AC 2010-1242: IMPACT OF CROSS-CULTURAL STUDY EXPERIENCES ON CULTURAL SENSITIVITY DEVELOPMENT

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Impact of Cross-Cultural Study Experiences on Cultural Sensitivity Development

Abstract

Research was performed looking at cultural sensitivity development of students participating in cross-cultural study experiences. The primary research focus was short-term, 4-6 weeks, study abroad opportunities with comparative data taken from both semester aboard studies and on-campus cultural studies. The research was mixed methods using the Intercultural Development Inventory (IDI) for quantitative sensitivity development measurement and qualitative interviews to place that data in context for improved understanding. The quantitative data measures cultural sensitivity along a continuum defined by the Developmental Model for Intercultural Sensitivity (DMIS). The continuum identifies intercultural sensitivity from the strong ethno-centric position of denial through the culturally normative position of minimization to a fully integrated, ethno-relative sensitivity position. Data have been gathered from undergraduate students participating in courses with pre- and post-testing using the IDI. On returning to campus, students met for focus group interviews where they could discuss their experiences and qualitative data could be evaluated for contextual framing. Data were gathered from courses offered over a three year period.

The initial research purpose was to determine if change is taking place on an individual basis. The data reveal a group dynamic rather than individual change. This group dynamic existed in both short-term and semester long scenarios that were evaluated. This dynamic was not found in the on-campus courses. Qualitative data help to understand these patterns and differences.

Introduction

To be effective engineers and global citizens, today’s engineering students must understand the global nature of society and the complexities of a world economy. Efforts have been made by universities to incorporate global initiatives into their curriculum. Over the past six years, efforts have been on-going at John Brown University (JBU) to address this issue. This article addresses assessment results from current global educational experiences and evaluates how our courses creating change in students.

The National Academy of Engineering projects that, because of growing political and economic ties among nations, engineers will discover that their designs have much broader and more significant impacts than they once did. As a result, engineering practice will be driven by attention not only to the familiar topics of intellectual property, project management and cost-benefit constraints, as well as multilingual influences, cultural diversity, moral/religious repercussions, global/international impacts, and national security. (National Academy of Engineering, 2004)

The ABET Engineering Criteria 2000 (ABET, 2004) was targeted to make engineering education programs more relevant, attractive and connected. Action items were identified to provide a better education in the professional skills without detriment to the technical skills. An important element of these criteria is the emphasis on assessing the following professional skills:
• Ability to design systems, components, or processes to meet needs (globally) with realistic constraints such as economic, environmental, social, political, ethical, health and safety
• Ability to function on multidisciplinary (multi-cultural) teams
• Understanding of professional and ethical responsibility (as understood in multiple cultures)
• Ability to communicate effectively (across language barriers)
• Broad education to impact engineering solutions for a global, economic, environmental, and societal context
• Recognition of the need for, and an ability to engage in lifelong learning (as new markets emerge around the world)
• Knowledge of contemporary issues (globalization)

The author has highlighted existing global statements or added parenthetical modifiers to demonstrate how effective global education will help students develop the skills needed for international competency. Downey and Lucena (2006) have gone as far as recommending the focusing of global elements into an additional ABET outcome for all programs.

The political arena has recognized the need to face issues of global competitiveness. In his 2006 State of the Union Address, President Bush addressed the rise of new technology competitors around the world, especially in China and India. He noted that technical advancements provide economic strength. As a competitive and innovative nation, the U.S. must continue to lead the world in human talent and creativity. Key elements of his initiative were to develop new technologies and improve students’ science, math and technical skills. In addition, engineers must have the competencies to function globally in leadership positions. Congress worked to address this issue with the America COMPETES Act.

Other recent publications note the need for U.S. technological workforce changes to remain competitive in a global world. Freidman (2005) points out that technology has significantly changed the work environment as traditional barriers to competition have been removed and new dynamics are developing. This change should not be envisioned as a threat, but an opportunity. To meet the challenges of this new opportunity, many changes will be necessary for the engineering community. The Council on Competitiveness (2004) notes that a key national strength is innovation. To capitalize on the innovative spirit, the council has recommended that key initiatives focus on developing talent, investments and infrastructure. An important element of talent development is equipping workers to perform in a global economy. The National Academy of Engineering (2005) reinforces this need for talent development by outlining the challenges of a global world.

