

Scavenging for Connection: Promoting Social Opportunities for Students Studying Abroad in Prague

An Interactive Qualifying Project
submitted to the faculty of
WORCESTER POLYTECHNIC INSTITUTE
in partial fulfillment of the requirements for the
degree of Bachelor of Science

By:
Sean Hart
Peter Howell
John Lemieux
Harrison Taylor

Report Submitted to:
Laureen Elgert, Phil Hultquist



This report represents work of WPI undergraduate students submitted to the faculty as evidence of a degree requirement. WPI routinely publishes these reports on its web site without editorial or peer review. For more information about the projects program at WPI, see <https://www.wpi.edu/project-based-learning>.

Abstract

Students abroad often face social and cultural challenges that can cause loneliness and isolation, preventing them from realizing the full benefits of studying abroad. We collaborated with The Council on International Educational Exchange (CIEE), a study abroad organization with locations around the world, to bolster their resources to help students facilitate social connections while abroad. We analyzed CIEE's current programming by interviewing CIEE students and staff and surveying CIEE students. The resulting data, combined with our background research, informed the creation of scavenger hunt activities and self-managed social clubs for students. The scavenger hunts are gamified orientation activities that encourage cooperation and collaboration within smaller, randomized groups. The clues incorporate some basic utilities, such as pharmacies and grocery stores, but are primarily focused on providing interesting challenges that students can bond over. We conducted student pilot tests of the scavenger hunts and used their feedback to fine-tune the structure of the activity. The self-managed social clubs provide students with a forum to connect over similar interests and participate in activities together at their own pace through their study abroad. Implementing these resources will help CIEE with their continued efforts to help students navigate the social challenges of studying abroad.

Acknowledgments

The team would like to thank the Council on International Educational Exchange (CIEE) for providing us with this meaningful opportunity. We are specifically grateful to our collaborators, Peter Mistrík and Michaela Neužilová, for guiding us throughout the project.

We would like to thank our project advisors, Professors Laureen Elgert and Philip Hultquist, for their continued support and invaluable instruction over the past term.

We would like to thank our ID 2050 instructor, Melissa Butler, for her guidance on our research proposal and for preparing us to continue our work in the Czech Republic.

We also would like to thank those students who helped pilot-test our resources, as well as the CIEE students and staff who participated in our survey and interviews. Their feedback was invaluable for informing the creation of our resources for CIEE.

Executive Summary

By experiencing life in a different culture, students who study abroad gain a new sense of identity and self-confidence and become more aware and knowledgeable global citizens (Godwin-Jones, 2016). As a result, studying abroad has become an increasingly popular choice for college students, with the number participating increasing by nearly fivefold over the past 30 years (Institute of International Education, 2023). Unfortunately, studying abroad also comes with significant linguistic, cultural, and social difficulties, which can lead to negative feelings and cause students to feel more reclusive (Götz et al., 2019). Feeling isolated from their peers can lead to deeper feelings of depression for students and cause them to miss out on the opportunities of studying abroad. It is imperative that study abroad organizations make a strong effort to support their students.

The Council on International Educational Exchange (CIEE) provides study-abroad opportunities for high school and college students. It currently supports nearly 200 college students studying in Prague. Like other study abroad programs, CIEE students face social challenges that impact their study abroad experience. CIEE provides their students with activities to get acclimated to their environment and make new friends. CIEE is actively working to improve their programming to support students as much as they can. In our project, we worked to identify specific areas where CIEE's resources can be improved and create resources to

further support their work helping students studying abroad.

Project Goal

The goal of this project is to develop a suite of resources that CIEE can use to aid students studying abroad in the formation of new social networks to lessen the social barriers that negatively affect the study abroad experience. To complete this goal, we have established the following objectives:

- To evaluate CIEE's current practices for encouraging student socialization.
- To assess the difficulties that students face when forming new social connections while studying abroad.
- To design resources that CIEE will use to help students form stronger connections with each other.

Understanding CIEE Activities

We learned about the different activities CIEE hosts through interviews with CIEE staff. CIEE hosts three major activity types: orientation, weekly, and weekend activities. We interviewed and surveyed CIEE students to gauge their opinions on the activities. Figure 1 highlights the major strengths and gaps for each of them.

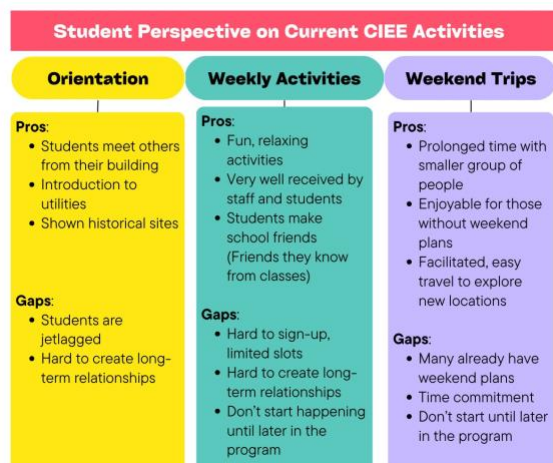


Figure 1: Students Perspective on Current CIEE Activities

All CIEE activities get extremely high attendance and are very well received by students. The orientation activities help get students acclimated and exposed to new people, and the weekly activities and weekend trips give students enjoyable and consistent opportunities to branch out. However, there are some changes that would make CIEE activities even more effective.

For instance, adding a team-building element or working to get students out of social cliques would be difficult to attain but helpful for students. Also, some students do not get the chance to sign up for activities they are interested in, as spots fill up quickly or they may have busy schedules. Many students have also said that due to being fatigued from traveling, they struggle to pay attention during activities early in their orientation. Since orientation and weekly activities only last a few hours, students struggle to create longer-lasting friendships from these short interactions. Finally, students have reported that they have had

difficulties finding others who share their interests, which has made the creation of lasting connections more difficult.

From these gaps, our team decided to create orientation scavenger hunt activities as well as self-managed social clubs. A scavenger hunt is a gamified activity that incorporates competition and collaboration, which our background research indicates will help participants form stronger bonds. The scavenger hunt activities give students a team-building opportunity to branch out early in their program. The hunts can accommodate many students at once and include some clues to help reinforce basic utilities such as pharmacies and grocery stores. We will also give students the opportunity to join self-managed social clubs, themed group chats where students can connect with others who share similar interests, allowing them the ability to meet others throughout their time abroad at their own pace. Our team will provide suggestions for activities that students can sign up for together, and students can also create group chats for new types of activities that they are passionate about.

Development of Resources

We conducted student pilot tests of hunts in two different locations and sent out a survey to garner feedback. Figure 2 details many of the criteria of the orientation scavenger hunts. The nine survey responses indicated that nearly all participants were able to get to know their teammates better. We used this feedback from the tests to

finalize the scavenger hunts by rearranging clues and lowering the time to 75 minutes. The scavenger hunt will take place on the Friday of orientation week so that students are not as jetlagged. It will end at a central spot so that teams can convene afterwards and potentially sign up for self-managed social clubs with those around them. The hunts will have random teams of 3-5 students, which will give students the opportunity to make new friends in a less intimidating group size. The clues include historical sites or utilities such as grocery stores and pharmacies, but the emphasis is on creating well-spaced clues that provide participants with interesting challenges to bond over. The scavenger hunts will be distributed on Canvas, a platform that provides an easy means of file submission and that CIEE students will already need to be familiar with for their program, as demonstrated in Figure 3.

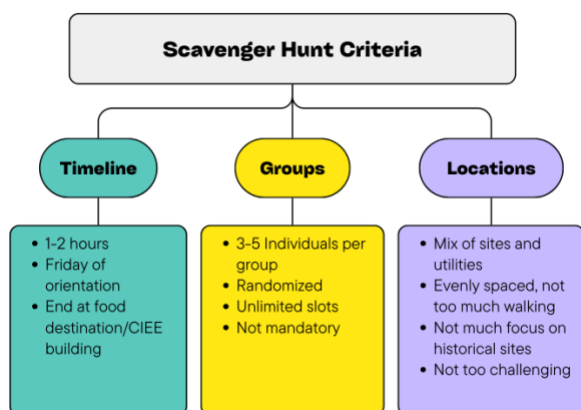


Figure 2: Scavenger Hunt Criteria from Interviews and Survey



Figure 3: Clue example from the scavenger hunt. Each clue has an image of the location accompanied by a short riddle. Below the clue, there is a button for students to upload a picture of their team at the location.

The self-managed social clubs will be run on WhatsApp, a messaging platform that is regularly used at CIEE. Once they are initially created, the group chats are run by students without additional work by CIEE staff. The chat forums are divided into different themes with recommended activities, and students can create their own groups if they feel the current themes do not represent their interests.

Conclusions

Overall, implementing the scavenger hunt activities and self-managed social clubs will complement CIEE's current activities and help to encourage student interaction from the start of their program. These resources both help with CIEE's continued efforts to support students as they navigate the social challenges of studying abroad.

Authorship

Section	Author	Editor
Abstract	All	All
Acknowledgments	All	All
Executive Summary	All	All
1. Introduction	All	All
2. Background	All	All
2.1 Benefits of Study Abroad	All	All
2.2 Challenges of Study Abroad	All	All
2.3 Past Methods of Helping Students	All	All
2.4 Developing Resources to Support CIEE	All	All
2.5 Summary	All	All
3. Methods	All	All
4. Results and Analysis	All	All
4.1 Strengths and Gaps of CIEE Programs	All	All
4.2 Creating the Student Activities	All	All
4.3 Limitations	All	All
5 Conclusions	All	All
Appendix A: Student Interview Questions	All	All
Appendix B: CIEE Staff Interview Questions	All	All
Appendix C: CIEE Student Survey	All	All
Appendix D: Pilot Test Survey	All	All

Table of Contents

Abstract.....	ii
Acknowledgments.....	iii
Executive Summary.....	iv
Authorship.....	vii
Table of Contents	viii
List of Figures	x
1 Introduction	1
2 Background	3
2.1 Benefits of Study Abroad	3
2.2 Challenges of Study Abroad	4
2.2.1 Social Immersion and Integration.....	4
2.2.2 Causes of Isolation for International Students.....	5
2.3 Past Methods of Helping Students	7
2.3.1 Exploring Digital Platforms and Digital Engagement	9
2.3.2 Gamification	10
2.3.3 Ideal Group Formations for Promoting Engagement.....	12
2.4 Developing Resources to Support CIEE.....	13
2.5 Summary	15

3	Methods	16
4	Results and Analysis	17
4.1	Strengths and Gaps of CIEE Programs.....	18
4.1.1	Current CIEE Orientation and Activities for Students	18
4.1.2	Student Attitude Toward CIEE Activities	20
4.1.3	Impact of Studying Alone Versus in a Group	22
4.2	Creating the Student Activities	25
4.2.1	Scavenger Hunt Design	26
4.2.2	Self-Managed Social Club.....	31
4.3	Limitations.....	32
5	Conclusions	34
	References.....	36
	Appendix A: Student Interview Questions.....	41
	Appendix B: CIEE Staff Interview Questions:	43
	Appendix C: CIEE Student Survey.....	45
	Appendix D: Pilot Test Survey	47

List of Figures

Figure 2.1 Number of Students by Sending Institution for CIEE Prague 2023 Fall Semester	14
Figure 4.1: CIEE Timeline of the Orientation Activities	19
Figure 4.2 Student Perspective on Current CIEE Activities from Interviews	21
Figure 4.3: Venn Diagram of Singletons and Non-Singletons	23
Figure 4.4: Criteria for the Scavenger Hunts	27
Figure 4.5: Map of Scavenger Hunts in Vinohrady (left) and Vyšehrad (right)	28
Figure 4.6: Feedback from Vinohrady and Vyšehrad Pilot Tests	29
Figure 4.7: Social Club Viewed from Mobile Device	32

1 Introduction

For students to reap the many benefits from studying abroad, they must overcome feelings of social isolation. The significant and beneficial cultural experiences provided by studying abroad have made it an increasingly popular choice for college students, with the number participating increasing by nearly fivefold over the past 30 years (Institute of International Education, 2023). However, there are social and cultural barriers that create challenges, such as feelings of isolation, homesickness, and depression in students (Götz et al., 2019). A 2019 study found that 92% of students reported missing being at home with their families (*Homesickness in the Modern Age*, 2019). These feelings are natural but can be exacerbated by being excluded from cliques formed by their peers or feeling intimidated by cultural barriers in the host country.

