Study Abroad While Studying Abroad: International Students' Participation in the RSAP Study Abroad Program

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Abstract

Study abroad is critical to enriching the educational experience of students due to the espoused benefits. Studying abroad is a key vehicle for developing global engineering competency as a priority to meet industry and workforce demand in engineering. While the number of students participating in these programs has risen, the participation rate is low. Study abroad has not been significantly diverse to portray the depth and scope of the experiences of the U.S. student population. Moreover, although research has been conducted regarding how students conceive the purpose and value of the international education experience, there is a gap in the literature regarding the experiences of international students who participate in study abroad programs while studying in the U.S. Hence, the purpose of this study is to understand the experiences of international students participating in an engineering study abroad program at a single research university. We argue that understanding the impact of study abroad on international students is relevant to enrich their academic and professional experience in the United States.

Background

Higher education's internationalization has increasingly garnered attention and has taken diverse trends due to the global educational experience associated benefits. Internationalization provides a mechanism that interlocks global and intercultural imperatives in the agenda of institutional deliverables in post-secondary education [1]. In the United States (U.S.), the emphasis for internationalizing in higher education is highly placed on study abroad initiatives for domestic students and the attraction of international students to U.S. institutions [2]. In this endeavor, the U.S. is historically considered the most popular destination for international students, with over one million international students in the academic year 2018-2019 [3]. In terms of study abroad, the participation of U.S. students (excluding international students) has significantly increased over the past decades from 55,000 in 1989-1990 [4] to 341,175 in the academic year 2017-2018 [3]. However, while the participation rate is on the increase, "the actual number of students who experience study abroad remains a small fraction of the whole campus populations" [5, p. 11].

Participation in study abroad programs is characterized by structural issues that typically perpetuate privilege for specific student groups and disadvantage others, including minoritized and international students [6]–[8]. To increase participation and promote diverse students' perspectives, study abroad programs are encouraged to be intentional in their design and approach [9]. This includes the need to evaluate and understand students' experiences to harmonize the benefits rhetoric and program expectations with the reality of students' experiences [10]. Most engineering education research regarding study abroad has focused on understanding how effective the programs are on developing global engineering competencies and on all the different types of learning gains [11]–[15]. Understanding the experiences of diverse students that participate in study abroad is vital to improving such programs. Unfortunately, minimal research has been conducted regarding how students conceive the purpose, value, and conceptions of the international education experience [16], least to mention

the study of international students who participate in study abroad programs while studying the U.S. Moreover, the literature on international students' experiences who participate in study abroad programs to detect the impact of study abroad programs on their holistic educational experience in the U.S. is relatively unknown.

The purpose of this study is to understand the experiences of international students who participate in study abroad programs with the specific research question:

> How do international students in the U.S. describe their experiences from participating in an engineering study abroad program?

To answer the research question, we used qualitative data gathered from journals of international students participating in a study abroad program at a single, large technical research university.

Exploration of the Literature

Study Abroad in the U.S.
The prioritization of study abroad has increased the number of study abroad programs across institutions [17] and students who participate in these programs. The study abroad experience is increasingly defined as a beneficial experience to enrich students' university experience [7]. Some of the benefits encompass learning outcomes and program models' design that focus on the valuable attributes of global and experiential education [18], [19], global and intercultural competencies [20], [21], transformative education [17], [22], and personal and professional development [9]. In the U.S., study abroad initiatives remain the foremost strategy for global education [2] to ensure that students have the appropriate intercultural and global competencies to function in the global world [4]. Overall, study abroad "contributes to developing students' concerns for social problems and strengthening interpersonal skills across cultures" [23..., p. 555]. However, there have been considerable structural and organizational issues due to diverse program models [9]. Therefore, institutions need to articulate better the value of each of their programs for clarity about the benefits of the different program models [10].

There are several models in study abroad programs that include long-term programs (such as studying overseas for academic credits for a full academic year or a semester), short-term programs (less than eight weeks), and non-credit programs (e.g., service-learning trips) [21]. The focus of study abroad programs centers around U.S. citizens and permanent residents at U.S. home institutions through initiatives undertaken overseas [3]. While permanent residents could be inclusive of some international students, the depiction of the study-abroad program does not fully account for the experiences of "U.S. students pursuing an academic degree at a non-U.S. institution as well as international students working on a degree at a U.S. university who study abroad" [4, p. 10]. The program models' design also inhibits the participation of a broader base of the U.S. student population [5], [24]. Hence, study abroad programs are requested to intentionally increase participation from diverse students' perspectives [9]. Among program models, short-term study abroad programs have been advanced as a more appropriate design that aims to increase and promote the participation of diverse underserved groups.