Ultimately globalization is impacting all engineering graduates. Their designs will often be targeted to a global marketplace, but the technical expertise of international users and the appropriateness of certain technologies will vary significantly. Many companies are already global with many more going global every day. Engineers participate on global teams as individuals are spread around the globe to implement complex projects. Globalization is expanding our science and engineering labor force both by becoming more internationally diverse and more internationally mobile. (Downey & Lucena, 2005)
For those institutions that are encouraging cross-cultural learning, there is broad diversity. Deardorff’s (2004) study involved both universities and intercultural experts. Her study looked for common terminology. She identified that institutional terminology included intercultural competence, global competence, cross-cultural competence, global citizenship, international competence, cross-cultural understanding, and global awareness. Along with these terms, she identified an equally broad range of definitions and recommended assessment techniques. A surprising 54% of the participating institutions said they were encouraging cross-cultural development, but did not assess the cross-cultural competence of students in their programs.

John Brown University (JBU) has recognized the need to make global issues an integral part of the students’ education. The university core curriculum now requires every student to take at least one three-hour global studies course in fulfilling degree requirements. The Department of Engineering has embraced this activity and is working to incorporate global issues into courses that span the typical four-year course plan. This initiative is seen as an opportunity to significantly strengthen the engineering program, improve ABET outcomes, and further strengthen ties with our liberal arts colleagues. For course purposes, globalization is defined as exposure to other cultures, understanding how problems are defined differently in different cultures, and developing skills to work in culturally diverse environments.

**Process**

This paper reports on a three year research project that looked at study abroad courses at JBU. The evaluated courses included 4-6 week faculty led studies, semester long studies, and on-campus studies. Courses are designed to integrate ‘place as context’ creating connectivity between course materials and study location. The research intent was to determine if students were truly changing as a result of their study abroad. If change is seen, additional data were gathered to try to determine what was causing change.

The research involved mixed quantitative and qualitative methods. The author used two different instruments to gather quantitative data and evaluate student development. First, the Intercultural Development Inventory (Hammer, Bennett, Wiseman, 2006) is a proven, psychometric instrument that evaluates cultural sensitivity along a continuum from ethnocentric to ethnorelative. Measurement of attitude and behavior are seen with this instrument. Pre- and post-trip surveys were administered to measure change. Second, demographic data was gathered to determine background prior to a study experience.

The Intercultural Development Inventory (IDI) is based on Bennett’s Developmental Model of Intercultural Sensitivity (DMIS). (Bennett, 1993) This instrument has undergone extensive research and has a proven content validity, construct validity, and high reliability. (Hammer, Bennett, Wiseman, 2006) The DMIS is a cultural development model that begins with denial as the most ethnocentric element. In the denial stage, individuals do not even recognize the existence of other cultures. They may intellectually know that they exist, but from a sensitivity and behavioral basis they are not considered. From this beginning, the continuum moves through stages of defense/reversal, minimization, acceptance, and adaptation to the most ethnorelative positions of integrated. Defense/Reversal basically places attitudes into an “us/them”
consideration. The defense states their original culture is right and all elements of other cultures are inferior. In reversal, the scene is flipped. A new culture is superior and the original culture is inferior. After testing the survey instrument on over 3000 people, the creators found that the minimization stage is the mid-point of societal distribution. (Hammer, Bennett, Wiseman, 2006) In this stage, there is a basic attitude that all people are alike. We put our pants on the same way. We have similar values. Significant commonality is recognized. Acceptance begins the process of understanding that there are differences in cultures. There is both recognition of those differences and acceptance of the importance of the differences. Adaptation is the ability to make some changes in action and attitude as an individual moves between cultures. The final ethnorelative stage is integration where an individual can move between cultures, think and act in new cultures, and feel comfortable. This continuum is shown in Figure 1.

![DMIS model](image)

Figure 1. DMIS model.