The city of Prague in the Czech Republic has seen a massive increase in foreign university students in recent years, with a 92.7% increase in foreign student population from 2009 to 2023. In Prague, many foreign students study with The Council on International Educational Exchange (CIEE), a nonprofit organization that provides opportunities for students to study abroad across the world, primarily to different locations in Europe (CIEE, 2023). CIEE runs study abroad programs where students can travel either by themselves or with others from their school. As with any typical study abroad program, CIEE students face social challenges that impact their experiences abroad. Past students who struggled to make social connections requested to go home just one week into their study abroad programs. CIEE provides students with activities to get acclimated to their environment and make new friends. CIEE runs

extremely effective and well-received programs, but their activities still have gaps that they are actively working to fill. CIEE sponsored a project in 2022 where Worcester Polytechnic Institute students created a website as a repository of helpful information for students studying in Prague. The website has general information about Prague, which is useful to alleviate some of the discomfort and lack of familiarity that can aggravate homesickness and a sense of unbelonging. Our project builds on the work done by CIEE and this group to help further minimize the students' social isolation.

The goal of this project is to develop a suite of resources that CIEE can use to aid students studying abroad in the formation of new social networks to lessen the social barriers that negatively affect the study abroad experience. We will achieve our goal through the completion of the following objectives:

- To evaluate CIEE's current practices for encouraging student socialization.
- To assess the difficulties that students face when forming new social connections while studying abroad.
- To design resources that CIEE will use to help students form stronger connections with each other.

After understanding the specific challenges facing study-abroad students in Prague, we will identify and design effective strategies for increasing student connection and engagement. Our activities have the potential to supply opportunities for students to build their social network and reap the full benefits of their time abroad.

2 Background

Despite the potential benefits of studying abroad, many challenges impact students' well-being and ability to obtain the benefits provided, such as social isolation, anxiety, depression, and a perceived loss of connection to loved ones. This chapter first discusses the benefits of studying abroad before examining how challenges such as social isolation and alienation manifest during the study abroad experience. We review research exploring possible explanations of how cultural, social-alienation, and language barriers contribute. Finally, we discuss conventional strategies proposed by researchers to alleviate these challenges through exploring digital platform usage, gamification, and ideal group formation for activities. The information presented in this chapter provided a basis for how we could design resources to complete our goal.

2.1 Benefits of Study Abroad

Study abroad provides opportunities that allow participants to experience personal growth and benefits. A 2016 study found that the “intercultural awareness, language skills, and knowledge students gain through study abroad can be a life-changing experience, moving students to subject positions as global citizens,” with students noting an increase in self-confidence and awareness of social identity (Godwin-Jones, 2016, p. 15). Study abroad students consistently demonstrate both personal and academic growth. Study abroad participants were also found to have “gained an awareness of international connectedness environmentally, socially, politically, and economically” (Jon & Fry, 2021, p. 415). Study abroad benefits

participants by providing them with opportunities for personal growth and benefits local and global communities by creating more engaged and aware citizens.

2.2 Challenges of Study Abroad

Notwithstanding the benefits of studying abroad, students can face emotional and social difficulties that negatively affect their experience. Leaving behind the comforts of home and inserting oneself into a foreign culture comes with challenges such as homesickness, isolation, anxiety, depression, and loss of connection to loved ones (Fisher, 2005; Furnham, 2005; Götz et al., 2019; Paul & Brier, 2001; Poyrazli & Lopez, 2007; Terry et al., 2013; Thurber, 2005). When studying abroad, students enter a new and often stressful environment without their preexisting social support systems. This environment typically becomes less stressful as students get more adjusted, but at the beginning of programs, it can be especially jarring. It is therefore important for students to integrate themselves into new social networks to navigate these challenging, yet enriching, experiences.

2.2.1 Social Immersion and Integration

Active commitment to social immersion and integration is a key factor leading to success in study abroad; students who have difficulties becoming immersed socially, such as not finding a strong group of friends or even individual friends, struggle more with the challenges that studying abroad presents (Canfield et al., 2009; Gallego Balsà, 2018; Goldoni, 2013; Jessup-Anger & Aragones, 2013; Lillyman & Bennett, 2014; Owens & Loomes, 2010; Vande Berg et al., 2009). Students that had positive study abroad experiences “showed a high degree of agency and initiative in creating opportunities to become immersed into the social fabric of life... by making connections prior to departure and by reaching out to groups with similar interests

during their time abroad” (Goldoni, 2013, p. 368). Finding new friends and building new support systems takes commitment and initiative. Unfortunately, there are many social and cultural barriers that can make integration and immersion difficult, causing significant difficulty for students and worsening their feelings of homesickness and isolation.

2.2.2 Causes of Isolation for International Students

The study abroad experience can cause intense feelings of isolation in students. As students adapt to unfamiliar environments, they can feel incredibly alone, especially during their first time abroad. Major contributors to feelings of isolation among international students are loss of social support, alienation, language barriers, and social self-segregation (Sherry et al., 2010; Yeh & Inose, 2003). The loss of their social networks can contribute heavily to depressive feelings of isolation, as they have no physical connections to their families or friends, such as going out for food with them.

The language barrier can be incredibly difficult to overcome socially and academically. Students who are normally quite social can have difficulty communicating with other students. This worsens their confidence when integrating into an international environment, causing them to feel socially isolated (Yeh & Inose, 2003).

Adjusting to new social norms can also lead to feelings of isolation. For example, some students, when traveling from other countries to the United States, noted that “food is such an important part of our society... It was very disconcerting to come here and notice that people don’t share food or lunches, like a peace offering” (Girmay & Singh, 2019, p. 5). This could seem like a slight change, however, coming from cultures where meals are a major factor in

socialization to a culture where meals have almost no social significance can be incredibly jarring for many students and result in a struggle to identify commonality and adapt.

Numerous students also reported that their isolation was worsened by “perceived xenophobia and a sense of insincerity on behalf of domestic students when attempting to forge connections” (Girmay & Singh, 2019, p. 1). This means that international students can perceive animosity from local students during the early stages of studying abroad because of unfamiliar social cues. This, in turn, can lead to feelings of social alienation and diminished confidence. It can worsen with international students’ perceptions of the local student body, such as in one study when international students in the United States reported that they believed the American student body thought they were incompetent because they were quiet (Erichsen & Bolliger, 2011). For international students, believing that the host country’s student body is xenophobic towards them worsens their feelings, as they believe they will have no chance at connecting with the local students.

Another study found that many international students participate in self-segregating habits, frequently organizing events or choosing to be social only with their conational students (Rose-Redwood & Rose-Redwood, 2013). These findings underscore how crucial it is to “engage members in an exploration of cultural differences, asking them to explicitly articulate their cultural identities” (Yakunina et al., 2010, p. 74).

One explanation for the loneliness that some students experience is the formation of exclusive cliques. Students studying abroad “spent considerable time and energy concerned about the cohort and their role in it” (Jessup-Anger & Aragones, 2013, p. 27). Researchers found that “preexisting relationships, together with the fact that some international students may

share a common language and nationality, create the potential for member cliques that may impede the group process” (Yakunina et al., 2010, p. 74). This shows a need to stimulate student connection to help lessen loneliness and isolation among students.

2.3 Past Methods of Helping Students

There are several strategies to mitigate the hardships that international students might experience. One common method is to involve students in a pre-departure program that offers information about the location and a platform for students to meet one another. The literature shows that it’s important for students to begin interacting with one another and learning about their destination before they arrive at an unfamiliar location. Researchers wrote that “particularly prior to departure, engaging and involving students so as to create in participants a strong and genuine commitment to serious, profound, and durable investment in the target language, people, and culture is essential” (Goldoni, 2013, p. 371). This underscores the importance of students becoming accustomed to other individuals and their destination before the trip, so they take on only one challenge at a time, rather than dealing with being abroad and trying to find new support networks. Ideally, students would be doing most of the work to form genuine connections, but staff intervention may be required when students are being left out.

It is therefore necessary that study abroad organizations facilitate opportunities for students to connect. If students were left without any facilitation or oversight, extroverted students would make friends and form groups, leaving behind students who need the most help (Hunter, 2008). Oftentimes, students themselves organize events and activities to connect with each other. Sometimes, a third party, such as advisors or other local students, will implement these accommodation measures.

One mechanism to mitigate isolation is organized social events. One study found that upwards of 70% of international students utilized independently organized social events to help diminish their feelings of loneliness. Likewise, upwards of 60% of students utilized programs organized by a third party, utilizing a different avenue to build new connections (Vogel, 2018). Self-organized social events are typically more accessible for students considering their general availability and versatility, meaning they can happen at the student's discretion, but unfortunately, these can be dependent on social cliques and can exacerbate the exclusion of some students. Researchers had the following recommendations for addressing this issue:

To reduce the amount and degree of anxiety loners feel, study abroad facilitators should vary activities so that students have the opportunity to interact with all other students (using some meal times for small-group reflections or assigning a topic and students to small groups so they can discuss their experiences) so that students develop deeper connections to each other. Facilitators should also pay attention to the process of group formation, setting ground rules for cohort interaction (such as treating each other with respect) and encouraging them to get to know one another. (Jessup-Anger & Aragonés, 2013, p. 34)

Collaborative learning is another popular integration style to prevent or mitigate feelings of isolation. Collaborative learning involves groups of students working together to solve a problem, complete a task, or create a product. Researchers found that collaborative learning helps develop social support systems for learners, build diversity and understanding among students, establish a positive and cooperative atmosphere, and develop communities (Laal & Ghodsi, 2012). Establishing this social support system as early into a student's travels as possible

is especially important to minimize the amount of time they are without a strong support system. Additionally, it can help them adjust to foreign academic and cultural practices.

