New Orleans JAZZED about Engineering Education

Paper ID #14856

Evaluating Study Abroad Programs: A Follow-Up Effort to Determine Comparative Value and Importance in Engineering and Non-Engineering Programs

Holt Zaugg PhD, Brigham Young University

Holt Zaugg is the Assessment Librarian at the Harold B. Lee Library at Brigham Young University. His research interests focus on assessments and evaluations that improve student learning and integrate library services with other faculty courses.

Dr. Gregg Morris Warnick, Brigham Young University

Gregg M. Warnick is the Director of the Weidman Center for Global Leadership and Associate Teaching Professor of Engineering Leadership within the Ira A. Fulton College of Engineering and Technology at Brigham Young University (BYU). The center provides oversight for leadership development and international activities within the college and he works actively with students, faculty and staff to promote and develop increased capabilities in global agility and leadership. His research and teaching interests include developing global agility, globalization, leadership, project management, ethics, and manufacturing processes. Gregg has lived in numerous locations within the USA and Europe and has worked in many places including North America, South America, Europe, Asia, and Africa. Prior to joining BYU, Gregg worked for Becton Dickinson, a Global Medical Technology fortune 500 Company. In this capacity he worked as a product development engineer, quality engineer, technical lead, business leader and program/project manager managing many different global projects. Gregg received his PhD in Educational Leadership and Higher Education from the University of Nebraska-Lincoln with a Master of Technology Management degree and a BS in Manufacturing Engineering Technology, from Brigham Young University. Gregg also does consulting in project management and leadership working with IPS Learning and Stanford University where he provides training for fortune 500 companies throughout the world.

Dr. Alan R. Parkinson, Brigham Young University

Alan Parkinson was appointed dean of the Ira A. Fulton College of Engineering and Technology in 2005. Previously he served as chair of Mechanical Engineering from 1995 to 2001. He is a professor of Mechanical Engineering and a fellow of ASME.

Dr. Spencer P. Magleby, Brigham Young University

Dr. Magleby is a professor in Mechanical Engineering and is the associate dean of the College of Engineering and Technology at BYU where he oversees international program development.

Dr. Timothy L. Elliott, Brigham Young University

Timothy Lynn Elliott directs Brigham Young University's office of International Study Programs which annually sends more than 1500 students abroad on study abroad, international internship, and international field study programs. Previous to this current position, he directed the study abroad programs at Utah Valley University, and managed international student programs at Brigham Young University and the University of Virginia. Lynn has a BA in Economics and an MA in International Relations from Brigham Young University and a Ph.D. in Foreign Affairs from the University of Virginia.

Kathryn L. Watkins, Brigham Young University

Kathryn is in the last year of her Bachelor's Degree in Linguistics.

Ms. Meaghan Lynn Weldele, Brigham Young University

I am currently an undergraduate student at Brigham Young University and will be graduating in April 2016 with a BS in conservation biology. After graduation I plan to attend graduate school in the United Kingdom studying environment and development. I love research and science and look forward to many more experiences abroad.

Paper ID #14856

Quincey Cole, Harold B. Lee Library
Ms. Lindsey R. Barnes

Evaluating Study Abroad Programs: A Follow-Up Effort to Determine Comparative Value and Importance in Engineering and Non-Engineering Programs

Abstract

Effective global education requires contact with and interaction between peoples from different nations and cultures. Most study abroad (SA) programs at universities promote interactions by providing opportunities for students to travel and live in different countries. The intent is that students will return with a greater understanding of similarities and differences between cultures, an enhanced educational experience, insights into future employment, new interpersonal networks, and personal growth. This list forms a core of common competencies that all students should develop regardless of their discipline's SA program. Usually each college, department, and program also has competencies for students to demonstrate growth and learning that are discipline specific. This diversity of program objectives between disciplines can make comparison between programs difficult.

This study is a follow-up to implementing a model that facilitates comparison of engineering and non-engineering study abroad programs at a university level. It then takes the initial steps of defining and evaluating study abroad competencies at the college level for engineering students. The study describes the processes used to develop and implement this model. It also describes the comparison found between engineering and non-engineering study abroad programs. Finally, it presents the findings from the evaluation at the College of Engineering level. It provides evidence how this model may be used across campus and specific levels to evaluate program effectiveness and student learning.

Introduction

Study abroad (SA) programs are a vital part of most engineering education curriculum. They offer the opportunity for engineering students to engage in real-world experiences and learning connected to instruction within their program. Because these programs are typically resource intensive and also come at the expense of other activities, determining their full value and impact is important, especially for accreditation.[1, 2] However, the value and learning gained through SA programs is often difficult to measure, especially for a discipline associated with the hard skills and precise measurement associated with engineering. Determining what assessment tools should be used to evaluate student learning and program value can be a difficult choice.

As programs are initiated and in their infancy, common tools such as surveys, inventories, and scales have been used to establish base-line measurements and determine the efficacy of the program.[4, 5] Mendenhall et al. describe several inventories and scales that assess SA students on cultural difference, intercultural accountability and global leaderships.[6] The inventories seek to provide evidence of student learning and growth among SA students. These initial efforts often indicate how well competencies were learned by students, but also provide indications of new or better directions study abroad programs may take.

In some cases, SA programs focus on specific competencies such as cross-cultural understanding or leadership.[5, 7] Other programs focus on delivery methods such as capstone, research, or project-based SA opportunities. [8, 9, 10] The specificity of focus presents unique assessment challenges. As faculty focus efforts on specific competency development, additional student learning may happen in other areas. While not intended, the development of these competencies adds value to both the program and student learning and should be measured.

Many also advocate for assessment tools that rate student learning and program efficacy on a scale or associate it with a specific value to help indicate student growth over time. However, learning on SA programs is nebulous as it is unique to the student and the experiences he or she encounters. Assessment tools need to have the flexibility to address each of these issues. They should evaluate student learning and program value to indicate the exceptional learning opportunities SA programs offer.[11, 12, 13, 14, 15, 16]

A review of literature provides an array of assessment tools that may be used as a stand-alone or in concert with other tools (See Table 1). Each of these tools provides information that enables researchers and SA faculty to better determine how programs enhance student learning.
The tools are designed to indicate competency development in students in areas such as increased cultural understanding, improved communication skills, strengthened language ability, flexibility, and open-mindedness.[2, 3, 4, 9, 10, 12, 15, 16, 17, 18] In addition, this skill development often results in personal reflection and growth that changes students in terms of their outlook on life and desire to interact with cultures different from their own – either in their home country or by living abroad.

When examining the efficacy of engineering SA programs, comparing these programs with other SA programs, within or outside of the discipline, offers the opportunity to review and learn from others. [8, 15] In these cases, comparison between all programs offers insights on how programs may be strengthened and improved by seeing things from a different context or perspective. In fact, this opportunity is akin to the opportunity SA students experience when interacting with a different culture. Through these interactions from other SA programs outside of engineering, a program's value may be improved by using different methods and practices. Using similar assessment tools across programs facilitates these evaluations and comparison.[3] Unfortunately such efforts are rare because of the complexity and differences between the SA programs.

