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# Engineering Global Competencies through Study Abroad

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**Engineering Global Competencies through Study Abroad**


## Abstract

The importance of global competencies for an engineering workforce to address cross-border challenges and the emphasis on studying abroad to develop these abilities is well documented. Some of the biggest problems in society require extensive collaboration that extends beyond national borders. In a new digital professional context and interconnected global society, where seeing a colleague thousands of miles away now happens with the click of a Zoom link, the ability to work globally has arguably never been greater. Traditionally, study abroad programs have been viewed as playing a significant role in preparing students for international careers.

How program participants perceive the development of global competencies through the lens of Kolb's Experiential Learning Theory [1] is limited in the literature. An investigation into this subject can provide insights into how to approach cultivating students' abilities to collaborate across borders. A qualitative research study at the Pennsylvania State University employed participant interviews to identify the components of the "Como, Italy Technical Presentation and Cross-Cultural Engagement" faculty-led study abroad program that were most relevant to developing global competencies in engineering students. In addition, the factors that helped and hindered the acquisition of this skillset were explored utilizing Critical Incident Technique (CIT).

*Local student interactions*, an *academic preparation and culture class*, *free time/personal exploration*, *guided excursions*, and r*eflection* were found to be significant as both program components and helping factors in the development of global competencies. *Cultural immersion, interactions with locals,* and *faculty encouragement* were important as program components but not explicitly identified as helping factors. Conversely, (negative) *mindset*, the *study abroad cohort*, and one's (insufficient) *language abilities* were determined to be hindering factors. The study participants were able to provide insights that aligned their experiences with Kolb's model. Reflection, faculty guidance, and time to engage with experiential learning were crucial in this process. Additionally, the recursive nature of learning was evident in many participant narratives.

Practitioners in the field of education abroad for undergraduate engineering students may benefit from considering the program components and factors identified when devising programs and curricula. A model was created that may guide the practice of program design. As the study abroad field strives to respond to the need for global competencies in the engineering workforce, additional investigations must be undertaken. Research incorporating mindset, the qualities that make local student interactions meaningful, and the inclusion of larger sample sizes and quantitative methods may be of particular interest.


## Introduction

When considering the 14 Grand Challenges for Engineering in the 21st century put forth by the National Academy of Sciences, such as preventing nuclear terror and providing access to clean water [2], it is apparent that global collaboration is critical to solving major societal issues.

Educators agree that the ability to collaborate globally and possessing an intercultural skillset is highly desirable to employers [3]-[5]. Furthermore, the global pandemic accelerated a new interconnected professional context that has closed the distance of seeing a colleague from thousands of miles to a simple Zoom link [11]. Major stakeholders, including policymakers, researchers, and academic institutions, have emphasized the criticality of global competencies while highlighting that the path to developing them is elusive [6], [7]. Education abroad has emerged as one of the major solutions to deliver on the promise of globally competent students [8]. Braskamp et al. pointed to study abroad as a vehicle that fosters intercultural abilities. These beliefs help explain the 55.3% growth in student participation in study abroad from 2005-2019 [10], reaching 347,099 undergraduates. Despite these increasing numbers and "a clear need and call for critical global competencies, they remain lacking in college graduates and the workforce [11]." At the same time, study abroad programs are trending shorter. At the writing of this paper, 64.9 % of students enroll in study abroad programs shorter than 8 weeks in duration [10]. Historically, an entire semester abroad had been the convention for decades. This invites the question of whether and how practitioners can develop these requisite global competencies as shorter sojourns abroad undergird the paradigm.

The extent to which participants acquire global competency during study abroad continues to elude researchers despite their best efforts. Assessment is a multidimensional challenge, complicated by limited studies covering only one institution. Significant disparities exist in program lengths, study locations, program designs, student preparation, and participant selection bias [12], [13]. Because of this, meaningful quantitative assessment of global competency improvement is highly complex, and drawing conclusions is challenging, if not downright impossible. Few research studies examine how studying abroad impacts the development of global competencies [14]. Given the nuances surrounding this issue, there is merit in exploring how the development of competencies occurs. Investigating the individual learner in the international context provides a fresh perspective rather than replicating a study that attempted to measure improvements in these skills. Learning should be understood in terms of process rather than results [15], a notion this paper attempts to elucidate.