2.3.1 Exploring Digital Platforms and Digital Engagement

Students can connect with each other online using different communication technologies, such as a forum or website. Using a digital platform is an effective way to reach a broad audience quickly, particularly with adolescents. A 2023 study of United States teenagers found that 45% of them are almost constantly online (Fortunato et al., 2023). Social media apps are a type of platform that allow individuals to create and share user-generated content with each other. Research on university students in Saudi Arabia found that chatting, online discussions, and sharing files and knowledge led to more enjoyment among students (Eid & Al-Jabri, 2016). A separate study in the United States found that using social media for collaborative learning improved students' learning and satisfaction (Cao et al., 2013). Students who are more engaged in collaborative learning via social media also perform better academically (Ansari & Khan, 2020). More introverted students can use social media to interact with peers, boosting their self-confidence and helping them more actively participate in collaborative learning environments (Voorn & Kommers, 2013). Since our demographic is mainly college students, social media apps or other online platforms could be useful for engaging them.

Different audiences and types of platforms affect how digital engagement is operationalized. A user's engagement with a website or app is the behavioral, emotional, and cognitive connection they develop with the resource (Attfield et al., 2011). In an educational setting, how well the platform helps a user learn is also a significant consideration (Reeve et al., 2004). Social engagement occurs more frequently when a platform introduces competition,

collaboration, or social recognition between users. Platforms can enhance social engagement by implementing social interaction channels such as chats or forums (Bouvier et al., 2014).

There are some risks when trying to increase user engagement. One downside is that platforms can be so engaging that they become addictive for users, particularly with social media apps (Bhargava & Velasquez, 2020). The main techniques these apps use to hook users are intermittent and unpredictable awards, the absence of natural stopping points (such as with an “infinite scroll”), and making users rely on the apps for social validation. Apps deploy these tactics when they rely on user attention to gain revenue (Ebrahim, 2023). It's important that digital solutions to study abroad isolation do not replicate these negative aspects.

Overall, the principles of competition, collaboration, or social recognition have guided the project through defining user engagement and potential methods of putting students in contact with each other. With so many students having such great access to digital technology, considering digital communication methods when creating this project is imperative. However, there are some key practices to avoid, such as making unpredictable awards.

2.3.2 Gamification

Gamification, or introducing game design elements in a non-gaming environment, encourages user participation and can inspire behavioral changes (Aparicio et al., 2012). Gamification can be particularly helpful for forming stronger bonds in a collaborative and cooperative environment (Harris & Crone, 2021).

One successful example of gamification in a group setting is “Beat the Street,” a game targeted at United Kingdom adolescents that incentivizes physical activity with prizes for “walking, cycling, scooting, or wheeling to/from school or work” (Harris & Crone, 2021, p. 1).

Participants were segmented into teams, and any points they earned went towards their team. Over a 6-week period, the number of “Beat the Street” users that reported meeting the World Health Organization target of 150 minutes of moderate-intensity activity per week increased from 62% to 75% (Harris & Crone, 2021, p. 4). Through the competitive and team-based system, more individuals were inspired to walk to work rather than drive.

Implementing a reward system without competition can still increase user engagement. In one study, adolescent students tracked their vegetable intake in an app and were given badges and rewards for eating more vegetables. The designers of the qualitative study found that “the goal setting and self-monitoring framework was well received by majority of the young adults” (Nour et al., 2018, p. 552). When people go on a diet or monitor their food intake, they may get discouraged and give up if they do not notice changes happening. The results of the study indicate that using a system to track progress makes participants more compelled to participate and commit to goals.

Similarly, the social media app Snapchat implements “Snap streaks,” a statistic that tracks the number of successive days two users have sent photos to each other. Researchers asked Viennese students about their thoughts on “Snap Streaks” and found that students were disappointed when the streak was broken (Hristova et al., 2020). The system is not competitive, and there are no leaderboards to highlight how many streaks you have compared to others. Even introducing a simple system to track progress encourages users to regularly interact with the app.

2.3.3 Ideal Group Formations for Promoting Engagement

Those creating student groups must consider key factors such as group size and prior group relationships to help students connect with each other and work productively. Being placed in a group with unfamiliar people can be intimidating, and groups that share commonalities may have an easier time initially creating discussion (Tokke, 2020). However, students in heterogeneous groups tend to be just as productive, if not more productive, than students in homogeneous groups (Wichmann et al., 2016). One example is a collaborative study in 2010 where a researcher formed two groups to create and test a product. In a naturally-formed group where five of the six members were friends, the researcher observed that “the friends of the group facilitated the initiation of the new member and the group bonded quickly as most of them were familiar with each other’s working habits” (Cheong, 2010, p. 78). In a second group of random individuals, the researcher noted that students took more time to get to know each other. Despite the additional time needed to get to know each other, this allowed them to form new relationships while working with each other through the problems, resulting in the group having a close relationship throughout the rest of the project and even meeting on a semi-regular basis after the study ended (Cheong, 2010). In another study, researchers formed groups of randomly selected students for a chemistry project. The following year, they grouped students according to their majors for the same project. At the end of each year, students were given a survey to gauge how well they liked working together in groups. The differences between the groups were not statistically significant, and researchers noted that the different groups did not appear to impact group performance or social interactions (Lawrie et al., 2010).

The number of people allocated to a group is important for allowing work to be distributed evenly and for all students to have a voice when working. In one study, students worked in groups of fifteen, with some groups split up into smaller groups of five (Kooloos et al., 2011). Researchers observed higher participation among students in the smaller groups, and those students also reported higher learning satisfaction (Kooloos et al., 2011). A separate study of online discussion modules found that students in smaller groups showed higher levels of interactivity (Kim, 2013). Overall, being in smaller groups encourages students to form new relationships and learn from each other's diverse perspectives.

2.4 Developing Resources to Support CIEE

CIEE, the Council on International Educational Exchange, is a nonprofit study abroad exchange organization that has been operating since 1947 and features a variety of safety and support systems for its students abroad (CIEE, 2023). CIEE attempts to help students integrate into the cultural and educational systems of other countries as seamlessly as possible, providing them with many opportunities to get adjusted to their location and new peers.

The CIEE Prague Center brings together more than a hundred international, though typically American, students to enroll in courses in Prague universities and live in dormitory-style housing across Prague with each other. CIEE Prague has been a sponsor for Worcester Polytechnic Institute since 2019. It runs a variety of activities for students to get better adjusted to their new environments as well as trying unique and novel experiences that they may otherwise not be exposed to, such as weekend trips out of the Czech Republic or various smaller events.

CIEE has noticed a distinct issue with some students, especially those who are coming as the only person from their sending school, known as “singletons,” having a difficult time adjusting to their new environment and social life. Figure 2.2 shows the distribution of students sent by different universities to CIEE Prague in the 2023 Fall semester. The figure demonstrates that while some students came with a group of classmates, potentially having more of a support network, a significant number of students come to CIEE Prague completely on their own or with one other student. Many singleton students struggle with getting to know others, as many of the pre-defined groups may be less interested in adding onto the large group, resulting in these students feeling isolated. CIEE feels that additional activities during orientation to promote social interaction among the student body will help to foster new connections and get their students adjusted to their environment.

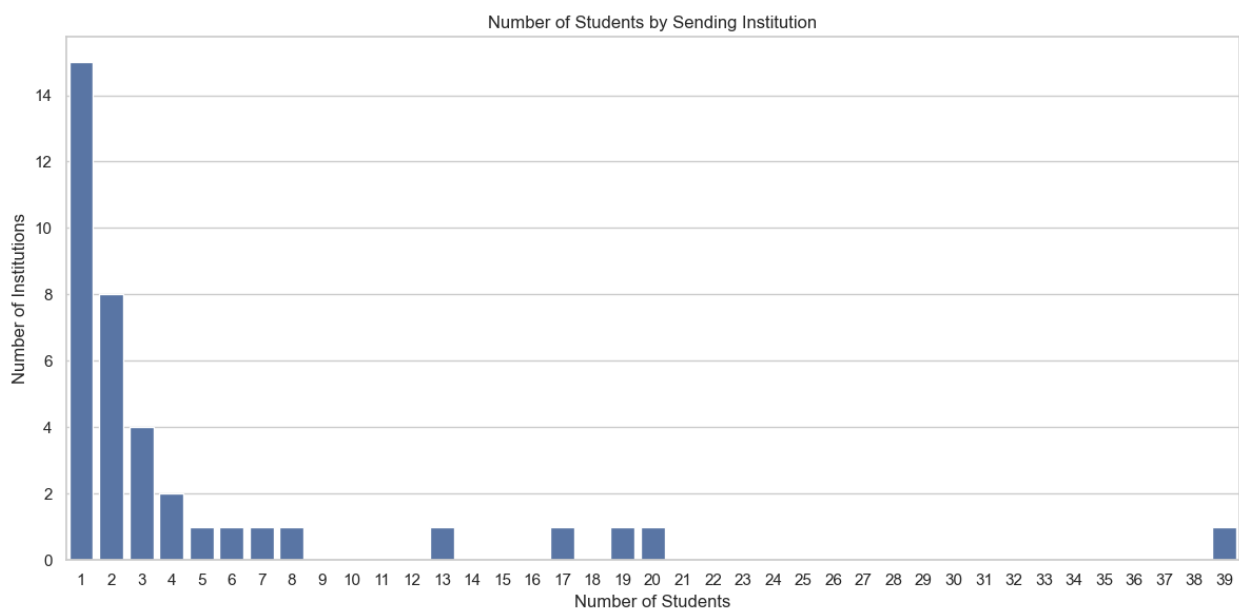


Figure 2.1 Number of Students by Sending Institution for CIEE Prague 2023 Fall Semester

Last year, WPI students worked on Interactive Qualifying Projects (IQP) to support CIEE's goals in Prague. One of these groups was the *Supporting Visiting Students in Prague* IQP, a project focused on the isolation of students during study abroad trips for CIEE students (Connors et al., 2022). The group focused on combatting homesickness among students through the creation of a website, noting that the development of a mobile app was beyond the scope of their abilities and timeframe. The website provides a lot of information regarding the social and cultural aspects of Prague, such as how to use local transportation and greetings. However, CIEE has expressed that while this website is an excellent and accessible source of resources for students, it doesn't create new social opportunities for students. Narrowing this gap between the website and student interaction is the goal for our project: to provide opportunities for students to create relationships with other students and to break up the pre-formed groups that students form prior to travel.