The IDI measures individuals across the above continuum from denial through adaptation. As a person moves through the various stages more ethnocentric issues are identified as resolved and more ethnorelative issues are currently being addressed. When all issues through adaptation have been resolved an individual would be identified as being integrated. Data from the sample of over 3000 participants show that society’s mean is in the middle of minimization with a standard deviation above and below the mid-point. Movement between each stage is determined by responses to specific questions targeted at attitudes in each stage. The instrument creators indicate that there are different patterns of development that have been observed from their data. The first pattern is a lineal movement from the left side of the continuum to the right. Rate of progress and ending point will vary depending on individual circumstances, but the direction is basically left to right. Within this group, there may be a movement directly from a position of defense or reversal to minimization. An alternate path along this lineal movement may be from defense to reversal prior to moving into minimization. A person would first consider their culture superior, then inferior, and then all people are alike. A second common pattern, sometimes seen as regressive, shows a movement that includes both left to right and right to left. An individual would develop from defense to minimization to reversal and then back to minimization. An alternative regressive movement can be seen in individuals that are over stimulated in a particular environment and retreat to a previous level of comfort such as movement from acceptance to minimization.
Along with administering the IDI survey, the second quantitative instrument obtained various demographic data from the students. Over the three year period, data was gathered from 83 students in nine study abroad groups. 60% reported having previously traveled to another culture and 22.8% had done so from three months to ten years. 15.7% were international students comprised of foreign nationals or United States citizens that had been raised internationally. 70% of those reporting indicated some foreign language studies prior to traveling.

After each trip was completed, efforts were made to meet with students in focus groups to allow them to discuss their experiences. This qualitative data was used to add context to the quantitative results.

**Survey Data/Analysis**

The original research intent was to look for individual changes as the result of study abroad experiences. It was hoped that data patterns might also provide some clue on how students learn. Data did not provide any pattern on an individual basis. There was also no correlation found between data obtained from the two quantitative surveys. Rather than conclude that either the research process was wrong or students were responding randomly, the researcher was able to sit with the developer of the IDI, Dr. Mitch Hammer, and obtain some guidance on alternative ways to look at the data. From his suggestion, the data were analyzed looking for a group dynamic rather than individual pattern. The discussion that follows shows that analysis.

Data were analyzed by first separating the participants into three groups according to their pre-trip responses: denial/defense/reversal (DDR), minimization (MM), or acceptance/adaptation (AA). Changes as a result of study abroad were then understood based on post-trip results by each of these groups. Data were gathered from seven short-term (4-6 weeks) study groups, two semester long groups, and three groups of on-campus students and are shown below.

**Short term courses:**

Various 4-6 week courses are offered by John Brown University over the summer. These groups range in size from 7-12 students and are faculty led. Groups travel together in either rented vans or public transportation. Meals are generally held together and hotel, hostel or apartment living quarters are found for the group to stay together. There are very limited activities that do not occur as a group. For analysis purposes, students completed both the pre- and post-trip surveys. Response rate from these groups was 90%.

**Ethiopia**

There were ten students that participated in the pre- and post-trip surveys. This co-hort was involved in a project based service learning class providing support to a local medical center and English language school. This group began with one person in DDR, 8 in MM and 1 in AA (acceptance/adaptation). The post survey placed all in MM. (see Figure 2) This shows a strong group cultural developmental dynamic of MM. This intervention technique has been shown to be very successful in many intercultural situations.
In the focus group, students talked about the many interfaces that they had with the local people. They saw many things that were very culturally different. Those that were teaching English talked about the different attitudes to time, classes did not start or stop as scheduled. They commented on the many differences that they were able to see in their short trips by or to homes. The medical students talked about the situations that were encountered at the medical facility, where the capabilities of the facility itself or the unique medical cases came into discussion. There was a significant comment on a pregnant lady that came in to deliver her baby. The primary comment was that throughout the many hours of labor, the lady had to be in pain but never once made a noise that to indicate pain. Whatever the birthing experience was for that lady, her emotions and feelings were not displayed. Her culture was seen as causing her to remain stoic.

Due to the comments from the students, there was a strong group dynamic seen in both the IDI data and the qualitative context. They experienced many things that were very new and unique to them. They cognitively saw these differences but did not know how to respond or integrate into a new cultural dynamic. They therefore stayed in familiar territory of MM. The two students not originally in MM would have been drawn to this position due to the group dynamic. The DDR made development to MM, probably assisted by the learning atmosphere of the group. The AA individual may have been in sensory overload and retreated to a more comfortable position of MM. It is obvious that there were a lot of great experiences, some of it was overwhelming, and it would take more time in the culture for students to develop new interventions.