A model that identifies common learning and elements that should occur across all SA programs, regardless of discipline, with increased refinements by college, department and individual programs is needed. This research effort proposes a model that allows for such flexibility across disciplines and SA program (See Figure 1) This model facilitates both program assessment within and across different university colleges. Comparisons across SA programs can assist program improvement and facilitate student learning. This paper discusses a pilot study to initiate such a program.

Table 1. Assessment Tools Used or Recommended for Assessing Engineering Study Abroad Programs.

Authors	Discussion	Essay	Interview	Inventory or Scale	Reflection Log or Journal	Normal Course Grading	Observation	Portfolio	Presentation	Rubric or Matrix	Self-rating	Survey
Acharya et al.					X				X			
Bielefeldt et al.		X		X		X			X	X		X
Deahl et al.	X		X		X		X					
Echempati & Butsch		X				X		X		X		X
Evans et al.		X			X	X					X	
Jesiek et al. (2012)		X	X	X	X				X			X
Jesiek et al. (2014)												X
Lalley et al.		X							X			X
Markos et al.		X	X									
McNeill & Cox			X									
Mendenhall et al.				X*								
Muench et al.			X									X
Neeley		X			X	X	X				X	
Todd et al.				X								X
Tront et al.							X					X
Yamayee et al.		X	X			X			X	X		
Category Totals	1	8	6	4	5	5	3	1	5	3	2	8

* The reference discusses multiple inventories and scales.

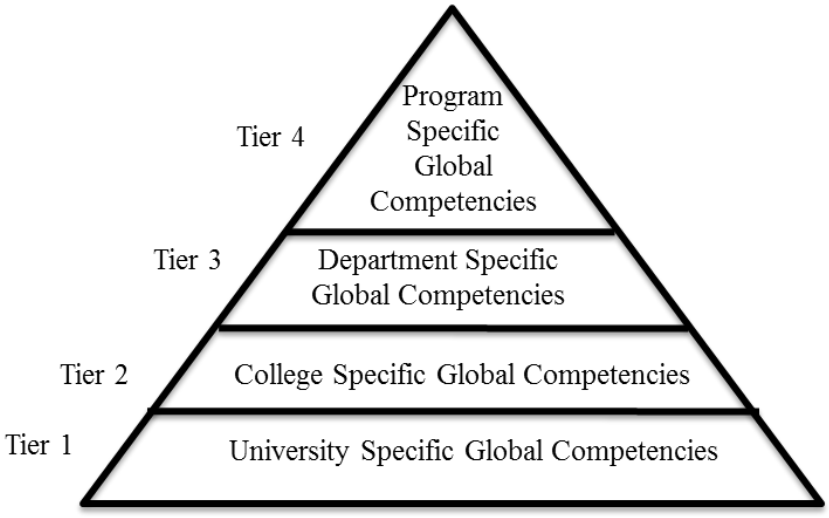

Figure 1. Framework for Study Abroad Student Learning and Program Evaluation.

Using a survey that incorporates uniform Likert scales, short answers requesting specific examples and an essay question, this effort determined sets of questions that should be common to all SA programs across the university campus and questions that seek to determine student learning and program value at the college level. While the assessment mode is a survey, the short answer and essay question incorporate two other highly used assessment tools (i.e., essay and interview) into the survey tool. While not a true interview, the short answer allows for further

explanation and clarification of the self-assessed Likert scale rating. It is also an efficient way to "interview" hundreds or thousands of students who leave and return at various times to a wide variety of locations. It becomes the effective and efficient means of evaluating student learning and program efficacy. This paper discusses how this approach was implemented and compares engineering SA programs in the Ira A. Fulton College of Engineering and Technology at Brigham Young University with other SA programs across campus.

Description of College and Study Abroad Program

Brigham Young University is a private, church sponsored university with approximately 33,000 undergraduate and graduate students across 12 colleges within the university. The Ira A. Fulton College of Engineering and Technology helps prepare more than 4,000 students in 10 degree programs. During the 2014-2015 academic year, 600 undergraduate students and 129 graduate students completed their degrees in the engineering and technology programs.

In 2015, Brigham Young University sponsored 164 different international programs. These programs sent 1,575 participants to 54 different countries and included students from most of BYU's 12 colleges. In 2015, the Ira A. Fulton College of Engineering and Technology international studies involved 156 engineering students participating in 10 SA programs and 17 international internship programs spanning 22 countries. This represents about 26% of BYU's 600 graduating engineering majors and about 10% of all SA students across campus.

Methods

The study used an end-of-program survey administered to all students who participated in any BYU sponsored study abroad program. Two key changes were made from the previously administered survey. First, program specific questions were modified and made more uniform. Question wording was changed for clarity and precision. All questions used a seven-point Likert scale (1 = strongly disagree, 4 = neither disagree or agree, 7 = strongly agree) followed by an opportunity for students to provide a specific example. The different tiers in the model limited the number of questions asked to cap the overall length of the survey. As this was the pilot for the model, only two tiers of questions were used. First tier questions were sent to all students regardless of major or program. These questions asked about knowledge, skills, and attitudes that students should develop regardless of the program attended. The final first tier question asked students to reflect on the impact of their SA program on their overall educational experience at the university.

The second tier questions were unique to each college. As this was the pilot year for this revised assessment format, only the Ira A. Fulton College of Engineering and Technology supplied questions for this tier. The questions followed a similar format using a Likert-scale question followed by an open-ended response seeking a specific example. These questions were used to indicate the value and learning of each student within a specific college. Although, in future years, there is the potential for similar or even identical questions to be used by another college, the intent of this section was to determine the learning and value specific to study abroad programs at the college level. It also highlighted areas that each college may wish to modify to improve the strength of their SA programs.

No third or fourth tier questions were posed to students in this iteration. However, tier three questions would include questions that determine the competencies learned by students within a specific department housed within the specified college. Depending on the number of study abroad programs within a department, a fourth tier of questions may be added that evaluates student learning at the specific study abroad program level, if desired. However, when study abroad programs at the department level are quite similar to or the only program offered, tier four questions are embedded at the department level. The current set of survey questions are shown in Table 2. The set of original and revised survey questions are found in Appendix A.

Table 2. The Set of Questions Asked in the New Survey.

Demographic Questions
A. What is your gender? B. With which college/school are you affiliated? C. What program are you attending? D. How did you find out about the international program? (Check all that apply.)
General Questions for All SA programs
As a result of participating in this international program: 1. My confidence and ability to live abroad or interact with people from other cultures has been strengthened. 2. I have a greater appreciation for other nations or cultures. 3. I have a deeper understanding of my own culture. 4. I have a deeper understanding of my own discipline. 5. My respect and love for people different from me has grown. 6. Please write a paragraph explaining the impact that your study abroad program has had on your overall educational experience at BYU.
Questions Specific to College of Engineering and Technology
As a result of participating in this international program: 7. My view of what I might do in my career has expanded. 8. I have a better understanding of globalization. 9. I know better how to communicate across culture. 10. My leadership abilities have been increased.