2.5 Summary

The background research allowed us to understand more about the different perspectives of a traveling cohort of students in study abroad programs. Students studying abroad face cultural and social challenges, resulting in many wanting to go back home within the first week. CIEE experiences this problem, along with students excluding others when pre-formed groups have been created, resulting in them trying to address this issue through orientation activities. Even with the efforts to counteract isolation, there are instances where it is inevitable, such as when social segregation is involved. We will need to consider this, as there can be some students who would rather be alone while studying abroad.

3 Methods

The goal of this project is to develop a suite of resources that CIEE can use to aid students studying abroad in the formation of new social networks to lessen the social barriers that negatively affect the study abroad experience. We completed the following objectives to accomplish our goal:

- To evaluate CIEE's current practices for encouraging student socialization.
- To assess how study abroad students build and maintain relationships.
- To design resources that CIEE will use to help students form stronger connections with each other.

Interviews with study abroad students and program advisors gave us important data about the structure of CIEE's current activities for students, how different activities are received by students, and where there were areas for improvement from both the students' and staff's perspectives. Interviews with students gave valuable insight into how students form relationships while studying abroad and how satisfied they are with these relationships. Surveys were useful for collecting information on the status of student social networks. The final objective was to develop resources that encourage social connection. The first few weeks were dedicated to creating a mock-up activity, then testing the resources with a small group of students, and finally surveying them on how they viewed the activity and what changes could be made. Appendices A-C showcase the questions for both the interviews and surveys we created.

4 Results and Analysis

Our findings confirmed that CIEE activities are very well-run and are generally effective for acclimating students and helping them meet new people. Unfortunately, as with any study abroad program, students still struggle to make social connections during their time abroad. To better understand the strengths and gaps in CIEE's activities and inform the resources we built to help their students, our group conducted surveys and interviews with CIEE students and staff. In total, we accumulated data from 34 student survey responses, 12 student interviews, 4 CIEE tour guide interviews, and 2 additional CIEE staff interviews.

From our interviews, we learned that CIEE activities are well-received and highly regarded by both staff and students. However, there are some gaps that can cause students to not reap the full benefits of the program. For example, there is a lack of team-building activities, and students are jetlagged during orientation, which inhibits their ability to retain information and socialize. In general, students want more opportunities to engage with each other.

Based on the gaps in CIEE activities, our team decided to create orientation scavenger hunt activities as well as self-managed social clubs. A scavenger hunt is a gamified activity that incorporates competition and collaboration, which our background research indicates will help participants form stronger bonds. The scavenger hunt activities give students a team-building opportunity to branch out early in their program. We tested the scavenger hunt by conducting pilot tests with groups of students and used their feedback in a follow-up survey to adjust the structure of the activity. We will also give students the opportunity to join self-managed social clubs and themed group chats where students can connect with others who share similar interests, allowing them the ability to meet others throughout their time abroad at their own

pace. Our team provides suggestions for activities that students can sign up for together, and students can also create group chats for new types of activities that they are passionate about.

4.1 Strengths and Gaps of CIEE Programs

The activities that CIEE hosts are very well-received and have a high attendance rate. In general, the activities are good at introducing the area to incoming students and are very fun to participate in. Interviews revealed that many of the later activities resulted in some level of recognition and friendship between students, even if it was not long-term or deep.

However, they do have some gaps. For instance, adding a team-building element or working to get students out of social cliques would be helpful for students. Also, some students do not get the chance to sign up for activities they are interested in, as spots fill up quickly or they may have busy schedules. Students have reported that they have had difficulties finding others who share their interests, which has made the creation of lasting connections more difficult. Finally, students have also noted that it is difficult for them to branch out to meet new people, when they have been in a friend group prior to travel.

4.1.1 Current CIEE Orientation and Activities for Students

We learned a significant amount about the current measures and activities CIEE creates to help facilitate student interaction. These activities can be broken into three major categories: orientation, weekly activities, and weekend trips.

Students arrive for the CIEE program on a Tuesday, as seen in Figure 4.1. During the first week, they participate in daily orientation activities instead of classes. Each activity typically lasts a few hours, and most of them are led by CIEE guides, college students in Prague who are hired by CIEE to help with orientation. On the first evening, CIEE orientation guides lead

students on a neighborhood tour where they introduce students to the layout of their neighborhood and where to find basic resources such as the nearest drugstores and ATMs. The tour also introduces students to the tram system and metro. The neighborhood tour is optional, but all or nearly all students usually choose to participate. CIEE guides reported that the neighborhood tours seemed effective for getting students acquainted with important neighborhood resources.

The following day, students participate in a 3-hour walking tour of Prague led by an outside organization. Food is provided by CIEE, and the students will then have the rest of the day to explore on their own. Thursday is more of a break for the students, while Friday allows the students to either walk and lookout of Petřín Tower or choose from a variety of other activities.

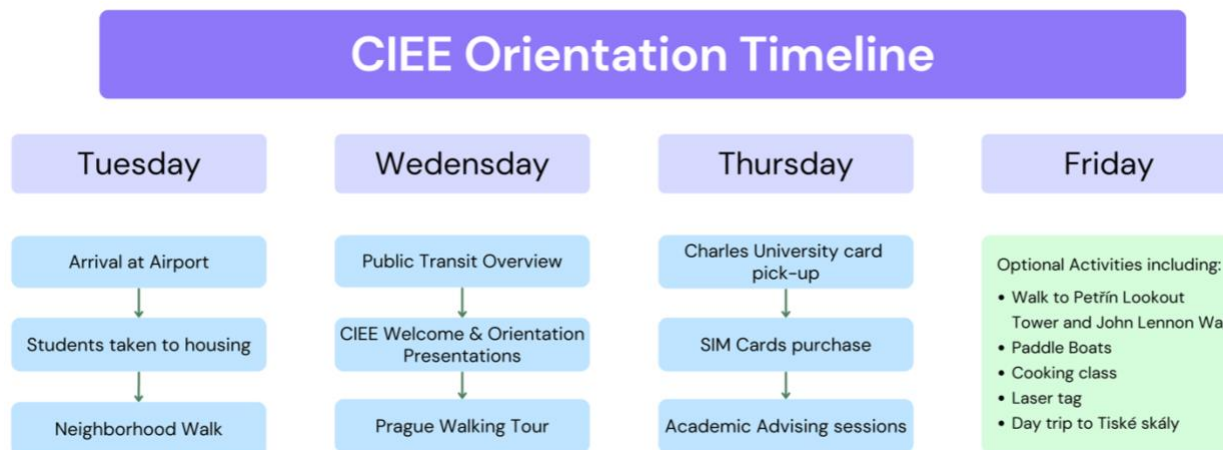


Figure 4.1: CIEE Timeline of the Orientation Activities

Throughout the semester, CIEE continues to hold smaller events during weekdays that students can sign up to participate in, such as the cooking class and laser tag sessions listed in

Figure 4.1. They are open to all students, and from our interviews with both staff and students, they are well-received and popular.

The third and final type of activity is weekend trips. Later into the CIEE program, large trips are organized to either go to other areas of the Czech Republic or popular European cities such as Budapest, Vienna, and Berlin. These events also garner a huge attendance and are quite popular, as they offer a facilitated travel plan. This results in a massive opportunity for the students, as they can easily travel together without the hassle of organizing the trips themselves, allowing them to focus more on the locations they are visiting and the people they are traveling with.

4.1.2 Student Attitude Toward CIEE Activities

Figure 4.2 showcases many of the positive and negative aspects of each activity, as will be discussed more in-depth in this section. Our interviews with students demonstrated that CIEE's events facilitate connections decently well and are unanimously well-received. In our survey, most students reported that CIEE's orientation activities and weekly activities were helpful for making friends. However, there are some gaps that can be addressed.

First, while students find the orientation events and weekly activities helpful for getting acquainted with other people in their classes, they struggle to make close friends directly from them. The length of the events is usually limited to about an hour or two, meaning students do not spend a lot of time with each other. Afterward, students will rarely make plans to meet up again. Even though all CIEE activities except for orientation presentations are optional, orientation guides and CIEE staff said that they still get very high attendance. Unfortunately, this means that many students who wish to participate in more CIEE activities cannot do so because

their sign-up sheets fill up very quickly. One student also noted that it is very easy to miss the sign-up form for CIEE activities when they are still trying to get acclimated to a new environment and their classes.

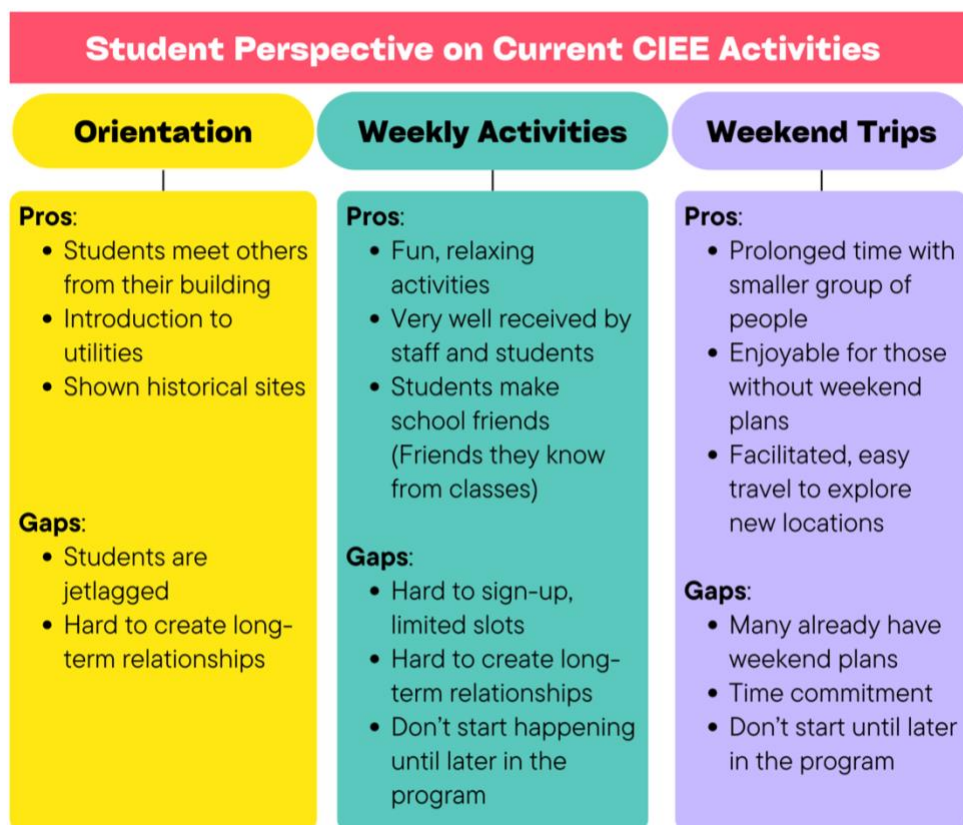


Figure 4.2 Student Perspective on Current CIEE Activities from Interviews

Although the CIEE activities are helpful, most students also expressed in our survey that they would have liked more opportunities to meet people and form relationships at the beginning of their study abroad experience. Many students formed connections quickly within their first few days of international study, with some noting that their shared experiences of travel and the unknown served as a topic of bonding for them. However, there was a consensus of a lack of long-term activities to encourage repetitive engagement with students, as most of

the orientation activities are only a few hours long. This causes students to only meet new students on an irregular basis, as one student noted that the timeframe is too short to build a long-term relationship with others. Students tended to build closer friendships with their roommates and classmates, whom they saw on a regular basis. During student interviews, several students said that their roommates are their closest friends in Prague. Students noted that they use coursework as a common interest to connect with classmates, especially since CIEE students get to create their own course schedules based on their interests. Longer CIEE activities, such as weekend trips, seemed more effective for creating lasting friendships. Unfortunately, these weekend trips fill up fast, and many students already have plans to travel with friends and, therefore, cannot participate in them.

