Three Manuscripts on Study Abroad

by

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To Jin Hyung, Sayeon, and Yubin

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ABSTRACT

The three studies in this dissertation contribute to our knowledge about study abroad program impact, particularly as it relates to understanding the interplay of factors that influence students' decision to study abroad, to employing a more robust methodology to examine the effect of study abroad participation, and to developing and refining measures of instructional practice that can be used to identify effective features of study abroad programs.

I begin with the first study asking the question, who studies abroad? Utilizing logistic regression, I identify individual characteristics, experiences prior to college entry, and first year college experiences that predict study abroad *intent* and *participation*. In particular, I examine if factors that predict intentions at the time of entrance predict actual participation during students' second or third years in college. Based on findings, I provide implications for studies that use intentions as a proxy for participation.

The purpose of the second study is to estimate the effect of study abroad participation on academic performance and interest in international specializations. To address the methodological limitations of prior research, this study utilizes propensity score matching to create a sample of study abroad participants and non-participants that are similar in terms of characteristics that predict involvement. The effects of study abroad on students' academic performance (time to degree, 4-year degree completion, total credits earned) and academic interests (completed an International Studies major, completed a major with international/global/language theme) are assessed.

The third study is an exploratory attempt to demonstrate how qualitative data from multiple short-term faculty led study abroad programs might be used to improve surveys designed to gather data in large-scale studies of instructional effectiveness. The study examines what measures of instructional activities derived from faculty proposals and student reports of their study abroad engagement predict students' intercultural competence. Based on findings, implications for developing and refining surveys of practice effectiveness are suggested.

Chapter 1: Three-manuscript Dissertation Overview

Problem Statement

Education abroad is hardly a new phenomenon. It has various historical roots from its origins in the independent quests of the wandering scholar to the cultural tourism for the elite classes known as the "Grand Tour" during the 17th and 18th centuries (Edwards et al., 2005). Incorporation of an international experience within the context of U.S. education date from the 1920s and since then, a segment of the U.S. undergraduate student population has spent some portion of their college years studying in a foreign country for the main purpose of language learning and cultural enrichment (Hoffa, 2007).

However, what stands in contrast with these historical precedents is the fact that while prior discussions of U.S. education abroad focused almost exclusively on 'study abroad,'[1] defined as academic study in another country for credit toward a U.S. degree, now education abroad encompasses a broader range of activities, including but not limited to internships, volunteering, field work, and service learning (Edwards et al., 2005). Such expanded meaning of the term reflects the shifting rationales for study abroad in concert with the changing landscape of American higher education and international dynamics (de Wit, 2002).

[1] International educators and researchers have noted the definitional challenge in deciding between commonly used terms in the field of international education such as *international education*, *education abroad*, and *study abroad*. *International education* refers to everything that organizations do to foster cross-cultural educational experiences (Bolen, 2007). *Education abroad* is defined as off-campus education that occurs outside the participant's home country, which includes but is not limited to study abroad, internships, work, volunteering, and directed travel (Peterson et al., 2007). *Study abroad* is a form of education abroad that results in progress toward an academic degree at a student's home institution (Peterson et al., 2007). However, in the interests of varying language and making the text less repetitive, this dissertation uses the three terms interchangeably, although all three papers focus on *study abroad*, namely, those programs that are credit based.

During the Cold War Era, study abroad emphasized the promotion of peace through relationship building and knowledge exchange between people and communities in the U.S. and around the world. Over time, this motivation was replaced by policy makers to specific aims concerned with economic issues of global competitiveness and with national priorities (de Wit, 2002; Friedman, 2006). In the aftermath of September 11, heightened concerns about national security called for increased investment and participation in study abroad (American Council on Education, 2002).

Today, many view study abroad as an important vehicle for increasing global awareness and intercultural competency and for producing an internationally aware and concerned citizenry. Institutional stakeholders of all kinds – government, businesses, and schools – claim that study abroad helps students develop cross-cultural skills and knowledge that are needed to enhance the global competitiveness of American businesses and the effectiveness of the U.S. in its relations with other nations (Carlson et al., 1990). In other words, education abroad is no longer linked exclusively with language learning and acquisition of cultural knowledge but also perceived as serving important career-oriented goals to prepare individuals to participate in the new global economy.

As an effort to meet the demands of the new environment, various providers (e.g., colleges and universities, consortia of colleges, third-party providers, foreign institutes) have played a role in expanding the number and types of education abroad programs. For instance, while home institutions play a key role in developing and running study abroad programs or study centers in the host country, the Institute of International Education (IIE) reports that approximately one quarter of students studying abroad in 2000-2007 did so through a third-party provider such as CIEE, the American Institute for Foreign Studies (AFIS), and the Institute for

the International Education of Students (IES Abroad) (Redden, 2007). These general trends have contributed to the increase in the number of students studying abroad. According to the Open Doors Report, the number of American college students studying abroad has more than tripled over the past two decades, with more than 313,000 students going abroad for academic credit in 2014-15 (IIE, 2016).