For convenience, questions have been re-numbered for discussion in this article. All questions, except question 6, have a seven-point Likert scale (1=strongly disagree, 4=neither disagree or agree, 7=strongly agree) followed by an open-ended section for specific examples.

The survey was emailed to all student participants near the completion of their program as in previous years. However, in 2015 the invitations to participate in the survey were personalized so two reminder emails could be sent to non-responding students. In addition, the dean of the Ira A. Fulton College of Engineering and Technology sent a personal email to each student participating in engineering sponsored SA programs explaining the importance of the end-of-

program survey and requesting their participation. Both of these efforts were done to encourage students to complete the end-of-program survey.

It is important to note that other assessment methods could be used to evaluate the program efficacy and student learning, but these were dismissed somewhat because of the expense, practicality, and introduction of other bias. For example, inventories or scales come with an additional expense that might be difficult for any program to bear. Similarly, conducting interviews with students, especially with universities that send hundreds or thousands of students abroad, would be expensive and unwieldy. Upon completion of programs, students often scatter to a variety of destinations that would make access for interviews difficult. While instructors could conduct the interviews, there is the potential of fully truthful answers being given and the bias of interview consistency among so many interviewers.

In addition no pre-trip ratings were taken as this would introduce a pre-test/post-test bias as many programs were only a few weeks long. The pre-trip responses would provide bias on student learning over short trips. While the questions may provide focus on what student could be learning, they may also limit student vision in seeing and learning things not asked for. The compromise of using short answer questions to simulate an in-person interview and an essay question were used as part of the survey tool to provide additional insights. While not perfect, they are a suitable compromise to provide a greater depth of understanding.

Analysis of SA programs

Once the survey was closed to further participation two analyses were conducted. First, using the Likert scale responses, an analysis of variance was conducted on the responses to each question to determine if there was any statistical difference between the mean responses on each question between any of the colleges. Although the Likert scale responses are ordinal in nature the assumption was made that scale gradations were equidistant from one another. To assist in comparison between programs the mean for each college on each question is reported.

Second, from previous surveys and SA assessments, the researchers were aware of the potential for little, if any, statistical difference between colleges on any specific question, as the self-ratings tend to be skewed to the high end of the scale. For this reason, student comments and examples provide an opportunity to study and understand the subtle differences between SA programs offered by each university college. For this reason, the open-ended comments from students on each question were placed into one or more of several categories depending on the response. For questions 1 and 4-8, the categories were career path, culture, education, personal growth or reflection, relationships, service or other. Comments were associated with a category if the content of the comment focused on that category. For example, if a comment indicated the student gained insight into what he or she might do for a career, that comment was coded as "career path." If a comment reflected on how the student had developed confidence about living abroad, the comment was coded as "personal growth or reflection." Details about the categories are given in Appendix B.

The motivation for coding the responses was to understand better the differences between programs as reflected in the student comments. Some programs might emphasize SA as a means

of expanding options associated with a career; others might emphasize building relationships with others.

Prior to coding, all comments were de-identified for program, college, and person. Categories (name and a general description) were identified and assigned for each question's comments (see Appendix B). For some college level questions, the category names and descriptions were provided by college level global goals. Some questions used the same category names and descriptions.

Once the categories were established, coders independently read and sorted each comment into the appropriate category using the category descriptions. Each comment was independently sorted by three different coders. Some comments could be sorted into more than one category because of the comment's content. Once each comment was sorted, each coder sorting was compared. When two or three coders placed the comment into the same category, the sorting was considered to be correct (see Figure 2). For example, in Figure 2 the first comment was sorted into the "Personal Growth or Reflection" and "Relationships" categories by two of the three coders. The second comment was sorted into the "Career Paths" category by two coders and all three coders sorted the second comment into the "Culture" category. Agreement by two or more coders indicates a correct sorting of the comment.

Using the total number of comments for each college and the number of correct sortings, the percent of comments placed in each category was calculated. It should be noted that because some comments could be placed in more than one category, the total of each question's percent does not equal 100%.

Q06 As a result of participating in this international program: My confidence and ability to live abroad or interact with people from other cultures has been strengthened. Please explain how:	Career Path	Culture	Education	Personal Growth or Reflection	Relationships	Service
I lived it, I saw it, and I saw all my peers and how they either succeeded or failed at interacting abroad. Collectively the experience was much more full and engaging than just solely if it had been vacationing.	0	1	1	2*	2*	0
Visiting another country helps you really appreciate the differences between you and understand that there are different ways of doing things in the world. Having traveled to these European countries, I would feel much more comfortable potentially living there in the future.	2*	3*	0	1	1	0

* = the number of coders sorting the comment into the specified category. Agreement by 2 or 3 coders indicates a correct category sorting.

Figure 2. An image of the student comment coding summary sheet.

Using only the correctly coded comments (where two or three coders agreed), similarities and differences between students' SA experience for each college were identified on both a question-by-question and broad view approach. These similarities and differences identified student learning and program strengths for each college. They also helped to identify areas in each program that could be strengthened. As mentioned earlier, it was hoped and expected that this

coding process would highlight key differences between engineering and all other SA programs not shown in the qualitative analysis and reporting.

Analysis of questions only for Engineering

A similar analysis was also done for Engineering SA students but no comparative analysis was conducted because the questions were unique to engineering students. No statistical analysis was conducted with comments from these tier two questions. Using coding categories from college goals and documents, three coders independently categorized each comment into the appropriate code. Using the total number of comments and the number of comments with agreement between two or three coders, the percent of comments in each code for each question was determined. As with earlier codes, the total percent exceeded 100% in some cases because some comments could be coded into more than one category. As with the university level analysis comments in the dominant category were coded to determine the impact of the SA program on the specific aspect of students' learning.

Results and Discussion

With a 58.2% response rate on the survey, there was a considerable amount of data analyzed across several questions and colleges within BYU. Student responses from three colleges (Law, Religious Studies, and Physical and Mathematical Sciences) and student responses from the undeclared major option were excluded from all analyses because there were either no SA programs or there were less than 10 student responses. Results are discussed in two sections, quantitative and qualitative.

Quantitative For All SA Programs

With the assumption of equal distance between each rating a univariate analysis comparing the mean ratings for each college was conducted and only one significant difference between the mean scores for the responses was identified. On question 4 (a deeper understanding of my own discipline), Humanities had a significantly higher mean score than Life Sciences ($p = 0.016$). However, this result is tainted as the comment section indicated student confusion in the understanding of discipline. While some students read discipline as "discipline of study" (its intended meaning) others read it as "personal discipline or self-control". Otherwise no significant differences between the college mean scores were reported on this and all other questions.