CIEE guides reported that the neighborhood tours seemed effective for getting students acquainted with important neighborhood resources. However, they also noted that activities can be long, especially noting that students feel fatigued during many of the orientation activities from traveling, resulting in the students not retaining any information. With the lack of long-term connection and the issue of students not paying attention, our activity can help counteract this gap and allow students to both understand their neighborhood and peers better.

4.1.3 Impact of Studying Alone Versus in a Group

There is a disparity between the experiences of students who study abroad without knowing any of their peers beforehand, who we will refer to as “singletons”, and those who come knowing others from home. Figure 4.3 highlights the main differences between the experiences of singletons and non-singletons while studying abroad. In conversations with our sponsors at CIEE, singletons were highlighted as the population that could benefit most from

more team-building orientation activities. CIEE staff observed how singletons can feel isolated from those with preformed friend groups and sometimes want to go home within one week of being abroad. During student interviews, singletons confirmed that they have a difficult time making friendships. Most singletons directly indicated that they had a harder time making friends than students who came with others they knew.

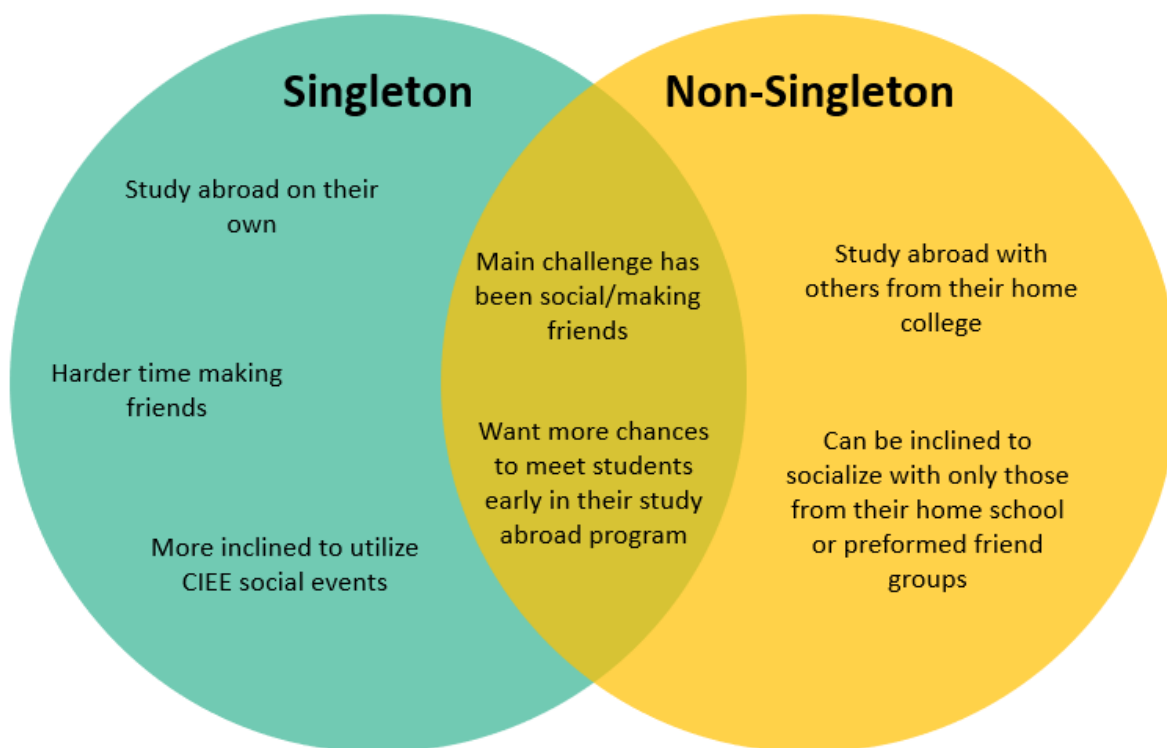


Figure 4.3: Venn Diagram of Singletons and Non-Singletons

One singleton wrote the following survey response when asked about their largest challenge while studying abroad thus far:

I felt very homesick and disoriented, especially the first few weeks in Prague. It was really difficult that so so many people came with big friend groups and I initially did not know

anyone. It felt difficult that there were not a ton of activities/bonding events that helped people to meet each other.

Overall, singletons face unique difficulties because they are surrounded by pre-formed friend groups. For instance, CIEE staff noted that participation in weekend activities decreases for non-singleton students throughout the semester because many of them go on weekend trips with preformed groups. This results in further disconnection from singletons. Even though singletons generally feel more isolated than other students, they are eager to make new friends and take advantage of any events they can join. Members of the CIEE staff reported that singletons are the most abundant group participating in CIEE activities, and one staff member referred to singletons as “super-participants.”

Non-singletons often have friends that they can rely on for support during their study abroad program. However, they also face unique social challenges. During interviews, many non-singletons noted that they were more inclined to stay in their own preformed groups and not branch out. Additionally, non-singletons who don't know the people they are traveling with very well can still feel obligated to stick with them, even though they feel separated from them socially. In our survey responses, every student who indicated they knew their peers studying abroad “somewhat well” going into the program also reported that the biggest challenge they faced while studying abroad was branching out from their friend groups and meeting new people. One of these students explained that they “feel like people who come [to Prague] together stay together.”

There is a need to help both singletons and non-singletons, as groups of students reported in the survey that their biggest challenge while studying abroad was related to making

friends. Also, both groups of students indicated that they would like more opportunities to meet other students early in their program.

4.2 Creating the Student Activities

Our team decided that a scavenger hunt activity would give students a valuable team-building opportunity to build friendships early in their program. Our background research indicated that a competitive and collaborative environment can help to build stronger bonds. By implementing random teams for the activity, students get the chance to meet different people and branch out of preformed friend groups. The hunts are outdoor and can accommodate many students at once, so there are no concerns regarding the activity's capacity. While it is primarily focused on creating interesting challenges for students to bond over, the scavenger hunt also includes clues to help reinforce basic utilities such as pharmacies and grocery stores, helping to acclimate students to their new environment.

Even though the scavenger hunt encourages bonding by using gamification within a smaller group, the hunt only occurs for a few hours, so students may still have a hard time creating long-term friendships from the activity. To promote longer relationships, we decided to give students who are interested in certain hobbies or activities a platform to get in touch with each other in their free time. These self-managed social clubs will be hosted in a WhatsApp community, as students and staff at CIEE are already accustomed to the platform and is widely used in Europe. Students in the group chats will be given initial recommendations for activities and will have the option to create new groups to match their interests. We will distribute this platform immediately after the scavenger hunt ends to encourage students to sign up for these

group chats with other members of their scavenger hunt team. The community will also be posted on CIEE's weekly newsletter for those who wish to join later in the semester.

4.2.1 Scavenger Hunt Design

We generated two initial designs and tested the scope of the orientation-style scavenger hunt. In our student survey, most indicated that they would prefer a scavenger hunt near their own neighborhood as opposed to a new area of Prague. Some students in our survey indicated that they would have liked a better introduction to the utilities within their neighborhood.

From our interviews and surveys, we understood some key factors that we should consider for the scavenger hunts. Most students and staff we interviewed believed that the scavenger hunt should happen during orientation, but because many students will be jetlagged at first and adjusting to their new environment, the scavenger hunt shouldn't happen until a few days into orientation. For example, students and CIEE guides both noted that students are jetlagged and tired during the 3-hour walking tour, which can make the activity more tedious and less engaging. For that reason, we initially decided that our scavenger hunt should be only a maximum of 2 hours long and should take place during the Friday of orientation week, three days into the students' time in Prague. Incorporating random teams into a student activity gives singletons the opportunity to branch out and meet new friends, without being overwhelmed in a large group of people. Random groups will also give non-singletons the chance to bond with others who are not from their home schools.

We created two hunts for sites in Vinohrady and Vyšehrad. Vinohrady is an area near many of CIEE's student residences that has many attractions as well as utilities. Vyšehrad is where the CIEE Prague student center is located and where most students will be taking classes.

Our sponsors at CIEE told us that they had been trying to incorporate Vyšehrad into orientation for a while, as students often mentioned having difficulty getting to Vyšehrad and finding the CIEE building from their housing. Having a scavenger hunt in Vyšehrad would help reinforce students' knowledge of that area and make navigating easier. We included a few clues that encourage teams to find helpful places such as a pharmacy, grocery store, or gym. However, the primary intention of the scavenger hunt is to give students an opportunity to make new friends, so not all the locations in the scavenger hunt need to be sites of significant importance. The activities put students in a small group of people, providing a chance to get to know each other and have some fun while working together to solve a problem. Below, Figure 4.4 lays out the main design principles used to build the scavenger hunts.