Short-term Study Abroad Programs

Short-term study abroad programs enhance students' interest in global education while meeting other programmatic requirements of their education [25] and offer the best model for increasing and broadening participation among students [18], [26]. Short-term study abroad programs represented 64.6% of all study abroad programs in the U.S. in 2017-2018 [3]. Short-term programs are components of students' degree attainment that involve an international experience lasting 8 weeks or less and are critical to meeting the targeted goal of developing global citizenry. These programs are typically less expensive, hence, expanding access to a larger student population [17], [19], [27]. In addition, short-term programs aim to help students draw a connection between their study abroad experience and in-class activities as they learn [22], [27]. However, short-term programs might need further consideration to improve quality and enhance the desired benefits, which are best achieved by spending longer time abroad [9]. This is a notion that posits the need for an intentional review of how short-term programs are planned.

Short-term study abroad programs require continued evaluation to control the generally conceived notion that shorter programs are less effective than longer programs and assess the differences in outcomes between them [4]. Nevertheless, since the achievement of desired outcomes is more structured in program design than the duration, short-term study abroad experiences can be as effective as the semester-long experience if adequately structured and managed [28]. Institutions would need to develop quality programs to ensure that program outcomes are developed for diverse students and program needs [19]. Hence, the need to make appropriate adjustments to the curriculum with faculty involved in the planning and designing of short-term programs is significant to strengthen programs [24]. It is relevant and effective when short-term study abroad programs are composed of a semester-long class to enrich students' experience, overcome curricular challenges, and adequately prepare students for the trip abroad [18].

Institution Study Abroad Program

The Rising Sophomore Abroad Program (RSAP) engineering study abroad program for this paper is a short-term study abroad program at a Research 1 university in the Mid-Atlantic of the U.S. RSAP provides first-year engineering students the opportunity to take a preparatory course on global engineering practices during their second semester (Spring) followed by a 2-week trip abroad. The program combines a 3-credit spring semester course with a two-week summer international module. The course includes three modules covering global engineering problems, cross-cultural collaboration, and preparation for a professional engagement abroad in a typical semester. Each module involves guest speakers as well as a project related to the topic of the module. The preparatory course is meant to develop students' cultural intelligence with the appreciable skills required to function in a diverse and global engineering context as engineers, including problem-solving, teamwork, and global engagement, and to prepare them for the trip abroad [11]. At the end of the Spring semester, students travel abroad on one of the multiple international tracks for a period of two weeks. Since students declare their majors at the end of their first year, the visits to the different international tracks are designed to showcase various engineering disciplines.

The program tracks are led by faculty with graduate students' assistance [26]. The program tracks have included the following countries: 1) China, 2) the United Kingdom and Ireland, 3) Italy, Switzerland, and Germany, 4) Chile and Argentina, 5) Spain and Morocco, and 6)

Australia and New Zealand. To meet the program's goal of global engineering competencies, students visit companies, universities and are immersed in cultural and social attraction sites in the respective host countries. In addition, students participating in the program are required to highlight their learning and broader experiences through a reflective journal [18].

Methods

To answer the research question, we conducted a qualitative study employing the case study methodological framework. Case study research is based on examining the context and every complex condition in the real-world setting of the phenomenon to have an integral understanding of it [29]. Hence, we used the qualitative case study to examine students' reflective journals to understand international students' perceptions and the overall experience in the study abroad program during Summer 2019.

Participants
Eight international students who participated in the study abroad program during Summer 2019 constitute the participants for this study. Participants were from five different countries and participated in four of the six program tracks. Detailed information about the participants is presented in Table 1. It is important to note that for the Summer of 2019, out of 171 participants, only 8 international students participated in the program, which accounts for only 4.7% of the total participants. This low participation rate has been similar for previous years of the program and speaks to the need to understand this population's experiences to develop initiatives to attract more international students.