**Purpose**

As faculty-led engineering study abroad programs are created, and participation increases, an investigation into how global competencies are acquired during an academic experience abroad is highly valuable. This research aimed to understand how short-term undergraduate study abroad programs in the U.S. helped students build their global competencies. This study investigated, through the lens of Kolb's Experiential Learning Theory, how elements of study abroad programming and personal experiences helped or hindered learning that fosters the development of global competencies. It did this by using personal reflections in the tradition of the Critical Incident Technique (CIT). Although past studies have focused on determining whether there is an increase in global competencies, the body of knowledge is small and generally difficult to generalize. It is vital to delve deep into the minds of the students who participated in study abroad programs to extrapolate an understanding of the process and how it may be enhanced. In gaining this information, the field of international education can more scientifically focus its investments on the most productive elements of programs, potentially yielding better gains.

## Research questions

The study is rooted in the foundation that the acquisition of global competencies can be viewed through observing learners as they progress through phases of knowledge by applying Kolb's Experiential Learning Theory. This method simultaneously gathered information on the elements that helped and hindered global skills development. The accompanying questions were developed with these goals in mind.

1) Which experiences and structured programming elements of the Como, Italy Cross-Cultural Engagement and Technical Presentation study abroad program did student participants most closely align with Kolb's Experiential Learning Theory in developing their global competencies?

2) What helping factors enabled participants to progress through Kolb's Experiential Learning Theory in developing their global competencies?

3) What were the hindering factors that discouraged participants from progressing through Kolb's Experiential Learning Theory in developing their global competencies?

## Method

In approaching this investigation, it was necessary to put parameters around the term global competence. Although "global competency" is frequently used in business and by international educators, it has varied connotations. Based on a rigorous examination of the literature, including terms such as global citizenship, global competence, global competencies, and intercultural competence, the author determined *global awareness, global understanding, and the ability to effectively apply intercultural knowledge* an appropriate definition of "global competency" or "global competencies [11]."

The selection of a framework to explore the acquisition of global competencies was a critical step. Kolb's Experiential Learning Theory was an appropriate theoretical framework for this inquiry, given the transformative nature of study abroad experiences and the constant personal experimenting that characterizes interactions deeply rooted in diverse, intercultural environments. Experiential learning theory demonstrates good construct validity and is highly respected in the academia as a model for learning and curriculum design [15]. Instead of assessing the development of cognitive skills, experiential learning focuses on incorporating real-world experiences. Consistent with this idea, the success of an international education depends on cultural sensitivity, awareness, and mindfulness [16].

Kolb's model outlines 4 unique stages in the learning cycle: *Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC), and Active Experimentation (AE)*. After observing (CE) and reflecting (RO) on a tangible experience, the learner transforms the experience into abstract notions (AC) that serve as the basis for constructing experiments (AE). A CE is a relevant event or incident that occurs and spurs thinking. For example, one might have a cultural interaction while trying to execute a task. After the experience, during the RO phase, the individual reflects upon what happened. They might consider how the incident

was successful or unsuccessful. As the thought process evolves, the experience is transformed into abstract concepts in the AC phase. The individual constructs meaning and theories behind the occurrences. These concepts become the fodder for designing experiments (AE) where the theories they developed can be implemented and tested. These experiments, perhaps approaching a new cultural interaction with the knowledge gained from a previous encounter, lead to new experiences and propel the cycle forward, recursively. [15]. This is an exceptionally useful method to help study abroad participants in developing their global competence because there are always new opportunities to learn, use, and hone international skills in a novel environment abroad.