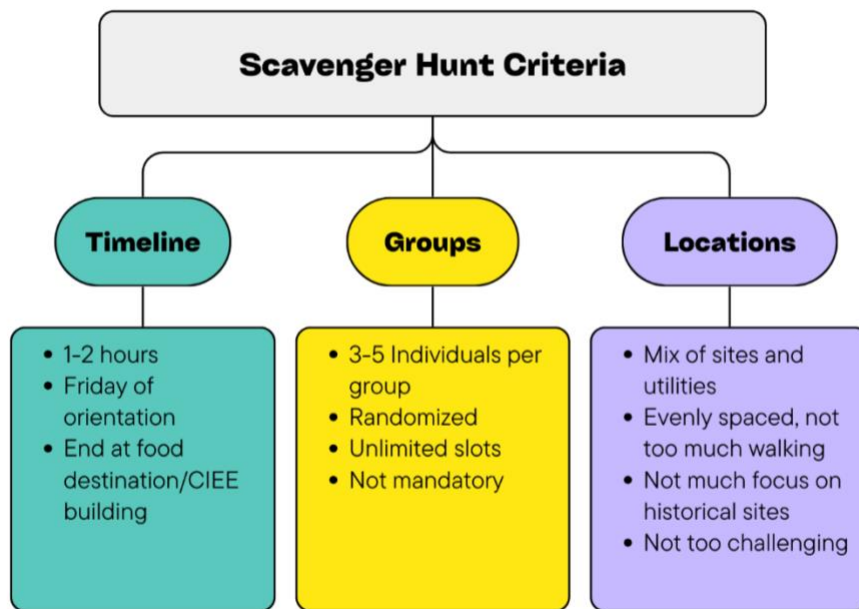


Figure 4.4: Criteria for the Scavenger Hunts

To create each hunt, we explored the areas extensively, taking pictures of notable sites and researching them to provide an engaging and challenging set of clues. We utilized a map

with a border for students to view the area they are supposed to remain within for the challenge. The two maps are shown in Figure 4.5. The Vinohrady scavenger hunt began at a square called Náměstí Míru and followed a loosely defined route that ended in a beer garden nearby. The Vyšehrad scavenger hunt also followed a recommended route and ended at the CIEE building.

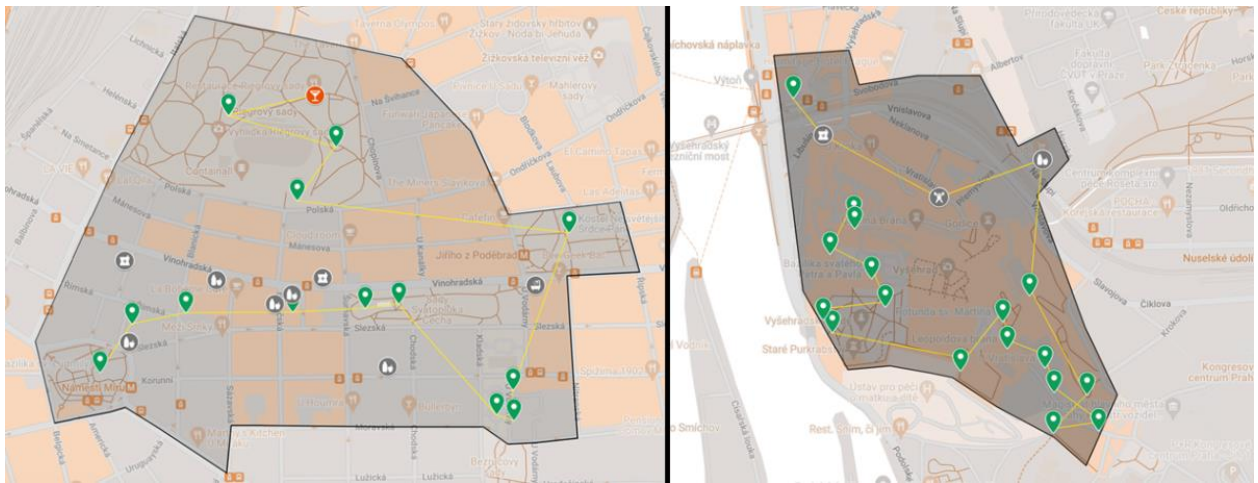


Figure 4.5: Map of Scavenger Hunts in Vinohrady (left) and Vyšehrad (right)

4.2.1.1 Pilot Test Feedback and Results

To gauge the efficacy of the scavenger hunts, the team ran a pilot test for each location. The tests were run with mostly WPI students, as well as one outside student. We tried to create teams of students from different project groups who would not spend as much time together on a regular basis. This replicated the CIEE student body to the best of our ability and provided the most insight into what needed to be changed or added to best assist students. We held the test of the Vinohrady scavenger hunt on a Saturday with two groups of students, one comprised of three WPI students and the other of two WPI students and one unaffiliated. The second

scavenger hunt pilot test took place the following Saturday morning with a team of five WPI students in the Vyšehrad area.

During both pilot tests, the teams provided us with pictures of themselves at the various locations as proof of participation. We met up with the participants following each scavenger hunt to initially gauge their thoughts and, later that day, provided a survey (see Appendix D) for them to fill out regarding any thoughts or criticisms they had. We used feedback from the pilot tests, summarized in Figure 4.6, to inform changes on the Vinohrady and Vyšehrad scavenger hunts.

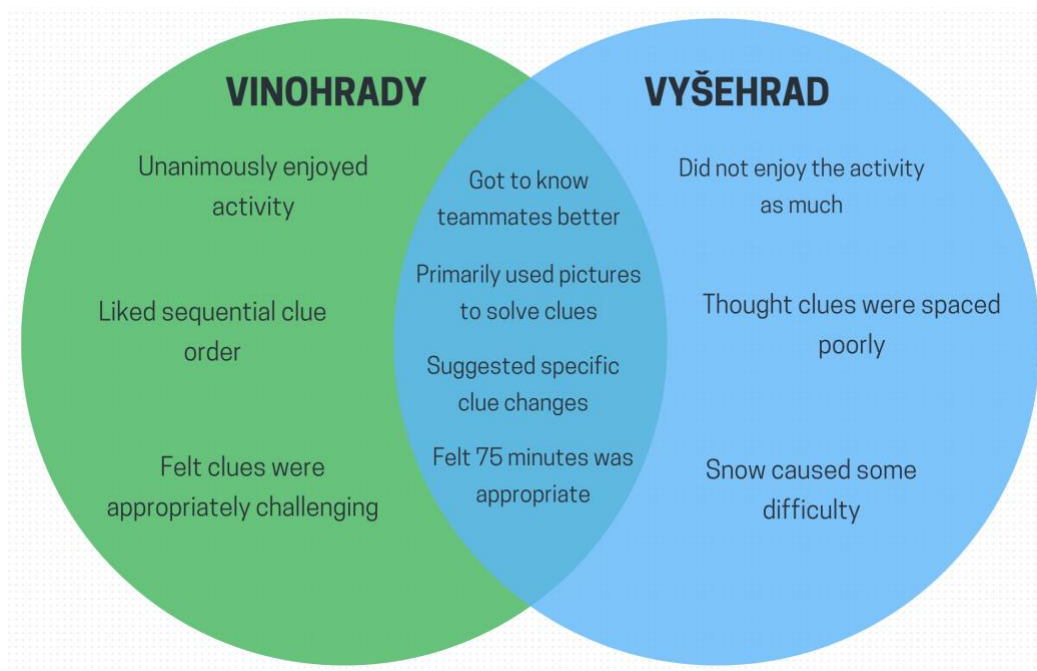


Figure 4.6: Feedback from Vinohrady and Vyšehrad Pilot Tests

Every participant from the Vinohrady scavenger hunt reported that they enjoyed the activity. Additionally, they all reported that they became closer with their group over the course of the activity. Participants reported that the clues were “somewhat easy” overall. The teams

specifically noted that the linear order of the hunt made the hunt easier and more enjoyable. All participants reported that the locations were spread apart well. The hints, while not being helpful for finding the location, did allow for some general bonding for the group to read, as some were humorous to them. Both teams were able to finish within sixty to ninety minutes. Though this was shorter than what the team was anticipating, participants also reported that they felt this was an appropriate duration for the scavenger hunt. Due to this, we decided to shorten the duration of the Vyšehrad pilot test to 75 minutes. Participants indicated that two specific clues were difficult to find. We increased the point values of these locations but still included them in the hunt since the team did not find the hunt challenging overall.

Participants in the Vyšehrad scavenger hunt did not enjoy the activity as much. They indicated in the follow-up survey that the clues were generally not challenging enough and that they seemed to be matching pictures instead of solving the riddles. They reported that some clues were too far apart and others too clumped together. We removed a few clues in the area that were clumped together and added two clues in an area that was previously just walking. We also adjusted the route to remove some clues that were too far out of the way.

The team also found that one clue was too difficult, and they spent significant time looking for it. This clue was hard to find because the area was covered in snow and ice at the time of the hunt, a factor our team did not account for. We removed any clues from both scavenger hunts that would be affected by snow or ice. The Vyšehrad team was not able to finish the scavenger hunt in 75 minutes, but they came close and reported that it felt like the correct amount of time. Most participants in the Vyšehrad hunt still reported that they got to

know their teammates better from the activity, which was the primary purpose of the scavenger hunt.

4.2.2 Self-Managed Social Club

To complement the scavenger hunt, we created a WhatsApp community to serve as a self-managed social club, or chat forum, to facilitate long-term social bonding. The forum is divided into different themed groups, and students can also create groups for additional interests that they have. This will allow students to very easily locate others who share their interests or passions and easily and quickly start conversations between them. The open-ended nature of the social club will also allow students to plan and meet others at their own pace, making class schedules less of a restriction.

Students can join the community via a link or QR code, which will be provided to them at the end of the scavenger hunt, encouraging them to join with their teammates. Alternatively, students can also sign up through a link in the weekly CIEE newsletter. Figure 4.7 showcases the chat forum viewed on a mobile device.

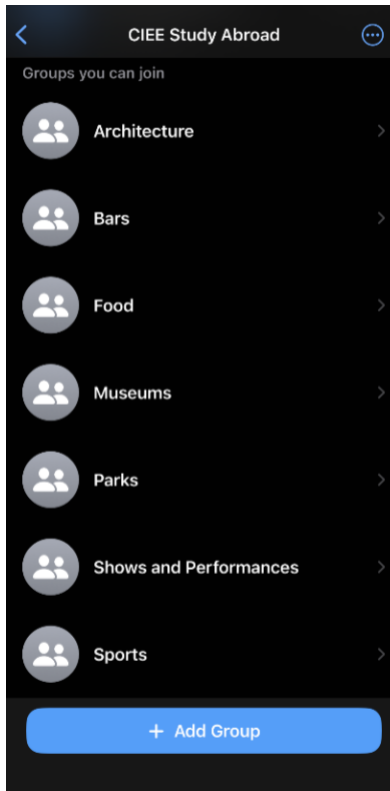


Figure 4.7: Social Club Viewed from Mobile Device

We included a document of recommended activities within each theme in the chat forum to give students ideas of activities they might enjoy. This will relieve students from being fully responsible for finding and planning events when they are still new to Prague. Overall, the self-managed social clubs allow students a convenient method of prolonged communication to form deeper connections with other students who share similar interests.

4.3 Limitations

There were some limitations in our surveys, interviews, and pilot tests. The sample size of our student survey was small, so those results are preliminary. Our interviews were limited to

10 to 15 minutes to allow students the time they needed to study, but longer interviews could have allowed for more in-depth conversations and analysis.

Our pilot tests were conducted with ten WPI students in our cohort and one outside student who was visiting Prague for a weekend. The pilot tests were easier to coordinate with WPI students in our cohort since we have daily contact with them. We tried not to place participants from the same WPI project group on the same team, but inevitably, all WPI students were already familiar with each other. This would not be the case for most CIEE students in random groups.