Table 1. International Student Participants in 2019 summer program

Students (Pseudonyms)	Track	Gender	Country of Origin	Total Participants
Diya	Argentina/Chile	Female	India	3
Raj	Germany/Italy	Male		
Aarav	Spain/Morocco	Male		
Charlie	Spain/Morocco	Male	Ghana	1
Dawitt	Spain/Morocco	Male	Ethiopia	1
Phan	Spain/Morocco	Male	Vietnam	1
Lie Jie	China	Male	China	1
Jetty	Germany/Italy	Male	UAE/India	1
			Total	**8**

Data collection
Students' reflective journals were the primary source of data for this study. Reflective journaling is a qualitative approach to data collection that allows for a deeper understanding of participants' experiences in a program, including the activities and/or changes during the program [30]. The RSAP's reflective journal design enables participants to share their experiences on "what they think, do, and learn as well as respond to a series of structured prompts" [18, p.11]. Each participant was required to provide two journal entries during the trip (during-trip and post-trip).

Therefore, we anticipated a total of 16 journal entries from eight students.

The teaching team developed several prompts for the during-trip reflection allowing students to provide an account of the activities they engaged in accompanied by pictures to explain their experiences and how they relate to such activity. Some examples of the prompt guidelines are:

1. Identify 2-3 important experiences or ideas that you have been thinking about or that were meaningful to you based on the events of the past few days. For each experience or idea, write 1-2 paragraphs where you explore the topic in more detail by asking yourself questions and writing your answers.
2. This reflection process should focus on making connections, exploring ideas, challenging your beliefs, recognizing patterns, or identifying applications of things you have learned.
3. You can write about what happened and what you did if you would like, but 1-2 paragraphs should focus on reflective topics specifically.

Meanwhile, the post-trip reflection summarizes the participant's overall experience. The prompts provided for the final reflection are the following:

1. Think about where you grew up, your experiences prior to this trip, and the communities you are a part of. How did your specific background influence how you approached and experienced this trip?
2. Tell stories about two people not affiliated with the program who you encountered during your travels—not about how you met, but about their lives and experiences. What makes each story especially meaningful to you?
3. Describe a time that you felt a bit uncomfortable on the trip so far—with the travel, being in a new environment, with your peers. How did you deal with that situation? What did you learn from this experience? How might you apply what you learned in your future?

Data Analysis
During the analysis, we could not locate a participant's during-trip journal. Therefore, instead of 16 journal entries, we analyzed 15 journal entries, which account for all the data available for the eight international students participating in the program. This included seven during-trip and eight post-trip journal entries. Based on the purpose of our study, which is the participants' perceptions of the study abroad experience, we were interested in a holistic understanding of how participants describe the overall study abroad experience. Hence, jointly analyzing the during-trip and post-trip journal entries was essential to meet the study's purpose. To do this, we applied the thematic analysis approach. According to Robson and McCartan [31], thematic analysis is a qualitative method approach that allows data to emerge from patterns after open coding data. Therefore, the coding process discerned themes relevant to international students' study abroad experiences guided by traditional qualitative coding procedures. Hence, through two rounds of line-by-line open-coding [32], we focused our themes on meanings expressed in participants' reflective journals: individual experiences, interpretations, realities, and discourse.

Limitations

Our data is based on the approach and practices of a single study abroad program at a single university, which may be inconsistent with other programs at different universities. We also recognize that data for the study is based on small sample size. Therefore, we caution against generalizability about the experiences of international students participating in study abroad programs in the U.S. However, the study's outcome is transferable. Furthermore, the quality measures applied by our research team in this study to mitigate the limitations make the findings of our study relevant in underlining the experiences of international students who participate in study abroad programs.

Research Quality

To ensure the trustworthiness of our results, we developed several strategies to increase the rigor of our data analysis. We initially conducted coding with four reflective journal entries (during-trip and post-trip reflections) as the initial data analysis phase. Then, we discussed and reviewed codes that emerged from the initial analysis and agreed upon a common set of themes based on patterns observed in the data. Once we had our refined set of codes and emerging themes, we increased the number of journal entries to 15 and conducted a second round of analysis. We compared previously observed codes and themes with newly emerged patterns in the data and agreed upon related patterns in categorizing the data into the final themes. The credibility of the results was determined to be aided by the journal reflections' immediacy. The journal reflections occurred while students were on the trip and immediately upon return to the U.S. (pots-trip). Overall, the research approach, including methodology, data analysis - codes, themes, and results of the analyses, were discussed and jointly agreed upon by all team members.