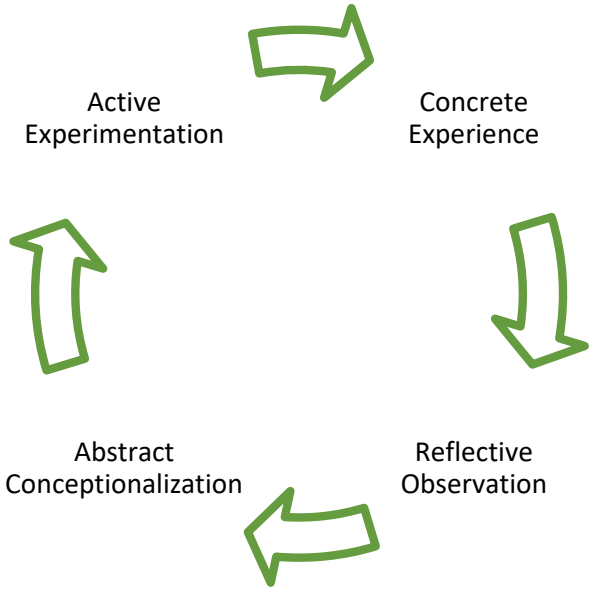



*Figure 1*
*Kolb's Experiential Learning Theory Model*

Guiding the data analysis, this study employed the tool of Critical Incident Technique (CIT) to uncover the most crucial of these learning moments. This study intended to identify characteristics that helped or hindered the development of global competencies by mapping them to experiential learning theory. Regarding CIT, "critical incident technique consists of a set of procedures for collecting direct observations of human behavior in such a way as to facilitate their potential usefulness in solving practical problems and developing broad psychological principles [17]." CIT is "a qualitative interview procedure which facilitates the investigation of significant occurrences (events, incidents, processes, or issues) identified by the respondent, the way they are managed, and the outcomes in terms of perceived effects [18]." Thus, the study participants were encouraged to describe what had the most significant impact on their development in rich contextual detail as experiences or incidents.

**Research design**

Interview prompts were designed to collect information that could address the research questions. They were refined by soliciting feedback from content experts, including an institution of higher education's study abroad director, an engineering college faculty member with

experience as study abroad program leader, and experiential learning scholars. The deliberate choice to focus on one program for this research was intended to mitigate interference from external aspects. Student development across different programs could be impacted by varied designs and the diverse cultures of the destinations. Thus, a sole three-week-long faculty-led engineering study abroad program was utilized in this investigation. The program occurred during May at sites in Como, Italy and Mendrisio, Switzerland. It was selected because the population was accessible to the researcher and the program design shared characteristics the literature highlighted as essential factors in developing global competencies. Participants in this program completed a pre-departure course before traveling abroad. While in country, all students enrolled in a technical presentation course and a separate class emphasizing local cultural engagement.

After a pilot study, purposeful sampling was utilized, and the data was obtained through interviews with 11 program participants. As global competency is a technical term about which student interviewees did not have a background, the definitions of global awareness, global understanding, and the ability to effectively apply intercultural knowledge were presented to students with examples. Furthermore, an illustration of the experiential learning cycle was provided to the interview subjects with an explanation of the model to facilitate the collection of the information. This data was analyzed inductively and systematically to allow for the identification of meaningful themes. This resulted in an initial set of 26 items. These were re-examined for commonalities among concepts and reduced to 14 codes, as some remaining themes became insignificant, they were eliminated. The final slate of identified codes appeared 133 times throughout the interview transcripts. Inter-rater reliability was established by sharing relevant excerpts that were assessed by several qualified researchers. They found greater than 90% reliability in how codes had been designated, with no more than one inter-rater in disagreement on any individual code.

*Interview topics*

Students were asked to address the following points:

- Outline the most impactful components of the study abroad program in developing global competencies (global awareness, global understanding, and ability to effectively apply intercultural knowledge).
- Consider global competencies and discuss the experiential learning process while abroad with examples. (Students were provided a diagram and explanation of the model.)
- Describe helping and hindering factors in the development of global competencies while abroad.

## Findings

*RQ 1*

The first research question explored the development of global competencies through structured programming elements that could be mapped to the concept of Concrete Experiences (CE) found in Kolb's Experiential Learning Theory. The most cited factors included *local student interactions* and the *academic preparation and culture class*. These were noted by 91% and 73% of the participants, respectively, as vital to growth in global awareness, global understanding, or

the ability to effectively apply intercultural knowledge. In addition, other noteworthy themes included *free time/personal exploration (including through assignments)*, *cultural immersion, guided excursions, interactions with locals,* and *faculty encouragement.*

| **Codes** | **Total Occurrences in Transcripts** | **% of Participants Citing** |
|---|---|---|
| Local student interactions | 10 | 91% |
| Academic preparation and culture class | 10 | 73% |
| Free time/Personal exploration (incl. through assignments) | 7 | 64% |
| Cultural immersion | 6 | 55% |
| Guided excursions | 5 | 45% |
| Interactions with locals (incl. through assignments) | 5 | 36% |
| Faculty encouragement | 4 | 36% |

Below is a selection of participant comments on the three areas most significant to the investigation's findings.