If the Likert scales are not considered to be equidistant, a modal comparison indicates the mode response for each college on each question was 7 with two exceptions where the mode score was 6 (on question 3 for Engineering and on question 4 for Education). To better highlight differences, the total responses and mean scores for each college on each common question are shown in Table 3.

It is evident that students overwhelmingly enjoyed the learning and experience from participating in a SA program. Students from all colleges reported high ratings for each question. The lowest rating for any college on any question was 5.47 out of a possible 7 and the highest was a 6.73 out of 7. In and of itself, this result provides strong support for the value and success of all SA

programs. They also provide an indication of the value of learning students placed on the experience. That most students were able to support the Likert ratings with specific examples provides evidence that the scores were a true indication of students' personal beliefs and not "just trying to please" instructors with high ratings.

Table 3. Total Responses and Mean Scores for Each College on Each Question.

Question	Stats	College								
		Business	Ed	Eng	FA&C	FHSS	Human	IS	LS	Nurse
1	n	143	27	104	48	69	100	25	53	55
	M	6.42	6.37	6.41	6.60	6.41	6.51	6.60	6.49	6.38
2	n	143	27	104	48	69	98	24	53	54
	M	6.61	6.63	6.42	6.58	6.55	6.49	6.63	6.66	6.61
3	n	143	27	103	48	67	98	24	51	54
	M	5.95	6.04	5.88	6.02	5.97	6.03	5.92	6.06	6.11
4	n	143	27	103	48	66	97	24	51	51
	M	5.86	6.07	6.00	5.60	5.95	6.18	6.33	5.47	5.98
5	n	143	27	103	48	66	96	23	51	51
	M	6.38	6.48	6.31	6.27	6.36	6.31	6.52	6.45	6.73

Note: Question number refers to question number in Appendix A. Business = Marriott School of Business, Ed = McKay School of Education, Eng = Ira A. Fulton College of Engineering and Technology, FA&C = College of Fine Arts and Communications, FHSS = College of Family, Home, and Social Sciences, Human = College of Humanities, IS = College of International Studies, LS = College of Life Sciences, Nurse = College of Nursing, n = number of respondents, M = mean score. For the Likert scale: 1 = strongly disagree, 7 = strongly agree

Participating in a SA program results in the appreciation and understanding of other cultures, one's own culture and students' ability to interact with these cultures in ways that increased love and respect for others (average ratings of 6.42 to 6.58). Although somewhat lower, students also gained a better understanding of their own culture and discipline of study (average ratings of 6.00 and 5.94 respectively). However, the discipline ratings may be adjusted, because many students mistook discipline as the "self-control discipline" instead of the "discipline of study".

Engineering student ratings were located in the middle of the group of colleges with most ratings at or near the average of all colleges. Their ratings indicate a somewhat similar experience as students from other colleges. In this regard, students are quite unified in the value of participating in a SA program, regardless of college.

As stated in the methods section, researchers' suspicions were realized in that the mean and the mode scores for each college on each question were highly skewed to the high satisfaction end of the scale and very similar. It is for this reason that researchers turned to the qualitative analysis to determine and highlight additional program success and differences between college SA programs.

Qualitative for All SA programs

With the quantitative results so evenly matched and uniform across all colleges, the comments made by students on each question provide evidence for comparing and contrasting colleges. If comments were evenly distributed among the six potential coding categories, it would be expected that each category would have about 16% of all comments. For this reason, a benchmark was set to determine strong differences.

The benchmark was set at 50% of all comments being coded in a specific category. This benchmark indicated that at least half of all comments related to this specific category code were placed in that category. Reaching or surpassing this benchmark provides an indication of the strength of the SA program in the specific topic. In addition, when comments from SA programs fell between the 20% - 50% level, they were considered to be substantial, but not at the benchmark level.

As expected the percent of student comments in each category clustered around the question theme. For example, question one asks students about their ability to interact with other cultures resulting in most comments being clustered in the "Culture" category, as expected. While some secondary clustering may occur, the most comments fit into the obvious category. Tables indicating the percent of comments for each college in each category on each question are found in Appendix C.

Broad View of Comments

Finally, a more holistic view of the two comment coding schemes, provides insights into areas of strengths and weaknesses for colleges based on the number of questions that reach key thresholds. A broad view of the SA program of any college should indicate strength by reaching the comment threshold (50% or more comments) in each category. Reaching this comment threshold on at least one question would indicate program strength. Table 4 provides a summary of coding categories where this threshold was reached on one or more questions by each college.

Table 4. Categories with One or more Questions with 50% or more Comments in Specified Category by College.

		Colleges								
		Business	Ed	Eng	FHSS	FA&C	Human	IS	LS	Nursing
Code Categories	Career Pathway									
	Culture	A	A	A	A	A	A	A	A	A
	Education	A	A	A		B	A	A	A	A
	Personal Growth or Reflection		B	A	A	B	A	A	A	A
	Relationships									
	Service									
	Communication									
	Appreciation	A		A	A				A	A
	Openness & Flexibility	A	A	A			A	A		A
	Equality									
	Exploration									
	Global Citizenship									

Note: A = 1 question reached the benchmark, B = 2 or more questions reached the benchmark.
Note: Business = Marriott School of Business, Ed = McKay School of Education, Eng = Ira A. Fulton College of Engineering and Technology, FA&C = College of Fine Arts and Communications, FHSS = College of Family, Home, and Social Sciences, Human = College of Humanities, IS = College of International Studies, LS = College of Life Sciences, Nurse = College of Nursing,

It is important to note that categories that did not reach this benchmark do not indicate that no comments were made, rather that the comments merely did not reach the 50% benchmark. The lack of reaching the benchmark may also be a reflection of the length and scope of the SA

program. Programs varied in length from 2- 8 weeks. Some programs only had a single location while students in other programs were constantly on the move. Finally, while the category may have been a part of the SA program, a lack of comments would not necessarily indicate that the program did not teach the topic, but that it was not something students commented on. These program components may factor in to assisting or hindering any specific program in any college from achieving the benchmark.

Program Positives

The positive aspects of the SA programs fall into two major categories – the importance of the program to students' lives and educational program and the opportunity for cultural experiences.

Importance. Regardless of college, students overwhelmingly felt that the SA programs were of importance and value to their education and lives. Comments on the essay question supported findings from the Likert scale responses. This question had more categories that reached the threshold response rate of 50% comments in a given category than any other question. The threshold was reached in the categories of culture (1 college), education (6 colleges), and personal growth and reflection (8 colleges). There were substantial comments (22% or higher) in at least three categories for each college with Education students having substantial comments in five of the six categories.