Two of the five students in the Vyšehrad pilot test already had significant experience in Vyšehrad because their WPI project involved creating a walking tour in that area of Prague. They came into the hunt with significant knowledge of the region and even some of the specific landmarks. Therefore, they may have found the clues easier to find than a student who is new to Vyšehrad.

5 Conclusions

As with any study abroad program, students studying through CIEE face significant social challenges that can prevent them from realizing the full benefits of studying abroad. CIEE runs many activities to help these students, both during orientation and throughout their programs. After analyzing CIEE's current activities through interviews and surveys with various staff and students, our findings indicate that CIEE activities are well-received and helpful for students. However, they would benefit from more team-building social activities that give opportunities to branch out and form closer bonds with their new peers. CIEE students can struggle to get acclimated to their new environment and find others with similar interests. Many students said that due to being fatigued from traveling, they struggled to pay attention during activities early in their orientation. Also, some students did not get the chance to sign up for activities they were interested in as spots fill up quickly or they may have busy schedules.

To address these gaps, our team decided to create orientation scavenger hunts as well as a self-managed social club. The scavenger hunt activities give students a team-building opportunity to branch out early in their program. The scavenger hunts can accommodate many students at once and include some clues to help reinforce basic utilities, such as pharmacies and grocery stores. There are two different locations for the scavenger hunt activity. It will be distributed on a Canvas webpage, as students already need to use Canvas for their program, and it provides an easy means of file submission. The self-managed social clubs are themed group chats where students can connect with others who share similar interests. Our team will provide suggestions for activities that students can sign up for together, and students can also create group chats for new types of activities that they are passionate about. The clubs will

operate via a WhatsApp community, and students will be provided recommendations for activities based on specific interests and can also create their own group chats as they wish. Our research indicates that with both the scavenger hunt and chat forum, these activities will complement the already existing activities at CIEE and allow for greater social opportunities.

References

- Ansari, J. A. N., & Khan, N. A. (2020). Exploring the Role of Social Media in Collaborative Learning the New Domain of Learning. *Smart Learning Environments*, 7(1), 9. <https://doi.org/10.1186/s40561-020-00118-7>
- Aparicio, A. F., Vela, F. L. G., Sánchez, J. L. G., & Montes, J. L. I. (2012). Analysis and Application of Gamification. *Proceedings of the 13th International Conference on Interacción Persona-Ordenador*. <https://doi.org/10.1145/2379636.2379653>
- Attfield, S., Kazai, G., Lalmas, M., & Piwowarski, B. (2011). *Towards a Science of User Engagement (Position Paper)*. https://www.researchgate.net/publication/228542640_Towards_a_science_of_user_engagement_Position_Paper
- Bhargava, V. R., & Velasquez, M. (2020). *Ethics of the Attention Economy: The Problem of Social Media Addiction* (SSRN Scholarly Paper 3707165). <https://papers.ssrn.com/abstract=3707165>
- Bouvier, P., Lavoué, E., & Sehaba, K. (2014). Defining Engagement and Characterizing Engaged-Behaviors in Digital Gaming. *Simulation & Gaming*, 45(4–5), 491–507. <https://doi.org/10.1177/1046878114553571>
- Busch, C. (2014). *ECGBL2014-8th European Conference on Games Based Learning: ECGBL2014*. Academic Conferences and Publishing International.
- Canfield, B. S., Low, L., & Hovestadt, A. (2009). Cultural Immersion as a Learning Method for Expanding Intercultural Competencies. *The Family Journal*, 17(4), 318–322. <https://doi.org/10.1177/1066480709347359>
- Cao, Y., Ajjan, H., & Hong, P. (2013). Using Social Media Applications for Educational Outcomes in College Teaching: A Structural Equation Analysis. *British Journal of Educational Technology*, 44(4), 581–593. <https://doi.org/10.1111/bjet.12066>
- Cheong, C. (2010). From Group-based Learning to Cooperative Learning: A Metacognitive Approach to Project-based Group Supervision. *School of Business IT & Logistics, RMIT University*, 13. <https://doi.org/10.28945/1173>
- CIEE. (2023). *CIEE Website*. CIEE College Study Abroad. <https://www.ciee.org/go-abroad/college-study-abroad/locations>
- Connors, T., Brachtl, A., Silkaitis, S., & Markou, N. (2022). *Supporting Visiting Students in Prague*. Worcester Polytechnic Institute.

- Ebrahim, F. (2023). *The Dark Side of Social Media: Why is Social Media so Addictive?*
<https://jyx.jyu.fi/handle/123456789/86827>
- Eid, M. I. M., & Al-Jabri, I. M. (2016). Social Networking, Knowledge Sharing, and Student Learning: The Case of University Students. *Computers & Education, 99*, 14–27.
<https://doi.org/10.1016/j.compedu.2016.04.007>
- Erichsen, E. A., & Bolliger, D. U. (2011). Towards Understanding International Graduate Student Isolation in Traditional and Online Environments. *Educational Technology Research and Development, 59*(3), 309–326. <https://doi.org/10.1007/s11423-010-9161-6>
- Fisher, S. (2005). Geographical Moves and Psychological Adjustment. In M. A. L. van Tilburg & A. Vingerhoets (Eds.), *Psychological Aspects of Geographic Moves: Homesickness and Acculturation Stress* (pp. 49–62). Tilburg University Press.
<https://www.academia.edu/download/46440658/171960.pdf#page=62>
- Fortunato, L., Lo Coco, G., Teti, A., Bonfanti, R. C., & Salerno, L. (2023). Time Spent on Mobile Apps Matters: A Latent Class Analysis of Patterns of Smartphone Use Among Adolescents. *International Journal of Environmental Research and Public Health, 20*(15), Article 15. <https://doi.org/10.3390/ijerph20156439>
- Furnham, A. (2005). Culture Shock, Homesickness and Adaptation to a Foreign Culture. In M. A. L. van Tilburg & A. Vingerhoets (Eds.), *Psychological Aspects of Geographic Moves: Homesickness and Acculturation Stress* (pp. 17–34). Tilburg University Press.
<https://www.academia.edu/download/46440657/171960.pdf#page=30>
- Gallego Balsà, L. (2018). ‘That’s how you make the most out of a stay’: Positionings Within, and Perspectives on, the Truly Intercultural Experience During Study Abroad. *Sintagma: Revista de Lingüística, 30*, 7–21. <https://doi.org/10.21001/sintagma.2018.30.01>
- Girmay, M., & Singh, G. K. (2019). Social Isolation, Loneliness, and Mental and Emotional Well-Being Among International Students in the United States. *International Journal of Translational Medical Research and Public Health, 3*(2), Article 2.
<https://doi.org/10.21106/ijtmrph.82>
- Godwin-Jones, R. (2016). *Integrating Technology Into Study Abroad*.
<http://hdl.handle.net/10125/44439>
- Goldoni, F. (2013). Students’ Immersion Experiences in Study Abroad: Students’ Immersion Experiences in Study Abroad. *Foreign Language Annals, 46*(3), 359–376.
<https://doi.org/10.1111/flan.12047>
- Götz, F. M., Stieger, S., & Reips, U.-D. (2019). The Emergence and Volatility of Homesickness in Exchange Students Abroad: A Smartphone-Based Longitudinal Study. *Environment and Behavior, 51*(6), 689–716. <https://doi.org/10.1177/0013916518754610>

- Harris, M. A., & Crone, D. (2021). Using Gamification to Encourage Active Travel. *Journal of Transport & Health*, 23, 101275. <https://doi.org/10.1016/j.jth.2021.101275>
- Homesickness in the Modern Age: International Students Crave the Sounds of Home, Says HSBC Survey.* (2019, September 5). <https://www.businesswire.com/news/home/20190905005200/en/Homesickness-in-the-Modern-Age-International-Students-Crave-the-Sounds-of-Home-Says-HSBC-Survey>
- Hristova, D., Dumit, J., Lieberoth, A., & Slunecko, T. (2020, April 3). *Gamification through Snapchat*. Snapchat Streaks: How Adolescents Metagame Gamification in Social Media. <https://ceur-ws.org/Vol-2637/paper13.pdf>
- Hunter, A. (2008). Transformative Learning in International Education. In V. Savicki (Ed.), *Developing Intercultural Competence and Transformation* (1st ed., pp. 92–107). Routledge. <https://doi.org/10.4324/9781003444169-7>
- Jessup-Anger, J. E., & Aragones, A. (2013). Students' Peer Interactions Within a Cohort and in Host Countries During a Short-Term Study Abroad. *Journal of Student Affairs Research and Practice*, 50(1), 21–36. <https://doi.org/10.1515/jsarp-2013-0002>
- Jon, J.-E., & Fry, G. W. (2021). Study Abroad and Engagement at the Local and Global Levels: The Stories Behind the Numbers. *Journal of Studies in International Education*, 25(4), 407–424. <https://doi.org/10.1177/102831532111016276>
- Kim, J. (2013). Influence of group size on students' participation in online discussion forums. *Computers & Education*, 62, 123–129. <https://doi.org/10.1016/j.compedu.2012.10.025>
- Kooloos, J. G. M., Klaassen, T., Vereijken, M., Van Kuppeveld, S., Bolhuis, S., & Vorstenbosch, M. (2011). Collaborative group work: Effects of group size and assignment structure on learning gain, student satisfaction and perceived participation. *Medical Teacher*, 33(12), 983–988. <https://doi.org/10.3109/0142159X.2011.588733>
- Laal, M., & Ghodsi, S. M. (2012). Benefits of collaborative learning. *Procedia - Social and Behavioral Sciences*, 31, 486–490. <https://doi.org/10.1016/j.sbspro.2011.12.091>
- Lawrie, G. A., Matthews, K. E., & Gahan, L. R. (2010). Forming groups to foster collaborative learning in large enrolment courses. *Proceedings of The Australian Conference on Science and Mathematics Education*. <https://openjournals.library.sydney.edu.au/IISME/article/view/4672>
- Lillyman, S., & Bennett, C. (2014). Providing a positive learning experience for international students studying at UK universities: A literature review. *Journal of Research in International Education*, 13(1), 63–75. <https://doi.org/10.1177/1475240914529859>