**Irish Short-term 2007**
The Irish short-term class contained ten students completing both pre- and post-trip surveys. Figure 3 shows survey data.
This co-hort again shows both movement to the MM and regressive movement. Three individuals moved into MM from either DDR or AA. Analysis of this pattern follows the Ethiopia group analysis as the group dynamic appears to have influence each of these individuals. The three individuals that did not move to MM at the end of the trip were all in reversal as they considered the Irish culture to be superior to their own.

It was interesting to understand some of the trip activities that influenced the cultural development. Within the Irish short-term co-hort, a group of the male participants stated that one of their greatest memories was a political argument that developed over a locally hosted dinner. They indicated that the discussion focused on the relative merits of Americans versus Irish. The details of the memories appeared to be very ethnocentric and defensive at first observation. But it was noted that the development of these participants as measured by the IDI showed some of the strongest ethnorelative movement. With deeper probing, it became apparent that the students developed a deeper respect for the Irish because of this discussion. They did not have to agree with all of the statements, but they did accept that there were merits to the different views and those differences were considered as cultural understanding increased. They also stated that they found areas of commonality in their discussions.

Irish Short-term 2009
This co-hort had nine students that completed both the pre- and post-trip surveys. (See Figure 4.)
The movement for this group was to MM. For the three that ended in DDR, they were in reversal both at the beginning and end of the trip indicating no movement. During the post-trip focus group discussions these students emphasized their housing situation, a manor home, as a great place to return to every day and develop relationships within the group. They also discussed the accessibility to local markets and Belfast where they could talk to local merchants. Although they discussed the differences that they were seeing, they found areas of commonality as a comfort zone for their cultural development.

**Britain**  
Eight students responded to the pre- and post-trip surveys with their data shown in Figure 5.

Data show a strong group development to MM for all students regardless of their beginning except for one student that moved to reversal.

Focus group discussions indicated both a cohesive development within the group and many cultural interfaces as the students worked to understand the cultural differences that they were
experiencing. There was discussion of differences, but their actions indicated that they worked on personal interfaces from a point of commonality which also provided comfort.

**Jordan**
This group was involved in an archeological dig where they would live and work with both local people and other students from around the world. There were seven students on this trip with all of them responding to the post-trip survey. Survey data are shown in Figure 6.

![IDI outcomes for Jordan trip.](image)

There was a general consensus that there were good cultural interfaces at the dig site. There was some desire stated for additional cultural interfaces in the daily setting of local homes and society. Some cultural differences were identified in one interface that took place in a home. A student expressed that she went to a home dressed conservatively and sat down for the activities that would follow. Her feet were exposed and her host brought a small cloth to cover her feet. In a discussion with the host, the student inquired into the meaning of the cloth and found out that exposed feet indicated disrespect to the people. She then inquired about how she could have better handled the situation in the future. This showed cultural awareness in identifying, accepting and looking to adapt. This particular student developed a reversal position due to her experience. Her response to the foot cloth indicates a cognitive understanding of the situation, but the minimal IDI movement indicates a need for additional time in these situations for movement toward acceptance and adaptation to become a part of natural behavior and attitude.

**Guatemala**
There were 10 students completing both the pre- and post-trip surveys. (See Figure 7.)
This co-hort began equally split between DDR and MM. Two individuals moved lineally from DDR to MM. One individual progressed along the regressive pattern described earlier from MM to Reversal. The post-trip focus group discussion indicated that this group actually performed as two sub-groups. Multiple times throughout the trip the students were given some free time to either travel on their own while in country or go into local communities to develop an understanding of the local people.

The group that moved toward MM participated in opportunities to move among the people. Some of this movement even resulted in the unfortunate experience of students getting sick and requiring medical attention including hospitalization. A first impression could be that this experience would have had a negative impact on cultural development. The opposite was true. The medical requirement opened visibility into the local culture and those involved used even this event as an opportunity to learn.

The second sub-group chose a different response to mixing with the local people. Students would return quickly to their room where they had wireless internet access on their personal laptop computers. This activity was the chosen alternative to walking around town and getting to know the people. When asked to identify the main thing they would want to change from their experience, one student quickly responded that their greatest mistake was to take a laptop on the trip. There was recognition that this interfered would the cultural experience, but not an intrinsic motivation to change while on the trip.

**Italy**

There were ten students that participated in both pre and post-trip surveys. Their data are seen in Figure 8.
This group demonstrated some movement to MM while one individual moved from MM to DDR. As a group these students showed some mixed movement, but the numerical outcomes demonstrated little movement as a result of their study abroad. The cultural interventions that they would have used prior to the trip, for the most part, were the same interventions that they would use after the trip.

