e. Brazil, Russia, India and China). And more specifically, educators should direct their attention to the areas of knowledge and attitudes in order to improve their students' global competence level.

### **Research Limitations and Future Studies**

Because of various constraints the researchers were facing when conducting this study, readers are advised to be aware of a number of limitations: Convenient samples from the researcher's existing classes were used for the study. There is always concern that these participants were not fully representing our population of interests: American business undergraduates, and college students in general. Moreover, all 34 pairs of participants were major in either business disciplines or humanities (foreign languages). These individuals are traditionally more likely to get involved in study abroad programs and have higher sense of global issues than students from other programs (i.e. sciences and engineering). Caution must be taken when attempting to generalize the findings to the general college population.

Although foreign language proficiency has long been regarded as a critical component of global competence (e.g. Lohmann et al., 2008), we did not factor it as a parameter in the experimental design. It, however, should not be interpreted as that we disregard the importance of foreign language proficiency. On the contrary, we believe the role of language proficiency is fairly obvious in affecting one's ability to function in a global environment. The consideration was that in order to test this known-to-all effect, the experimental design would become unnecessarily complicated, and we would have to recruit a lot more American participants who had sufficient level of working knowledge on Chinese. This was unfortunately not possible for a small scale study like this one. We thus decided to control the effects of language proficiency and to standardize the language of communication in the experiment. Future studies may be conducted to explore how exactly an individual's global competency is associated with different level of foreign language proficiency.

Even with the one-and-half hour training provided to students on virtual team work before the experiment, we were surprised by how unprepared our students had been. There were multiple complains regarding the difficulty on meeting deadlines, making compromises, and task distributions in the student monthly progress reports. It appeared that these students were lacking of basic skills on work in a team setting, not mentioning at a virtual environment. We believe the frustrations and disruption due to such unpreparedness had negatively affected the experiment results, the dimension of attitudes in particular. More substantially training on virtual collaboration should be incorporated into the design of future endeavors on similar pedagogical intervention projects.

Future research can also be oriented toward expanding the scope of the current study by incorporating students from wider range of programs and academic backgrounds, and from multiple campuses, so that it is possible to investigate the effects of our proposed pedagogical intervention on a larger and more representational college student population. It would also be

interesting to include multiple countries and cultures besides China and the US into a similar experimental design, where it becomes possible to benchmark the responses from students of different countries in a world-wide research effort. After all, cultivating student global competence is a continuous challenge for educators. Continuing research efforts to explore and facilitate such process should also be a never-ending endeavor as well.

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**Table 1. The dimensions, sub-dimensions, definitions, and measurements items for the construct of global competence**

<b>Global Competence Dimensions</b>	<b>Definition</b>	<b>Sub-dimensions and Measurement items</b>
Attitudes	One's positive approach toward cultural differences and a willingness to engage those differences.	<ol style="list-style-type: none"> <li>1. Openness to international / intercultural opportunities.               <ol style="list-style-type: none"> <li>a. Recognize the benefits one can gain from learning from a foreign culture.</li> <li>b. Recognize one's capacity to advocate for and contribute to global related issues.</li> <li>c. Appreciation of the foreign culture (art, food, religion, philosophy etc.)</li> <li>d. Willingness to learn more about a foreign culture.</li> <li>e. Willingness to perceive social phenomena from perspectives of people from a foreign culture.</li> </ol> </li> <li>2. Tolerance to cultural ambiguity and acceptance to cultural differences.               <ol style="list-style-type: none"> <li>a. Awareness of the similarities and/or differences between one's own and a foreign culture</li> <li>b. Awareness of one's own biases, prejudices, or stereotypes in relation to a foreign culture.</li> <li>c. The willingness to seek compromise/understanding with people of different culture.</li> </ol> </li> </ol>
Skills	A broad range of personal capabilities to collect and process information in a cross-cultural environment, through either interpersonal communication or research on secondary sources.	<ol style="list-style-type: none"> <li>1. Uses knowledge, diverse cultural frames of reference, and alternate perspectives to think critically and solve problems.               <ol style="list-style-type: none"> <li>a. The ability to identify important global issues.</li> <li>b. The ability to recognize implications of global issues on oneself, community, and society.</li> <li>c. The ability to provide culturally-grounded arguments to study global issues.</li> </ol> </li> <li>2. Communicates and connects with people from other cultural background.               <ol style="list-style-type: none"> <li>a. The ability to understand the perspective of other people of different culture.</li> <li>b. The ability to articulate one's own perspective to other people of different culture.</li> <li>c. The ability to compromise differences with people of different culture.</li> </ol> </li> <li>3. Uses knowledge of other cultures to extend one's access to information, experiences, and understanding.               <ol style="list-style-type: none"> <li>a. The ability to identify and collect evidence from a variety of credible international sources, and media format for global issues.</li> <li>b. The ability to synthesize and comprehend the evidence collected from various sources to address global issues.</li> <li>c. The ability to develop coherent responses to address global issues.</li> </ol> </li> </ol>