- Nour, M. M., Rouf, A. S., & Allman-Farinelli, M. (2018). Exploring young adult perspectives on the use of gamification and social media in a smartphone platform for improving vegetable intake. *Appetite, 120*, 547–556. <https://doi.org/10.1016/j.appet.2017.10.016>
- Owens, A. R., & Loomes, S. L. (2010). Managing and resourcing a program of social integration initiatives for international university students: What are the benefits? *Journal of Higher Education Policy and Management, 32*(3), 275–290. <https://doi.org/10.1080/13600801003743364>
- Paul, E. L., & Brier, S. (2001). Friendsickness in the Transition to College: Precollege Predictors and College Adjustment Correlates. *Journal of Counseling & Development, 79*(1), 77–89. <https://doi.org/10.1002/j.1556-6676.2001.tb01946.x>
- Poyrazli, S., & Lopez, M. D. (2007). An Exploratory Study of Perceived Discrimination and Homesickness: A Comparison of International Students and American Students. *The Journal of Psychology, 141*(3), 263–280. <https://doi.org/10.3200/JRLP.141.3.263-280>
- Reeve, J., Jang, H., Carrell, D., Jeon, S., & Barch, J. (2004). Enhancing Students' Engagement by Increasing Teachers' Autonomy Support. *Motivation and Emotion, 28*(2), 147–169. <https://doi.org/10.1023/B:MOEM.0000032312.95499.6f>
- Rose-Redwood, C. R., & Rose-Redwood, R. S. (2013). Self-Segregation or Global Mixing?: Social Interactions and the International Student Experience. *Journal of College Student Development, 54*(4), 413–429.
- Sherry, M., Thomas, P., & Chui, W. H. (2010). International Students: A Vulnerable Student Population. *Higher Education, 60*(1), 33–46. <https://doi.org/10.1007/s10734-009-9284-z>
- Terry, M. L., Leary, M. R., & Mehta, S. (2013). Self-Compassion as a Buffer Against Homesickness, Depression, and Dissatisfaction in the Transition to College. *Self and Identity, 12*(3), 278–290. <https://doi.org/10.1080/15298868.2012.667913>
- Thurber, C. A. (2005). Multimodal Homesickness Prevention in Boys Spending 2 Weeks at a Residential Summer Camp. *Journal of Consulting and Clinical Psychology, 73*(3), 555–560. <https://doi.org/10.1037/0022-006X.73.3.555>
- Tokke, C. (2020). Creating Social Connections in the Community College Classroom: A Pedagogy Using Groups That Build Into Neo-Tribes to Counter Public College Alienation and Traditional Tribalism in Urban Diversity. *Community College Enterprise, 26*(2), 68–101.
- Vande Berg, M., Connor-Linton, J., & Paige, R. M. (2009). The Georgetown Consortium Project: Interventions for Student Learning Abroad. *Frontiers: The Interdisciplinary Journal of Study Abroad, 18*(1), 1–75. <https://doi.org/10.36366/frontiers.v18i1.251>
- Voorn, R. J. J., & Kommers, P. A. M. (2013). Social Media and Higher Education: Introversion and Collaborative Learning From the Student's Perspective. *International Journal of Social*

Media and Interactive Learning Environments, 1(1), 59.
<https://doi.org/10.1504/IJSMILE.2013.051650>

- Wichmann, A., Hecking, T., Elson, M., Christmann, N., Herrmann, T., & Hoppe, H. U. (2016). Group Formation for Small-Group Learning: Are Heterogeneous Groups More Productive? *Proceedings of the 12th International Symposium on Open Collaboration*, 1–4. <https://doi.org/10.1145/2957792.2965662>
- Yakunina, E. S., Weigold, I. K., & McCarthy, A. S. (2010). Group Counseling with International Students: Practical, Ethical, and Cultural Considerations. *Journal of College Student Psychotherapy*, 25(1), 67–78. <https://doi.org/10.1080/87568225.2011.532672>
- Yeh, C. J., & Inose, M. (2003). International Students' Reported English Fluency, Social Support Satisfaction, and Social Connectedness as Predictors of Acculturative Stress. *Counselling Psychology Quarterly*, 16(1), 15–28. <https://doi.org/10.1080/0951507031000114058>

Appendix A: Student Interview Questions

Do you consent to being interviewed?
(All responses will remain anonymous)

Rapport Questions:

Where are you studying abroad from?

What has been your favorite site to visit while in Prague?

How often do you explore Prague on your own?

Specific Questions:

Did you know any students coming to Prague with you before you departed?

Have you attended any of the activities run by CIEE? If so, which ones?

Did CIEE's activities help to get you familiar with Prague?

- Assess whether CIEE's current activities are helpful for helping students get familiar with Prague

Did CIEE's activities help you meet students you didn't know previously?

- Assess whether CIEE's current activities are helpful for providing students opportunities to make new friends

Open-ended Questions:

Are you comfortable with using the public transport systems in Prague?

If you could, what would you change about the activities run by CIEE?

- Identify gaps that our project could address.

Difficult Questions:

What is the largest challenge you've had to deal with so far while studying abroad?

- Understand what is causing the student distress and dive deeper into the causes of it, specifically if they are having trouble with making friends.

Has it been difficult to make friends while studying abroad?

- Understand what is difficult about forming relationships from the student's perspective.

Which resources or people, if any, have been most helpful in supporting you in your study abroad experience thus far?

- See if they know the faculty well from the activities.

Scavenger Hunt Interest:

We were thinking of running a scavenger hunt for students. Does this idea sound exciting to you?

- Understand if they like the idea of the scavenger hunt.

Would you prefer to participate in a scavenger hunt during orientation or later in your program?

- Understand the timeline of when the student thinks the activity should take place.

Closure Questions:

Are there any other suggestions/questions you would like to share with us?

- Provides closure and makes student feel heard.

Appendix B: CIEE Staff Interview Questions:

Do you consent to being interviewed?

Mention that interview will remain anonymous.

Rapport Questions:

How has your day been?

Do you enjoy living in the Czech Republic?

How long have you been working for CIEE?

What got you into this career?

Open-ended Questions:

How well do you personally know students studying abroad through CIEE?

Specific Questions:

Do you provide students with public transportation passes?

How have you seen students engage in social interactions with each other?

- Understand the tactics that students use to engage with each other, to see if we can replicate that to a greater affect in the app

How effective would you say are the activities of CIEE with facilitating student interaction?

- Understand how engagement is handled by professionals. Get a new perspective on the activities that they run

How would you feel about the implementation of a scavenger hunt?

- Run through the idea with them, see if they have any concerns/questions with it. Mainly ask if they are comfortable with facilitating the activity as well
- Going from that question, ask about if they feel that the scavenger hunt could take place either during new student orientation, or during the second month of the semester

Would you feel that the scavenger hunt would benefit students in understanding the culture of Prague?

- Get a better understanding of how effective they view the scavenger hunt

Difficult Questions:

What strategies have you employed to help students that felt isolated from their peers?

- See how CIEE handles these kinds of situations. Ultimately gather the thought process behind it and see what we can do to prevent students from fully being isolated for prolonged periods of time

How would you rate the social programs offered by CIEE? Are they effective?

If CIEE is doing well with this, then we should look at how to incorporate these ideas into our application

If CIEE is not doing a good job, then determine what isn't working and see how we can prevent this in our platform.

How would you feel if, for the scavenger hunt, you were asked to match pictures together?

For context, we think that it would be good for the students to take a picture of what we ask, but would need further checking from a faculty member

For the scavenger hunt, would you feel that the scavenger hunt would benefit singletons (Students who do not have a group)?

Closure Question:

Are there any other people/resources you would recommend reaching out to.

Are there any questions or specific ideas you think would be good in the creation of our platform? (Needs to be said last)

- Hear ideas from the interview and write them down. Allows the person to feel that they have a say in the matter and could make them feel better about the interview.

Appendix C: CIEE Student Survey

Student background info

(MC=Multiple Choice) Do you consent to taking this survey?

- Yes
- No (If no, respondent can skip to end and submit)

(Text) What college or university do you attend?

(Y or N) Did you know any other students participating in this CIEE program prior to your arrival?

Not singleton

The following questions refer to the students enrolled in this program that you already knew.

(Number) How many people did you know?

(Scale: very well, somewhat, barely) Please indicate how well you knew these people on average before this program.

(Slider) How much do you hang around people you knew going into the program versus people you didn't know? (Slider from exclusively hang out with people they knew, to exclusively hang out with people they met while abroad)

Singleton

(Y or N) Do you feel that people who knew others before arriving had an easier time adjusting to the new environment?

(Y or N) Did you feel that you had more difficulty trying to make friends while studying abroad than people who came with friends?

(MC: pre-established group, other individuals) Would you feel more comfortable joining a group of friends that already knew each other, or a group of students that don't know each other?

Agree/disagree section

Please indicate how much you agree or disagree with the following statements:

I was well prepared for this study abroad experience.

My time studying abroad has been enjoyable.

I have interacted with the other students studying abroad.

I know my peers studying abroad very well.

I have made new friends.

It is/was very difficult to make friends on this experience/while studying abroad.

CIEE's orientation events helped me make new friends during my time in Prague.

CIEE's Prague activities helped me make new friends during my time in Prague.

I regret the decision to study abroad.

I would like more opportunities to meet new people/form new relationships while studying abroad.

Final section

(Text) What is the largest challenge you've had to deal with so far while studying abroad? If you feel comfortable sharing, why was this so challenging for you?

(Text) Which resources or people have been most helpful in supporting you in your study abroad experience thus far?

(Text) Is there any other information you would like to share with us?

If you are interested in testing a pilot scavenger hunt, please email gr-cieeprague-b23@wpi.edu.

Appendix D: Pilot Test Survey

(Y or N) Did you generally enjoy the survey?

- Yes
- No

(If no) If you do not mind, please indicate why you didn't have fun during the Scavenger Hunt.

(Number) In total, how many points did you accumulate?

Difficulty

(MC) How would you rate the difficulty of the clues?

- Extremely difficult
- Somewhat difficult
- Somewhat easy
- Extremely easy

Were there clues that stuck out as too easy or difficult?

Duration

Did you see all the locations within the time limit?

(If yes) How long did it take you to finish the scavenger hunt?

(If no) What location numbers did you not see?

(MC) Do you think the scavenger hunt should be longer, shorter, or was the length fine?

- Should be shorter
- Length was fine
- Should be longer

Locations

(Y or N) Were there any locations that were too far apart from others?

(If yes) Please indicate which locations you thought were too far apart.

(Y or N) Were there any locations that were too close to each other others?

(If yes) Please indicate which locations you thought were too close together.

Do you think you spend too much time walking from one place to another?

Were there any tasks/locations you really enjoyed? Please explain why.

Would you like more general themes for the locations (I.E, nature, sports, etc.)?

Any tasks/locations you disliked? Please explain why.

Points

Do you think the points of each location were reasonable?

Should we adjust the points at all?

(If yes) Please give your thoughts on the points.

(If yes) From the locations, which places should get more points?

(If yes) In general, what places should get more points, places that are hard to get to/far away, or really challenging clues?

Would you think it would be better if all locations were worth 1 point?

Social Aspect

Did you have a good time with your teammates?

Did you get to know your teammates better during this activity?

Is there anything we could change in the scavenger hunt that might make socializing easier?

Platform/delivery of Scavenger Hunt

Were the instructions clear?

Was the document we gave you easy to understand?

Final thoughts

What did you think of the scavenger hunt?

Is there any other feedback you have for us?