In the focus group meeting there was discussion of some of the issues that were encountered while on the trip. Their interface with elderly Italians was negative. They knew the courteous actions to take such as yielding seats on public transportation, but their attitude did not change and they did not know how to see this as a part of the culture. They saw their action as avoiding negative reactions from the locals rather than integrating due to understanding and adjustment. There were similar issues raised in their apartment interfaces as actions were taken to reduce conflict, but not a cultural learning experience that brought changes to their attitude. Their primary action was isolation and insulation as they traveled for their studies. There was also an unfortunate incident with one of the female students being grappled on public transportation. The basic response was that there was nothing to do except live with the situation. They did not ask what would be done by the local people or other Europeans. Any negative situation was viewed as the local people having a bias against Americans, which a very defensive response. There was a frustration that they did not know how to interface with the local people and develop any relationships or understanding.

**Semester long studies:**

John Brown University offers one semester long study abroad opportunity in Ireland. Students are housed in a common condominium or manor. They take classes together with local adjunct professors coming to the housing area to teach courses or transport students to local areas to instruct students using place as context for the course material. Trips into the culture include trips to local churches, trips to sites that connect to course studies, or personal exploration on the part of students during free time. Data were gathered from these students for the fall semesters 2007.
and 2008. It was particularly difficult to have these students fill out post-trip surveys. Response rate was a composite 55%.

**Irish Semester 2007**

Thirteen students participated in the study abroad with only six responding to both surveys. Data are shown in Figure 9.

![Figure 9. Irish semester studies 2007.](image)

This semester study group lived in condominiums in a small village about an hour outside of Belfast. The only transportation for this group was on foot or local buses. A bus trip into Belfast would cost about $20 and take about an hour one way. Adjunct professors came to the housing area for instructional purposes. If trips were required for a course, a van was rented to transport the students and professor as a group. Only one student showed any movement along the cultural developmental model. This lack of movement became more evident from the focus group discussion.

From the focus group there was a common statement that their most memorable activity was to spend time in solitary walks in the countryside around their housing. They used the time to reduce the stress level in their life. There was a stated lack of contact with the local people. Only one person in the group stated that she obtained contact information so that she could maintain some relationship level after leaving Ireland. The students expressed a feeling of isolation in their housing and available transportation. A common recommendation was that future students should not consider going on this study trip without a previously established friend being a joint participant. This feeling of isolation supported the lack of movement in cultural development either individually or as a group.

**Irish Semester 2008**

Due to issues raised by the 2007 students, the university took steps to provide a better cultural exposure and experience for students. A professor and his family accompanied the students during this semester to both provide motivation for increased cultural exposure and drive vans to provide increased opportunities to leave the condominiums and get to neighboring cities on a
regular basis. Of the sixteen students that participated in this study, only 10 were willing to respond by completing the post-trip survey. There was significantly increased cultural contact over the previous year, but there was also significant conflict between the students and the professor. Upon returning to campus, students were unwilling to meet for a focus group. This made it difficult to put the quantitative data into any qualitative context. To look at context, I had a post-trip interview with the faculty advisor, a short discussion with one student, and read student newspaper reports. Due to this limited data from a qualitative standpoint, most of the analysis is restricted to the data from the IDI survey, Figure 10.

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Pre-trip | Post-trip

Figure 10. Irish semester 2008.

There is a strong movement to MM during the semester for this group. A closer look at the three students that ended in DDR indicates that all had developed an attitude of reversal. The balance of the respondents showed a strong tendency to handle culture interfaces from the category of minimization (commonality). The group as a whole would indicate a cultural intervention pattern of MM. When in contact with the Irish culture, this group would tend to look for areas of commonality. The conflicts that arose with the professor probably contributed to these students developing a cohesive group dynamic. The professor developed and controlled the cultural trips. The group looked for common bonds to handle both internal and cultural issues.

Campus/controls:

The final students studied were based on on-campus class. These students split into two distinct groups. The first group took the course International Problem Solving for Engineering and Business. This class was modeled after the Engineering Cultures course designed by Gary Downey at Virginia Polytechnic Institute and Juan Lucena of Colorado School of Mines. (Downey & Lucena, workshop 2006 & 2009) The content of the JBU course was modified to add analysis of international case studies. During the ASEE workshop, Downey and Lucena also...
presented an assessment essay with metric that was used to determine the development of students. Along with the IDI, this research duplicated their assessment for comparison.