Knowledge	The understanding to history, geography, economic, political, and other issues related to the one's own and foreign culture, which provides background and context to new cultures so that one can think critically and creatively about complex international challenges.	<ol style="list-style-type: none"> <li>1. Understand his/her culture within a global and comparative context.</li> <li>2. Understand basic facts about the other culture (i.e. beliefs, values, perspectives, practices, and products).</li> <li>3. Understand global issues, processes, trends, and systems (i.e. economic and political interdependency among nations, environmental-cultural interaction, global governance bodies, and nongovernmental organizations).</li> </ol>
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**Table 2. Q sort results for measurement items assessment**

	<u>Inter-Judge Raw Agreement</u>			<u>Moore and Benbasat's Hit Ratio</u>			<u>Cohen's Kappa Coefficient</u>
	Total Item	# of Agreement	Agreement Ratio	Total Item	# of Hits	Overall Hit Ratio	
<i>Round 1</i>	17	13	76%	34	24	71%	0.70
<i>Round 2</i>	17	15	88%	34	29	85%	0.85
<i>Round 3</i>	17	16	94%	34	32	94%	0.91

**Table 3. Comparative results between pre and post treatment.**

	Pre-treatment (group average)	Post-treatment (group average)	t-test
<b>US students (n=34)</b>			
Knowledge	13.5	14	-2.085*
Attitudes	3.474	3.96	-7.252*
Skills	4.129	4.346	-7.345*
Total Global Competence	10.978	11.805	-10.403*
<b>Chinese students (n=34)</b>			
Knowledge	15.853	16.235	-1.159
Attitudes	4.077	4.408	-6.577*
Skills	3.658	3.868	-6.644*
Total Global Competence	11.699	12.335	-5.575*
<b>Control group (n=24)</b>			
Knowledge <sup>†</sup>	13.375	13.667	-0.389
Attitudes <sup>‡</sup>	3.523	3.549	-0.210
Skills	4.165	4.219	-0.919
Total Global Competence	11.032	11.186	-0.492

Note: \*  $p < 0.05$

**Table 4. Comparative results between the US and Chinese participants**

	US students	Chinese students	t-test
<b>Pre-Treatment</b>			
Knowledge	13.5	15.853	-3.704*
Attitudes	3.474	4.077	-3.921*
Skills	4.129	3.658	5.987*
Total Global Competence	10.978	11.699	-2.03*
<b>Post-Treatment</b>			
Knowledge	14	16.235	-3.271*
Attitudes	3.96	4.408	-3.286*
Skills	4.436	3.868	5.432*
Total Global Competence	11.805	12.335	-1.58
<b>Improvements before and after treatment</b>			
Knowledge	0.5	0.382	0.289
Attitudes	0.485	0.331	1.844*
Skills	0.219	0.21	0.17
Total Global Competence	0.827	0.636	1.375*

Note: \*  $p < 0.05$