On *local student interactions,* Participant 9 discussed the value of working with local students, saying, "the students were very welcoming and comforting to ask questions and were very open to helping us." Participant 11 added, "for global awareness…having interactions…We developed a really good relationship with him [a local student] because he also would ride the train with us from school back…on these train rides we were able to learn a lot of information, specifically about trains." Participant 10 remarked, "I think the clear classes whenever we would talk about interacting with the locals and between U.S. students and the Swiss students and locals because that gave us insight to what their lives are like and things that are important to the culture that you sometimes can't read about and research before coming."

Regarding the *academic preparation and culture class*, Participant 6 remarked, "I think the clear classes whenever we would talk about interacting with the locals and learning more about the culture because our study abroad program focused both on technical communication and the culture. And I think for me, that cultural class really helped me understand better how to interact with people in the area." Participant 9 mentioned, "we learned that Italy and Switzerland were both very high context countries, so they would like to get to know each other more before continuing a project, or just really care about personal relationships…"

The value of *free time/personal exploration* outside of the classroom to develop global competencies was articulated in sentiments such as "I think honestly, just the freedom to roam and figure out stuff out for ourselves was what helped us learn a lot. Like, as the example says, that stores are closed during lunch -- you could probably look that up and find it. But, actually seeing it would help you understand that, like 'Oh, this is, like, common,'" which was

highlighted by Participant 9. In describing why this time was necessary, Participant 6 remarked, "we got to interact with the local people was when I got to learn more about the country."

*RQ2*

The second research question sought to understand how participants navigated Kolb's Experiential Learning Theory toward acquiring global competencies. Each of the study participants was able to describe incidents that included a Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC), as well as Active Experimentation (AE) with examples. A sample of the study participants' impressions follows below.

Concrete experiences (CE)

All participants began discussing how they interfaced with Kolb's model by providing examples of unique Concrete Experiences (CE). The majority of these were defined by communication and transaction challenges, with 73% engaging with the culture while obtaining or attempting to obtain food and beverages. However, two students provided examples of making clothing purchases, and one participant mentioned missing a train. Participant 2 reported, "I went to a café, and it was interesting because we weren't sure whether you ordered at the counter or sat down and ordered, and I remember we were communicating with someone who worked there, and there was a bit of confusion in that." While recounting a visit to an outdoor market, Participant 3 stated, "I was hesitant with buying something, because I just didn't know what the structure was. I didn't know how to effectively communicate with the person because I'm speaking in English." Further discussing the language barrier, Participant 1 remarked, "I guess the concrete experience, it was one time I went to a café in Como, and I started ordering in my Italian-slash-English way of speaking, which I was able to get away with in other places where people spoke English, but the people behind the counter did not speak any English. And I used as much Italian as I knew but, in the moment, you kinda freeze."

Reflective Observation (RO)

The study participants made numerous statements demonstrating their ability to reflect upon their Concrete Experiences (CE). Participant 7 recapped unclear encounters that occurred in cafés, "And then afterwards, we would talk during it, or while we were there, we were talking about, we see other people sitting down. They bring the stuff to you, does this work?" Participant 8 reviewed an unsuccessful attempt to purchase an item using euros in Switzerland, "I guess when you're in Europe, you assume that every country uses euros. I didn't have francs, and I couldn't get it. So, I reflected on that." Another student, contemplated on a shop visit mentioning, "I reflected, saying, 'Oh, they probably realize that I'm an American. So, then I have to realize I had to do something to fit in or just to respect their culture.'"