Results

Our results are based on the major themes that emerged from the reflective journals of international students who participated in the study abroad program. These themes account for the major coding categories and are presented in Table 2. These include student learning, educational contexts comparison, and relatability. We also discussed these themes in detail in the following subsections.

Table 2. Thematic Categories

Theme	No. of Codes	Description	Sample Code
Student Learning	47	Accounts for students' learning experience including social, professional, & technical skills	"Due to [PROGRAM], I have gained a lot of useful knowledge and skills; however, I think the most important skills I have learned are my people skills."
Educational Context Comparison	29	Accounts for students' perceptions regarding the educational system and educational practice in the visited countries and the U.S.	"This was different from the engineering we have at [INSTITUTION] where it is mostly project-based and task completion."
Relatability	36	Accounts for issues that students described as relatable to their prior experiences	"We learned about the many wars that had been taken place here, and I could relate to it as India too had gone through an extensive period of war and conflict."

Student Learning

Student learning accounts for the students' reflection as part of their learning experience from the study abroad trip. Students' most predominant learning experience centered on the program's impact on boosting their social, professional, and technical knowledge/skills. For example, in describing social skills, *Raj,* who traveled on the Germany/Italy track, indicated: "We met many other students and talked to professors and scientists about various projects and ways to help the world, but most importantly we learned how to put our best foot forward and ask questions." *Diya*, on the Argentina/Chile track, also mentioned:

> Partaking in this event made me interested in learning more about different indigenous cultures and maybe finding ways in my future to make people more respectful and understanding of these groups. It has inspired me to be even more socially aware to the people around me and learn more about the beliefs of others and try to make a difference to how they are treated.

Regarding technical skills and knowledge, *Dawitt,* a student on the Spain/Morocco track, expressed the learning experience based on activities he engaged in during a tour at an industrial plant: "this knowledge I gain at Endesa informs me about the direction in which the world is heading through technology and challenges me to do more in order to make the world a better place and secured." In our data, *Aarav*, another student on the Spain/Morocco track, shared that: "The visit to the Airbus company was very knowledgeable. I learned about how aircraft are made from the very tiny components to the larger ones, which are all significant." *Diya* also indicated:

> Sustainability is huge in South America, therefore this will be beneficial for the company's image. We also visited the labs and the place where they grind the ores … We learnt about different types of ores and he explained us and showed us the samples of ores according to the customer's requirements.

Students' reflections that manifest knowledge of professional skills was also prevalent. As an example of this in the data, we found that a student on the Germany/Italy track, *Jetty* expressed the learning experience from a tour: "I learned how to be a global citizen and work in an environment where there are people from different cultures and races." *Phan* on the Spain/Morocco track also wrote in his journal: "I learned how crucial it is to build a strong network of communication …There is so much detail that goes into making a plane and as a result, it is critical to be on the same page within a team," while *Lie Jie* on the China track shared that: "communication is the most important skill one needs to develop, which will help you in every step of life. And that's what I learned from being able to communicate with foreign people."

Educational Context Comparison

Educational context comparison describes how international students perceived the study abroad experience regarding their understanding of their program of study, the program curriculum, their host institution, their host-country education system, and their country of origin. For

example, *Jetty* on the Germany/Italy track expressed that the "form and structure of the syllabus of the university is comparable to that found in the United States. It is preferred that the students invest their time in a hands-on approach rather than studying theory most of the time." *Phan,* who was on the Spain/Morocco track, revealed: "After hearing the tight schedule of a student, I was shocked to see how similar his undergraduate course was designed, almost to mimic our course." Conversely, *Aarav* mentioned:

> We learned about how the engineering coursework and how they are different from our regular courses at [HOST-INSTITUTION]. It was a unique experience for all of us as we all had come from different high school backgrounds and seeing a university that focused on hands-on work and combined various engineering aspects with design courses. This was different from the engineering we have at [HOST-INSTITUTION] where it is mostly project based and task completion.

In further comparisons, *Lie Jie* mentioned: "we learned about Chinese college life for the first time, and their focus on physical health as well as honoring their alumni really stand out. Their focus on physical health is different from that of the U.S. school system." In continuation of institutional/country comparison, *Lie Jie* revealed: "we were introduced to few of their engineering majors, and one of those majors was fashion engineering, which I had never heard of. This shows just how behind the U.S. is compared to China in a lot of technological areas." *Charlie* on the Spain/Morocco track expressed his take and indicated: "students could also engage in a design and engineering embedded course. This opportunity was not given to us during my high schooling, and I was assured that my classmates were equally shocked to hear such a co-op."