Many students talked in terms of the SA program being a life-changing experience. It emphasized learning of oneself through learning about other cultures. Students also referred to this as a perfect way to augment their educational experience. The SA program provided a view to the world and real-life applications of their major. Many referred to the SA program as a capstone experience of their education that influenced their outlook on life. Many also reflected on the value of new relationships with others, especially regarding people of the host culture, other students and program instructors in the program, and mentors. The SA experience was uniformly a strong, life-changing educational experience.

Cultural experience. Comments on several questions indicated an increased sense of cultural awareness. On question 1, five colleges had 70% or more of their comments placed in the culture category and no college was below 56%. Colleges with 70% or more comments in this question had BYU students interacting with host culture members as they worked on projects (Engineering and Life Sciences), worked in clinics and conducted home visits (Nursing) or delved into the host culture's language and history (Humanities). One added feature was the immersion of students into the host culture by living with local host culture families. This enabled stronger language development through deep conversations and cultural interactions.

On question two (cultural appreciation) nursing students had 72% of their comments sorted into the "cultural appreciation" category, but this could be attributed to their high interaction with local people in terms of course work (e.g. clinic work and home visits) and living with host culture people. Their comments focused on "eye-opening" experiences with other cultures that centered on family and religious beliefs of the host culture.

While engineering students did not have as great of a percent of comments in the cultural appreciation category, their comments focused on enjoying the opportunities to interact and collaborate with other cultures on local projects. During this time, they developed a greater sense of collaboration and being open and flexible when learning to do things in different ways.

Program Weaknesses

In discussing program weaknesses, it needs to be understood that the weaknesses described are areas that are minor in comparison to the positives and success of the SA programs across campus. However, in this case, they suggest three areas where programs may be strengthened, depending on the nature of the specific program.

Understanding own culture. While students increased their understanding and appreciation of other cultures, this did not always transfer to a greater appreciation of one's own culture. Comments often focused on comparing the American culture to the host culture. The comments discussed how the "American-way" was not necessarily a better way but a different way of doing things. Comments also indicated some reflection on how or why Americans did things the way they did or to see the beauty of both cultures. While these were by no means negative comparisons, they were mostly at a superficial level.

Two exceptions to this were the International Studies and Nursing SA programs which had substantially more comments (79% and 71% respectively) in the openness and flexibility category. Comments in these two examples indicate that BYU SA students were able to view the American culture through the eyes of the host culture. In these cases, there were evaluative comments reflecting a higher order of thinking.

Increased love and respect. There was not as great of indication that students grew in the respect and love for others (Question 5). Comment codings in this question were unique to all other questions in that no college or category achieved the benchmark of 50% of comments being coded into any one category by any college. Instead comments were spread across three categories (culture, personal growth or reflection, and relationships) with the percent of comments from any college ranging from 20% to 45%. Other indices of increased love and respect (i.e. service, relationships, and communication) did not reach the 50% comment threshold. As mentioned earlier, several programs were quite short or transient in nature that did not allow for strong growth in this area. Also, there was a substantial number of comments in several areas, leading one to believe that there may be an opportunity to increase comments to the threshold level.

Future careers. Another perceived weakness was the influence of the SA program in students' future careers. While many commented that the SA program clarified the question of where they could and would like to work, this area was split between wanting to live and work overseas and having no desire to live and work overseas. Engineering proved to be an exception to this rule, but only when the question was probed more deeply on the college level questions. This will be discussed further later. While there were opportunities for students to explore career options, this also appears to be an area that might be more explicitly explored among SA programs.

Other Perspectives

A final review of colleges reaching the 50% comment threshold in categories indicates that only Engineering and Nursing achieved that benchmark on five of the 10 listed categories. This provides evidence, in the case of these two colleges, of the value and learning in their SA programs. When specifically asked about career options on the college level questions, Engineering did achieve the benchmark in this category. While not discussed as part of the general learning across all SA programs, learning specific to engineering students did provide evidence of gains in better understanding potential career options.

Of similar interest, are the questions where fewer than 10% of the comments were coded in a given category. The categories of service, communication, equality, exploration and global citizenship were less than the 10% benchmark on all questions for the majority of colleges. While this does not mean that no learning, instruction, or experiences for SA students occurred, it does indicate that is was of lesser importance for students as reflected by the lack of comments in these areas. These are areas where colleges could ask more specific questions, related to their college goals to provide some indication of learning and value. It also presents an area of focus where SA programs could work to provide opportunities for these types of learning experiences in their college's SA programs.

Engineering College Quantitative and Qualitative Analysis

The analyses for the Ira A. Fulton College of Engineering and Technology followed a somewhat similar method as for all university colleges. No statistical analyses were able to be done since only this college had questions on the second tier of the assessment model. Similar patterns were shown for these questions as the previous questions. Although no comparison is available with other colleges, the ratings for questions unique to the Engineering SA students were also around the 6.00 out of 7 ratings. Students most commonly (mode) picked either a 6 or 7 on the Likert scale. The mean is provided to give a more differentiated view of student responses. All tables indicating engineering student response are shown in Appendix D. As with other programs, responses were strongly skewed to the positive end. Qualitative methods for coding comments were used to examine key differences in student responses. The high ratings provide strong evidence that engineering students were overwhelmingly satisfied with their programs and the learning they gained from them.

Table 4. Total Responses and Mean Scores for Engineering SA Students on Each Question.

Question	n	Mean	Mode
7	102	5.93	7
8	102	6.06	7
9	102	6.00	6
10	101	6.13	6

Note: Question number refers to question number in Appendix A. n = number of respondents
For the Likert scale: 1 = strongly disagree, 7 = strongly agree

As with the common questions, the nature of the question influenced the type of comment elicited and where the comment was coded. It should be noted that two of the coding categories

were changed due to college global goals and planning documents. However, the percent of comments within each category does provide an indication of student learning and program efficacy. Key findings related to engineering are discussed.

Career path. One interesting finding resulting from the college level inquiry was the refining of results. In the "Career Path" category in the common questions, engineering did not reach the 50% benchmark level but did so (63%) in the college level questions. Following the SA program, overwhelmingly, students had a better idea regarding employment overseas. However, this was not always positive. In some cases, students indicated that, following the program, they did not want to seek employment or live overseas. The majority of comments did express an interest in working and living overseas or with multinational companies. Regardless of the outcome, the SA experience helped students to better understand career options and likely outcomes associated with those choices.

Better communication across cultures. Comments typically focused on being able to communicate (verbal and non-verbal) in ways that did not offend or adjusting communications to match communication styles with the host culture. In some cases, comments referred to examples provided by program instructors, but, most comments dealt with understanding cultural differences to improve cultural communication. A substantial amount of comments (38%) indicated the importance of learning a second language. For students who spoke the language of the host culture, comments were made that reflected a need to translate between the two cultures and the importance of knowing and using second language skills.

Increased leadership skills. Students commented on the opportunities that were provided for them to step into leadership roles. Some students expressed a desire not to take on a leadership role, but they did assume the role to their and their team's benefit. Others were provided the opportunity as part of planned instruction to develop leadership skills. In either case, students expressed the idea that they developed leadership abilities and had greater confidence in their leadership skills.