Abstract Conceptualization (AC)

Regarding synthesizing experiences into concepts, Participant 1 ascribed their inability to be effective to a lack of foreign language knowledge, "I guess that was kind of on me being like the American showing up there without perfectly speaking the language." And, after having a puzzling experience at a café, Participant 10 incorporated their experiences to form a concept of how local establishments function, stating, "It's, you either order here or you order here, and again either pay at the counter or you pay when you sit down—it's two separate things."

Active Experimentation (AE)

The Active Experimentation (AE) phase of the cycle was observed across the participants. Participant 8 revisited their mistake of using the wrong type of currency, "I made sure to always keep those types of currency on me." Participant 6 remarked how they learned about the train system when they missed it the day before and successfully made their subsequent departure, stating, "the next day when we went back, we weren't as nervous to use the train or get the tickets online or anything. We felt more confident in our ability to use the transportation so that second day when we went hiking, it went more smoothly on the train."

*RQ3*

Helping and hindering factors in the development of global competencies while abroad we assessed in the third research question.

Helping factors

Based on the codes generated from student interviews, 4 categories became significant in helping develop global competencies in students. These areas included *local student interactions* (64% citing), *guided excursions* (55% citing), *free time/personal exploration (incl. through assignments)* (45% citing), and the *academic preparation and culture class* (27% citing). *Local student interactions* were characterized by Participant 5 as follows "… they gave context to why. The 'whys' things were happening. And it was also nice because they [the students] were our age, so we could relate to their experiences…." Participant 6 stated similar sentiments, "…to help in developing my global understanding was when I interacted with the students..." Regarding the value of *guided excursions* as a factor, Participant 2 remarked, "…you were globally aware of these things, but you had a deeper understanding of why and how, how they were affecting the…culture, which was useful to get, compared to when you would walk around on your own, you wouldn't really know." With respect to *free time/personal exploration*, Participant 4 remarked, "So, what helped me effectively apply intercultural knowledge was... us the independence to be on our own."

Hindering factors

The participant research resulted in 3 hindering factors with a frequency relevant to the report. These areas included *mindset* (64% citing), *study abroad cohort* (64% citing), and *foreign language abilities* (64% citing). On *mindset,* Participant 5 highlighted the impact of fear, "there were definitely situations, whether it's an outside market or something like that, where I wanted to try something I had learned or say a certain phrase…and I ended up just not even doing it or just walking away from the situation because of fear." Participant 5 spoke to the hindering effect of assumptions, "I think I would make assumptions about situations that was happening around me or why things are happening, which ultimately, I later learn, they're wrong assumptions." In terms of the *study abroad cohort*, Participant 10 indicated, "being with so many other people who spoke English made it harder to have interactions with locals, and to pay attention to what was happening around me." Related to the use of English were inadequate foreign language abilities, described by Participant 2 as follows, "… not knowing the language, I feel was the biggest hindrance on understanding why stuff was happening that you observed, which was then the same with trying to apply it."

**Discussion**

The study found that 91% of participants identified the critical role of *local student interactions* to their development in the global competency domain. This point is consistent with themes in the literature [19] that described the value of *local student interactions* during in-country activities and pre-departure preparation. Additionally, the importance of engagement with the local population was discussed by Gaia, who indicated that interaction with those from a different culture was related to a student's development in global competence [20]. Furthermore, the literature suggested that program curricula should teach participants about the host region's culture and acceptable behaviors, which could encourage greater engagement with locals [21]. This perspective is consistent with the study findings.

More than half (64%) of study participants cited *free time/personal exploration (incl. through assignments)* as an essential program component. Covert, for example, claimed through narrative analysis that study abroad participants were the architects of their own intercultural growth [22]. Thus, when given the agency to manage their time, students have the potential to navigate the experiential learning cycle to develop global competence. An experience coded as *cultural immersion* was a likely factor in the benefit of unscripted time opportunities to explore and incorporate new paradigms that abound in an international setting. Participant 7 stated that "being in touch with the local culture, just being around that culture" influenced global competency development.

In terms of faculty-directed time, *guided excursions* were mentioned by 45% of participants as being connected to the development of global competencies. Similarly, the literature points to proposing tailored interventions to achieve gains in global competencies [7]. Guided excursions fit into this category because they can be customized to meet the needs of a group. Participant 1 stated, "I actually got into learning about Roman history after I came back," referring to an excursion led by a local guide that provided historical context for the location.