Relatability

Relatability accounts for international students' expressions of issues that focus on how they related their experiences during the study abroad to their prior experiences in their home countries as well as their host country (U.S.). For example, *Raj* indicated: "it is important to understand the different kinds of cultures and their teachings … As an Indian, education is of the utmost importance in my country, and this was something I found common while experiencing the Italian culture." A student on the Spain/Morocco track, *Charlie* described the experience at one of the visited institutions:

> As a student, I feel I learn better when the class is interactive, where the professor just guides us to the answers rather than printing the solution on the board. I was able to compare this to the education system in Ghana, where we are expected to copy everything in our notebooks and later revise the same for our tests. What amazed me was the extreme difference in teaching patterns.

Diya on the Argentina/Chile track related the experience abroad during a tour to her home country and said: "We visited "Globant"; this company is based out of Argentina and has its branches all over the world. I am from India, and I was kicked to know that there are 2 branches of Globant in my country." Not only did students relate to their countries of origin, but they also

related the study abroad experience to the U.S. As *Dawitt* noted: "I am an International Student studying at [INSTITUTION]. Therefore, this trip was more of a double – study abroad trip. As an Ethiopian, I am used to a very different system than what was presented in the United States."

Discussion

This study contributes to the limited literature on the international experience of students participating in study abroad programs [16]. Specifically, our findings show how international students describe their study abroad experience: student learning, educational context comparison, and relatability. We discuss the relevance of these findings and argue that while international students are already abroad by default, it is important to note that their participation in study-abroad programs offers an alternative experience to enrich their educational experience.

Student learning manifests that students participated in many activities that enhanced their understanding of appropriate competencies, such as social, technical, and professional knowledge/skills. For example, students were exposed to multiple factories while abroad that enhanced their first-hand experience of the routine work of engineers in those factories and the manufacturing process that goes on in those factories. This result confirms that short-term programs "delivered via experiential education promoted global citizenship" [19, p. 156]. This is an important consideration for study abroad programs, given that in this experience, students got a firsthand opportunity to understand expert decision-making in engineering work. Exposure to factories and interaction with professional engineers, as students are abroad, is essential for developing global competency and transnational skills emphasized in engineering education.

International students were keen on comparing their experience from the interaction abroad regarding the educational contexts. The students primarily drew upon the similarities and differences they observed in the engineering curriculum and institutional practices between the institutions they visited and their U.S. institution of study. To improve the study abroad experience for students and the study-abroad program itself, institutional and curricular insights from students based on their abroad experiences are critical for curriculum modifications [24]. Using students' perspectives is essential to help program leaders and institutions understand important educational practices observed abroad that could be relevant to students' education in the country of study. This is essential to help students develop global engineering competencies. As Knight et al. [18] note, effective study abroad programs must incorporate global competency in their curricula to develop globally competitive citizens. Approaching engineering education this way is essential to ensure that student's educational experience transcends the country of study and involves engineering practices in other countries.

In terms of relatability, students reflected on their previous experience from their home country and related that experience to the country abroad. The frequency of relatability demonstrates how students' experience was influenced in observing, interacting, participating, and embracing the new culture [16] and making connections to their home country and the country where they are currently living and attending college. We consider this to be a key finding since the complexities of comparing a new country with their home country and the U.S. can promote great conversations that can also enrich the way students perceive global engineering and provide examples that can be articulated and used in different courses.

These findings are relevant for study abroad programs in many ways. First, it is essential to recognize that international students' description of their experiences was threefold, including their perceptions of their home countries, the U.S. as a host country, and the travel destination. Second, seeking to understand international students' experience is valuable to help institutions, administrators, researchers, and faculty assess the effectiveness of their study abroad programs. Third, study abroad programs can be effective and increase participation for diverse groups of students if planned with intentionality [25], [27], [28].

Conclusions

Our study's primary purpose was to understand how international students in the U.S. who participate in RSAP describe their experience from participating in the program. Based on our results, we concur with previous researchers that study abroad programs should consider intentional designs that nuance students' experience as a nexus for future program improvements. Understanding the perceptions of diverse students who participate in study abroad is essential to improve study abroad programs. Most importantly, international students constitute many students in the U.S.; hence, institutions and global education offices should consider understanding the experiences of international students who participate in study abroad programs as part of the intentionality of their study abroad design.

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