Better understanding of globalization. Many students made statements that they better understood globalization or the impact of globalization, but they did not provide any specific examples of evidence beyond the statement of understanding. In cases where examples of globalization or its effects were provided, examples were often one-dimensional in that they only briefly discussed the effects of globalization.

Except for understanding globalization better, there is evidence of clear student learning and benefit. Students were able to practice and develops cross-cultural and communication skills in real-world settings. These settings also provided the opportunity for students to explore what it would be like to live and work abroad. While globalizations skills may be present, there was not enough clear examples to indicate that this was the case.

Conclusion

In terms of assessing student learning and program efficacy, this model provides the needed uniformity and flexibility. Students were overwhelmingly happy with the quality of and the

amount of learning they achieved. Students were able to see real-world applications of classroom learning. Their self-assessment and personal reflection indicated that they strengthened competencies in several areas while using the opportunity to better understand their overall educational experience and future life goals. The fact that students were able to articulate their self-evaluation of their SA experience is a strong indicator of program success as a key goal of all education is for individuals to learn how to accurately self-evaluate.

In regards to program evaluation, the first tier, university level questions, provide for a quantitative and qualitative comparison across all programs. Although this study did not pursue the option, comments and statistics from each question could be further disaggregated by program, allowing for a finer college-level comparison. The model also provided ample evidence of strengths and areas for improvement for SA programs in each college. They also provide where each college could focus efforts on strengthening SA programs.

The college level questions explored by the Ira A. Fulton College of Engineering and Technology also provided evidence of the value of questions at different tiers. These questions allow for the further exploration of student learning at the college level. They serve to augment the evidence of learning at the university level and provide evidence of learning important to students within the college level. Future steps will include continued refinement of questions and development of college level questions for other colleges and department level questions.

Bibliography

1. K. A. Neeley, Study abroad as a means to achieving ABET criterion 3 outcomes: A case study in course design and assessment. *American Society for Engineering Education Annual Conference and Exposition Proceedings*, June 15-18, Indianapolis, IN, 2014, pp. 1–19.
2. Z. A. Yamayee, and R. J. Albright, Direct and indirect assessment methods: Key ingredients for continuous quality improvement and ABET accreditation, *International Journal of Engineering Education*, *24*(5), 2008, pp. 877–883.
3. R. Todd, R. Lewis, J. Nelson, B. Nelson, and M. Miles, A preliminary report on uniform outcomes assessment of a college-wide set of international programs, *American Society for Engineering Education Annual Conference and Exposition Proceedings*, June 20-23, Louisville, Kentucky, 2010, pp. 1–16.
4. S. Acharya, L. A. Nutt and T. L. Kerzman, Development of a faculty led education abroad program and the lessons learned, *American Society for Engineering Education Annual Conference and Exposition Proceedings*, June 15-18, Indianapolis, IN, 2014, pp. 1-15.
5. B. K. Jesiek, Y. Shen, and Y. Haller, Cross-cultural competence: A comparative assessment of engineering students, *International Journal of Engineering Education*, *28*(1), 2012, pp. 144–155.
6. M. E. Mendenhall, J. S. Osland, A Bird, G. R. Oddou, M. L. Maznevski, M. J. Stevens, and G. K. Stahl, *Global Leadership: Research, Practice, and Development*, New York: Routledge, 2013.
7. E. M. Tront and J. G. Tront, Collective review and assessment of the international experience: Rising sophomore abroad program, *American Society for Engineering Education Annual Conference and Exposition Proceedings*, June 26-29, Vancouver, BC, 2011, pp. 1–9.
8. B. Morkos, J. D. Summers, and S. Thoe, A comparative survey of domestic and international experiences in capstone design, *International Journal of Engineering Education*, *30*(1), 2014, pp. 79–90.
9. B. K. Jesiek, Y. Haller, and J. Thompson, Developing globally competent engineering researchers: Outcomes-based instructional and assessment strategies from the IREE 2010 China research abroad program, *Advances in Engineering Education*, *4*(1), 2014, pp. 1–32.

10. A. Bielefeldt, K. Paterson, and C. Swan, Measuring the value added from service-learning in project-based engineering education, *International Journal of Engineering Education*, *26*(3), 2010, pp. 535–546.
11. R. Echempati, and M. Butsch, Mechanical engineering study abroad program in Germany – Experiences and lessons learned, *American Society for Engineering Education Annual Conference and Exposition Proceedings*, June 24-27, Honolulu, Hawaii, 2007, pp. 1–15.
12. K. T. Deahl, E. Walz, R. Korte, V. Weerpetlinski, L. D.Hahn, J. A. Sunderman, and J. B. Elliott, Knowledge, skills, and attitudes acquired through engineering student experiences abroad. In *American Society for Engineering Education Annual Conference and Exposition Proceedings*, June 23-26, Atlanta, GA, 2013, pp. 1–19.
13. S. M. Muench, A. A. Thompson, S. Brandalik, Engineering Rome: Assessing outcomes from a study abroad program designed to overcome barriers to participation, *American Society for Engineering Education Annual Conference and Exposition Proceedings*, June 14-17, Seattle, WA, 2015, pp. 1–21.
14. J. Evans, E. Jablonski, B. Keith, and R. McGinnis, Five years of short-term study abroad programs: Engineering in a global and societal context, *American Society for Engineering Education Annual Conference and Exposition Proceedings*, June 20-23, Louisville, Kentucky, 2010, pp. 1–11.
15. K. Lalley, J. Olson, and B. Hawk, Evaluating a short-term, first-year study abroad program for engineering and business undergraduates: The impact on the student learning experience, *American Society for Engineering Education Annual Conference and Exposition Proceedings*, June 14-17, Austin, TX, 2009, pp. 1–12.
16. N. McNeill and M. F. Cox, Global engineering programs: Identifying and supporting a diverse array of learning outcomes, *American Society for Engineering Education Annual Conference and Exposition Proceedings*, June 26-29, Vancouver, BC, 2011, pp. 1–19.
17. Gregg M Warnick, "Global competence: Determination of its importance for engineers working in a global environment" (January 1, 2010). *ETD collection for University of Nebraska - Lincoln.* Paper AAI3412315. http://digitalcommons.unl.edu/dissertations/AAI3412315
18. A. Parkinson, J. Harb, and S. Magleby, Developing global competence in engineers: What does it mean? What is most important? *American Society for Engineering Education Annual Conference and Exposition Proceedings*, June 14-17, Austin, TX, 2009, pp. 1-13.

Appendix A: Previous and Current Study Abroad Questions

Demographic Questions (Common to both surveys)

1. What is your gender?
2. With which college/school are you affiliated?
3. What program are you attending?
4. How did you find out about the international program? (Check all that apply.)