Three factors hindered the development of global competencies, with 64% of participants mentioning *mindset, study abroad cohort,* and *language abilities.* These categories have some interaction. For example, regarding the connection between *mindset* and *language abilities,* Participant 5 said "I wanted to try something I had learned or say a certain phrase…and I ended up just not doing it or walking away from the situation because of fear." This could start a vicious cycle in which communication skills flounder as the student's reluctance to engage persists. The *study abroad cohort* was also tethered to language abilities. Participant 10 pointed out that their peers were "a large group of English speakers." This discouraged interactions with locals where the region's language could be practiced, perhaps worsened by mindset. A related attitudinal concept on the opposite end of the spectrum was *faculty encouragement*, which was found helpful in developing global competencies. Participant 3 stated that even when their intercultural knowledge applications were not graded, "constant reinforcement" from faculty motivated them to try in the face of potential failure.

In this study, meaningful interactions with locals were cited as having enhanced learning and one of the mechanisms that may add value to the development of global competencies. Furthermore, educational components such as prior academic preparation and an in-country course on local culture were significant. Aside from that, having personal agency and dedicated

time to develop awareness, understanding, and the application of knowledge appear to be beneficial to incorporate into the design of an impactful program. However, faculty guidance and encouragement regarding time management may be essential.

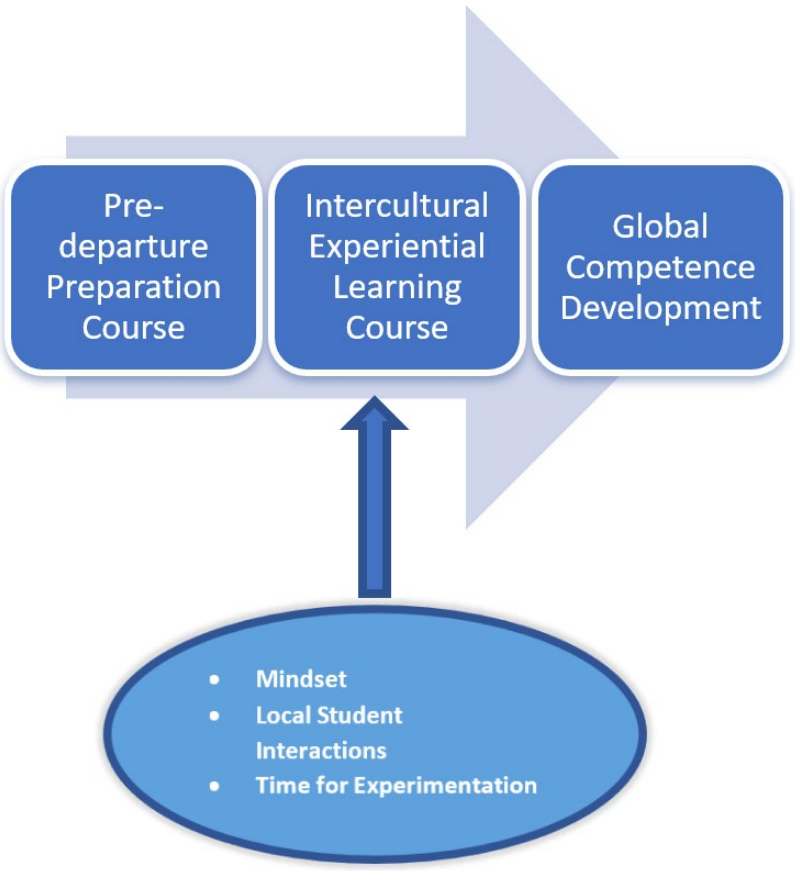
This research identified items that the field of international education may want to carefully consider in achieving the goal of global competency development through program design: 1) mitigating the study abroad cohort's interference with individual growth, 2) enhancing language (or intercultural communication) abilities, and 3) encouraging a positive mindset. In terms of mindset, Dweck brought attention to having a fixed or growth mindset. This can be summarized as believing that one can develop skills (growth) or that abilities are innate (fixed). Individuals with a fixed mindset are concerned with appearing intelligent or proving themselves. Those with a growth mindset believe they can improve their abilities. Failure is seen as an opportunity to learn [23]. As there was evidence of fear and failure in this study, attitudes connected to a fixed mindset may indicate the potential for mindset interventions.