The final group of students neither traveled for a study abroad nor attended an on-campus cultural course between their pre- and post-survey.

**International Problem Solving (2008)**
This is an on-campus course taught for cross-cultural credit. The initial class consisted of 15 students. This class of 15 students took the IDI pre- and post-course along with a pre- and post-cognitive assessment essay that had been obtained from research at Virginia Polytechnic Institute and Colorado School of Mines. IDI data outcomes are shown in Figure 11.

![Figure 11. International Problem Solving (2008).](image)

The pre- and post-survey data do not indicate a developmental pattern as either a group or individual. Of the seven students that ended the course in DDR, Three demonstrated characteristics of Reversal. The movement of individuals from MM to DDR indicates some level of data overload for these students. No link could found to those that moved to AA.

**International Problem Solving (2009)**
The research was repeated on a second class for the Fall 2009 semester. There were 13 students with data shown in Figure 12.
There was minimal change with these students with 10 showing no change. The remaining three move from MM to reversal. Due to the dominant factor of “no change” it was determined that again this group did not develop any form of group dynamic with respect to cultural development.

Since this on-campus course was modeled after the work of Downey and Lucena, their assessment was also implemented to determine if outcomes were the same. The assessment essay and metric provided by Downey and Lucena (workshop, 2006) were used. The essay question and rubric were:

**Question:** As an American engineer, you have been invited by Airbus Industries in Toulouse, France to help design an “environmentally sustainable and socially responsible” manufacturing plant. The design team includes engineers from France, Germany, and United Kingdom because Airbus is jointly owned by companies from those countries. How prepared are you to enter this work situation? What knowledge and capabilities do you have and what do you lack?

**Outcome:** Be able to explain how national differences among engineers are important in engineering work.

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<td>Needs improvement</td>
<td>Adequate</td>
<td>Excellent</td>
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<td>Criteria</td>
<td>The essay characterizes engineering work as entirely technical, showing no awareness of national differences among engineers in France, Britain, and/or Germany</td>
<td>The essay shows awareness of differences in language and customs among French, British, and/or German engineers but does not recognize national differences related to engineering work</td>
<td>The essay describes national patterns of engineering knowledge and engineers’ identities in France, Britain, and/or Germany but does not explain how these patterns are important in engineering work</td>
<td>The essay describes national patterns of engineering knowledge and engineers’ identities in France, Britain, and/or Germany and explains how these patterns are important in engineering work</td>
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This assessment evaluates the cultural cognitive development of students as a result of the course. The results of both year’s assessment are shown in Figure 13 and showed similar results to Downey and Lucena.

![Essay Assessment](image)

Figure 13. Essay Assessment.

For the on-campus cultures class, there was no cultural change pattern found either as a group or individually for behavioral cultural development. In each case there was a significant increase in cognitive cultural understanding.

**Control group**

The final data were obtained from a group of eight student evaluated over the 2007 summer break. These students did not travel on a study abroad trip or take an on-campus cultural studies course. Pre-summer surveys showed this group evenly split with four in the DDR range and four in MM. There was no measurable change in any of the students over the summer either as a group or as individuals.

**Conclusion**

The conclusions from this study must be limited to the structure of the courses taught. All study abroad experiences were faculty led with students eating, sleeping and traveling together while taking common classes. While the research began looking for individual cultural developmental changes, the data show a pattern of development related to group dynamics. Of the nine study abroad courses, seven had movement toward minimization (MM) and two showed little or no movement. In each of the ‘no movement’ groups, the qualitative interviews confirmed that there was a definite tendency by some group members to not pursue cultural contacts. There was not sufficient information to draw any conclusions about why MM was the dominant direction of...
movement. The individuals that moved to reversal should be seen as following one of the documented paths of development, just not at the same rate of the larger group population. The on-campus courses confirm the cultural cognitive development of students, they do not demonstrate attitude or behavioral development and they do not demonstrate any cohesive group development. Students that participate in study abroad do tend to change per a group dynamic. Further study is needed to increase the database size, determine why development takes place and determine how to control the learning environment to optimize cultural development.

References

http://www.abet.org/criteria.html (last accessed Dec 2009)