Previous (2014 and earlier)

1. Through my experience abroad I gained an in-depth understanding of the culture in which I studied.
2. Through my experience abroad I recognized inaccurate assumptions or biases I held previously about the location in which I studied.
3. Through my experience abroad I was able to understand how my chosen field of study is practiced in a foreign setting.
4. Through my experience abroad I was able to understand LDS church teachings and practices in a global context.
5. The director of my study abroad program made good strategic use of the local setting to help me achieve the educational goals of the program.
6. The learning I gained on my program justified the investment in time and money.
7. Will you recommend this program to your family and friends?
8. Please provide an example of how your program helped you understand the local culture.
9. Please provide an example of the assumptions or biases you held previously and how your program provided clarification.
10. How did your program better help you understand you own chosen field of study?
11. How did your program help you to better understand the international church?
12. Is there anything about your program (including the prep class), its classes or director(s) which you found to be particularly noteworthy or disappointing?
13. Please share briefly why you will (or will not) recommend this program to others.

Current (2015 and beyond)

For convenience in discussion, questions have been numbered for discussion in this article. Depending on college, their order of presentation is similar to presentation in the survey, with the exception that each question would have a Likert-scale and open-ended example portion except for question 6.

General Questions for All SA programs

As a result of participating in this international program:

1. My confidence and ability to live abroad or interact with people from other cultures has been strengthened.
2. I have a greater appreciation for other nations or cultures.
3. I have a deeper understanding of my own culture.
4. I have a deeper understanding of my own discipline.
5. My respect and love for people different from me has grown.
6. Please write a paragraph explaining the impact that your study abroad program has had on your overall educational experience at BYU.

Questions Specific to College of Engineering and Technology

As a result of participating in this international program:

7. My view of what I might do in my career has expanded.
8. I have a better understanding of globalization.
9. I know better how to communicate across culture.
10. My leadership abilities have been increased.

All questions, except question 6, have an open-ended section for comments with the prompt of "Please explain how" or "Please provide an example".

Appendix B: Comment Codes and Descriptions

Four sets of comment codes were used to codes student comments on respective questions. Two sets were used with multiple questions and two sets were unique to the specific question. Each set of codes is described as follows.

Code Set 1 (Used for Questions 1, 4 - 8)

Career Path

- comments on how career options or view has changed
- willingness to live outside of U.S.
- greater understanding of how discipline (major) works in a global scale

Culture

- makes reference to visiting or touring historical sites
- learning about or gaining cultural understandings
- learned about other religions
- any communications with local people including language development
- statements of better understanding/appreciating own culture
- refers to any interaction with local people
- adapting to other cultures

Education

- discusses how overall or key aspects of education were affected or changed
- compares and contrasts in class vs study abroad learning
- expresses greater understanding / learning
- Given time to explore

Personal Growth or Reflection

- comments on how the experience changed them personally
- provides reflective comments on such as increases in confidence
- greater ability in discipline (major)
- comments on how SA increased their experience pool and understanding

Relationships

- talks about new positive (or negative) interactions with those on the SA or local to travel areas
- reflects on better understanding of what makes relationships work (or not)
- insights into how other cultures add to their relationship decisions
- talks about how to interact or communicate with others in a work or school setting

Service

- discusses the desire to serve others or to bless the lives of others
- typically reflects a change from just making money and a living to helping others
- provides insights into why the change occurred or interactions that led to serving others better

Other: Not Specified

- all other comments that do not fit in the above categories
- comments that are incomplete or not understandable as written
- it will include generic comments or issues relating to the study abroad experience

Code Set 2 (Use for Question 2 and 3)

Communication:

- knowledge and ability to communicate (speak, read, write, and listen) using a second language, international language and cultural communication rules, while positively representing one's own culture and people.

Appreciation:

- appreciates and respects cultural differences (e.g., language, social rules, political systems, arts, music, etc.)

Openness & Flexibility:

- evaluates cultural differences from a perspective different from one's own cultural norms.
- tolerates and flexibly deals with cultural differences.

Equality:

- views all cultures without prejudice, stereotypes, and discrimination, and interacts with people from any culture as equals in social status (i.e. ethnocentrism).

Exploration:

- desire to learn about different cultures, world events, and social issues.
- learn about country's history

Global Citizenship:

- desire to help or work with people from different countries to solve cross-cultural or global problems.

Other: Not Specified

- all other comments that do not fit in the above categories
- comments that are incomplete or not understandable as written
- it will include generic comments or issues relating to the study abroad experience

Code Set 3 (Used for Question 9)

Second Language

- ability to communicate (speak, read, write, and listen) using a second language.

Cultural Communication Rules

- appropriately apply cultural communication rules when communicating with people from different countries.
- have application in both verbal and non-verbal communication.
- ability to communicate in different social contexts through proper word choice, use of idioms and humor, manner of speech, and appropriate body language

Interpersonal Representation

- ability to positively represent one's own culture, people, company, product, etc. in a foreign culture.
- actions affect a broad range of relationships- make good first impressions, long term ethical actions and positive representations of self, team, company, and country
- captures knowledge, skills, and attitudes related to the importance and principles of interpersonal representation

Code Set 4 (Used for Question 10)

As Individual

- Committed to highest standard of integrity
- Make ethical, wise, value-based decisions
- Problem solves via sound reasoning, innovative thinking & concern for others
- Self-aware & strives to constantly improve

In Organization

- Effective interpersonal skills
- Understands group dynamics, teamwork, & how to function as a team member
- Can articulate a vision, formulate a strategy, develop plans to accomplish project & goals

In Global System

- Impact of global economy & international business
- Value & impact of culture & diversity in organization composition & operation
- Addresses global concerns (e.g., climate change, population growth, clean water, energy, etc.)

Appendix C: Summary of Comment Codings, by Percent for All Colleges on all Questions

These tables indicate the percent of comments for each college in each category on each question

Table 1. Percent of Comments in Each Category by college for the Question: My Confidence and Ability to Live Abroad or Interact with People from Other Cultures has been Strengthened.

		Colleges								
		Business	Ed	Eng	FHSS	FA&C	Human	IS	LS	Nursing
Code Categories	Total Comments	83	15	63	48	29	68	16	37	33
	Career Pathway	16%	7%	14%	4%	3%	4%	19%	3%	6%
	Culture	64%	60%	70%	77%	59%	72%	56%	73%	73%
	Education	8%	7%	6%	6%	14%	6%	13%	5%	9%
	Personal Growth or Reflection	40%	53%	30%	33%	59%	41%	38%	43%	45%
	Relationships	14%	7%	3%	6%	3%	3%	0%	11%	3%
	Service	0%	0%	0%	2%	0%	0%	0%	0%	0%

Note: Business = Marriott School of Business, Ed = McKay School of Education, Eng = Ira A. Fulton College of Engineering and Technology, FA&C = College of Fine Arts and Communications, FHSS = College of Family, Home, and Social Sciences, Human = College of Humanities, IS = College of International Studies, LS = College of Life Sciences, Nurse = College of Nursing,

Table 2. Percent of Comments in Each Category by college for the Question: I have a Greater Appreciation for Other Nations or Cultures.