The information gleaned from participants illustrated movement through the experiential learning cycle, which corresponded to Kolb's theory. The appearance of reflection in the participant narratives is noteworthy. Reflection can play a role in fostering global learning for study abroad participants [19], [20]. Each participant's experiential learning cycle examples referenced activities in the time they managed. This may indicate the need to create space for experiential learning and the importance of reflection in that process. It may be feasible for faculty members to enhance this through guided reflections.

**Recommendations for practice**

A practitioner in the field of faculty-led study abroad interested in participants developing global competencies may find an application for the knowledge synthesized through this study. The practitioner could consider designing the experience using a program model that was based on this research.

*Figure 2*
*Study Abroad Program Design Model* [11]




Prior to the international experience, students would participate in a pre-departure course that introduces them to the language and culture of the study region. This preparation would give students a foundation for deeper engagement with the locals and regional culture.
To continue with this model, the in-country program course(s) could include intercultural experiential learning activities centered on Kolb's model.

While guiding participants through the experiential learning cycle, specific assignments and activities could focus on fostering global awareness, understanding, and applying intercultural knowledge. Participants could be asked to identify a task that allows them to acquire and apply cultural knowledge and document examples of how they learned. The program's experiential component could be improved by placing it in the context of learning alongside local students in smaller groups where interference from a large cohort could be mitigated. Students would need to be afforded adequate self-managed time to complete the desired tasks and for reflection. In addition, mindset interventions could be incorporated into the program to encourage participants' direct engagement with the culture to create additional opportunities for global competency acquisition.

**Limitations**

While qualitative research can investigate meaning articulated by research subjects, its generalizability to a larger population is limited. Each study abroad program is unique, and many factors influence the outcomes. As a result, the findings are meant to generate thought and scholarly debate, providing a model for practitioners to consider. Additionally, the participants in this study came from a single program and its corresponding location. Different pedagogical methods, locations, and cultures could yield different results. As there was a small sample in this study, increasing the sample size could provide additional insights or strengthen the findings. The duration of the experience as relates to the enduring impact of shorter programs is a question asked in the literature [24] that the study did not consider. Further research is needed as the field of study abroad strives to meet the demand for global competencies in the engineering workforce. Mindset research, qualities that make local student interactions meaningful, as well as the inclusion of larger sample sizes and quantitative methods, may be of particular interest.

## Conclusion

The crucial relevance of global skills for a workforce to solve cross-border difficulties is widely recognized, as is the emphasis on study abroad to build these abilities. Traditionally, study abroad programs have been viewed as playing a significant role in preparing students for international careers. How program participants perceive the development of global competencies through the lens of Kolb's Experiential Learning Theory is limited in the literature. A qualitative research study the Pennsylvania State University employed participant interviews to identify the components of the Como, Italy Cross-cultural Engagement and Technical Presentation faculty-led study abroad program for engineering students that were most relevant to developing global competencies. In addition, the factors that helped and hindered the acquisition of this skillset were explored utilizing Critical Incident Technique (CIT). Local student interactions, an academic preparation and culture class, free time/personal exploration, guided excursions, and reflection were found to be significant as both program components and helping factors in the development of global competencies. Cultural immersion, interactions with locals, and faculty encouragement were important as program components but not explicitly identified as helping factors. Conversely, (negative) mindset, the study abroad cohort, and one's (insufficient) language abilities were determined to be hindering factors. The study participants were able to provide insights that aligned their experiences with Kolb's model. Reflection, faculty guidance, and time to engage with experiential learning were crucial in this process. Additionally, the recursive nature of learning was evident in many participant narratives.

Practitioners in the field of education abroad for undergraduate engineering students may benefit from considering the program components and factors identified when devising programs and curricula. A model was created that may guide the practice of program design. As the study abroad field strives to respond to the need for global competencies in the engineering workforce, additional investigations must be undertaken. Research incorporating mindset, the qualities that make local student interactions meaningful, and the inclusion of larger sample sizes and quantitative methods may be of particular interest.

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