		Colleges								
		Business	Ed	Eng	FHSS	FA&C	Human	IS	LS	Nursing
Code Categories	Total Comments	80	14	59	44	27	64	15	37	33
	Communication	4%	0%	3%	2%	0%	11%	13%	8%	3%
	Appreciation	64%	43%	58%	57%	44%	34%	40%	54%	76%
	Openness & Flexibility	28%	36%	36%	41%	33%	31%	40%	27%	33%
	Equality	9%	7%	7%	0%	4%	11%	13%	0%	6%
	Exploration	8%	21%	5%	16%	4%	9%	20%	0%	0%
	Global Citizenship	3%	7%	2%	0%	4%	3%	0%	5%	0%

Note: Business = Marriott School of Business, Ed = McKay School of Education, Eng = Ira A. Fulton College of Engineering and Technology, FA&C = College of Fine Arts and Communications, FHSS = College of Family, Home, and Social Sciences, Human = College of Humanities, IS = College of International Studies, LS = College of Life Sciences, Nurse = College of Nursing,

Table 3. Percent of Comments in Each Category by college for the Question: I have a Deeper Understanding of my Own Culture.

		Colleges								
		Business	Ed	Eng	FHSS	FA&C	Human	IS	LS	Nursing
Code Categories	Total Comments	71	12	56	42	26	60	14	35	28
	Communication	0%	0%	0%	2%	8%	5%	0%	6%	0%
	Appreciation	20%	25%	13%	17%	23%	23%	14%	29%	11%
	Openness & Flexibility	51%	67%	50%	48%	46%	55%	79%	46%	71%
	Equality	0%	0%	2%	0%	0%	0%	0%	3%	0%
	Exploration	3%	17%	0%	2%	0%	2%	7%	3%	0%
	Global Citizenship	1%	0%	0%	0%	0%	0%	0%	0%	0%

Note: Business = Marriott School of Business, Ed = McKay School of Education, Eng = Ira A. Fulton College of Engineering and Technology, FA&C = College of Fine Arts and Communications, FHSS = College of Family, Home, and Social Sciences, Human = College of Humanities, IS = College of International Studies, LS = College of Life Sciences, Nurse = College of Nursing,

Table 4. Percent of Comments in Each Category by college for the Question: I have a Deeper Understanding of my Own Discipline.

		Colleges								
		Business	Ed	Eng	FHSS	FA&C	Human	IS	LS	Nursing
Code Categories	Total Comments	63	11	57	42	19	52	15	28	22
	Career Pathway	14%	36%	16%	21%	5%	4%	20%	11%	23%
	Culture	14%	0%	16%	12%	16%	19%	0%	18%	5%
	Education	29%	18%	61%	29%	53%	48%	47%	43%	5%
	Personal Growth or Reflection	33%	55%	21%	40%	42%	29%	20%	32%	41%
	Relationships	3%	0%	0%	0%	0%	0%	0%	0%	0%
	Service	3%	0%	4%	0%	0%	0%	0%	4%	0%

Note: Business = Marriott School of Business, Ed = McKay School of Education, Eng = Ira A. Fulton College of Engineering and Technology, FA&C = College of Fine Arts and Communications, FHSS = College of Family, Home, and Social Sciences, Human = College of Humanities, IS = College of International Studies, LS = College of Life Sciences, Nurse = College of Nursing,

Table 5. Percent of Comments in Each Category by college for the Question: My Respect and Love for People Different from Me has Grown.

		Colleges								
		Business	Ed	Eng	FHSS	FA&C	Human	IS	LS	Nursing
Code Categories	Total Comments	56	12	52	38	25	47	10	34	22
	Career Pathway	2%	0%	0%	0%	0%	2%	0%	0%	0%
	Culture	43%	25%	29%	11%	28%	38%	40%	21%	45%
	Education	2%	0%	0%	0%	0%	0%	0%	0%	0%
	Personal Growth or Reflection	7%	33%	17%	24%	24%	32%	20%	26%	23%
	Relationships	32%	42%	37%	42%	32%	23%	30%	41%	18%
	Service	5%	0%	4%	0%	0%	2%	0%	3%	14%

Note: Business = Marriott School of Business, Ed = McKay School of Education, Eng = Ira A. Fulton College of Engineering and Technology, FA&C = College of Fine Arts and Communications, FHSS = College of Family, Home, and Social Sciences, Human = College of Humanities, IS = College of International Studies, LS = College of Life Sciences, Nurse = College of Nursing,

Table 6. Percent of Comments in Each Category for the Question: Write a Paragraph Explaining the Impact that your Study Abroad Program has had on your Overall Educational Experience at BYU.

		Colleges								
		Business	Ed	Eng	FHSS	FA&C	Human	IS	LS	Nursing
Code Categories	Total Comments	112	23	76	58	38	82	16	45	42
	Career Pathway	24%	22%	25%	22%	16%	17%	13%	9%	10%
	Culture	46%	35%	33%	41%	32%	43%	56%	38%	43%
	Education	51%	57%	49%	45%	53%	66%	56%	56%	45%
	Personal Growth or Reflection	49%	70%	57%	59%	68%	56%	63%	60%	57%
	Relationships	18%	26%	16%	12%	5%	9%	19%	11%	2%
	Service	4%	9%	7%	3%	3%	4%	6%	4%	17%

Note: Business = Marriott School of Business, Ed = McKay School of Education, Eng = Ira A. Fulton College of Engineering and Technology, FA&C = College of Fine Arts and Communications, FHSS = College of Family, Home, and Social Sciences, Human = College of Humanities, IS = College of International Studies, LS = College of Life Sciences, Nurse = College of Nursing,

Appendix D: Summary of Comment Codings, by Percent for Engineering on all Questions

Table 1. Percent of Comments in Each Engineering Only Category for the Question: My View of What I might do in my Career has Expanded.

Category	Percent
Career Path	63%
Culture	2%
Education	15%
Personal Growth or Reflection	19%
Relationships	2%
Service	10%

Table 2. Percent of Comments in Each Engineering Only Category for the Question: I have a Better Understanding of Globalization.

Category	Percent
Career Path	10%
Culture	43%
Education	18%
Personal Growth or Reflection	0%
Relationships	6%
Service	0%

Table 3. Percent of Comments in Each Engineering Only Category for the Question: I Know Better how to Communicate Across Culture.

Category	Percent
Second Language	38%
Cultural Communication Rules	50%
Interpersonal Representation	10%

Table 4. Percent of Comments in Each Engineering Only Category for the Question: My Leadership Abilities have been Increased.

Category	Percent
As Individual	22%
In Organization	60%
In Global System	6%