Yet some study abroad scholars have begun to question whether the successful push to increase participation rates has outpaced efforts to ensure the effectiveness of the education abroad experience (Salisbury, 2011; Vande Berg, 2007; Woolf, 2007). They point out that despite widely held convictions and assumptions about the value of international education, limited research has been conducted on the outcomes of various education abroad experiences and the conditions under which students benefit most and in what ways (e.g., Carlson et al., 1990; Edwards et al., 2005). Such concerns are situated within the general movement toward a culture of accountability in U.S. higher education, which leads to a wide variety of assessment activities to demonstrate the extent to which students are meeting institutional learning goals (Zukroff et al., 2005). Hence, NAFSA: Association of International Educators called for the field of international education to develop its own culture of assessment in order to be part of this important academic conversation (Hoffa, 2005).

As a response to these calls, several multi-institutional studies (e.g., Braskamp et al., 2009; Sutton & Rubin, 2004; Vande Berg et al., 2009) and numerous qualitative inquiries into a single program or with a small sample of students (e.g., Cushner & Mahon, 2009; Dolby, 2004; Paige et al., 2004; Talburt & Stewart, 1999; Wilkinson, 1998; Williams, 2005) have sought to empirically demonstrate the unique educational benefit of study abroad participation. For instance, the GLOSSARI study conducted by Sutton & Rubin (2004, 2010) compares students

from the University of Georgia System who did and did not study abroad on their academic (i.e., graduation, persistence rates, GPA) and intercultural outcomes (i.e., knowledge of other cultures, intercultural interaction, global interdependence, comparative civics, world geography). Their findings indicate that study abroad participants are likely to have higher graduation rates, show greater improvement in academic performance upon return, and better knowledge of cultural content. The Georgetown Consortium Project involved pre- and post-testing of 1,297 students for foreign language and intercultural learning who were either participants in 61 programs abroad or in control groups on three home campuses (i.e., Georgetown University, University of Minnesota-Twin Cities, and Dickinson College) (Vande Berg et al., 2009). Their results indicate that study abroad participants averaged more progress in intercultural learning and oral language proficiency. Braskamp et al. (2009) also employed a pretest-posttest design to measure changes in the global perspective of students (N=245) who participated in ten different study abroad programs over the period of one semester. Their findings suggest that study abroad enhances participants' global learning and development in such areas as knowledge of cultural traditions, sense of self, and relations with others.

A number of inquiries into a single program or small-scale qualitative studies (e.g., Cushner & Mahon, 2002; DiBiasio & Mello, 2004; Dolby, 2004; Engle & Engle, 2004; Lewis & Niesembaum, 2005) provide some evidence regarding the positive effects of participating in study abroad. For instance, DiBiasio & Mello (2004) provide a detailed description of a project-based program designed for undergraduate engineering and science students at Worcester Polytechnic Institute. Students become involved in technology/society projects on campus or at an international site as part of their degree requirement to examine how science or technology interacts with cultures, societal structures, and values. The assessment of program impact based

on final project reports indicates that participants in international projects show higher project quality and academic outcomes (i.e., ability to engage in lifelong learning, understand impact of engineering on society, knowledge of contemporary issues, understanding of professional and ethical responsibility, multidisciplinary team and topic). Lewis & Niesenbaum (2005) study the effects of a short-term program on environmental and cultural conservation in Latin America. Their findings based on a survey indicate that the participants developed an increased interest in courses outside their major and interdisciplinary studies, and engaged in subsequent travel or study abroad. Dolby (2004), on the other hand, examines how the study abroad experience shapes students' perceptions of their national identity. Interviews with 26 students who studied abroad in Australia for a semester illustrate that students come to a better understanding of what it means to be an "American" and develop new and more complex perspectives on the world.

While research on study abroad generally suggests that an international experience can improve a range of intercultural attitudes and skills, a number of methodological weaknesses undercut the generalizability and validity of their findings (Pascarella & Terenzini, 2005; Sell, 1983; Stimplf & Engberg, 1997). First, these findings are mostly based on qualitative studies of small samples or quantitative studies that utilize self-reported gains in intercultural learning, which poses the risk that participants' may respond as they believe they should (Carlson & Widaman, 1988). Second, not many studies establish control groups when making assessments of change over time for study abroad participants, despite the fact that the change observed may be a result of some other factor such as maturation (Hadis, 2005). Third, even those studies that include a control group are often problematic, as they do not adequately account for the potentially confounding demographic and attitudinal characteristics that might systematically differentiate between students who do and do not study abroad (for a notable exception, see

Salisbury's (2011)[2] examination of the effect of study abroad on intercultural competence among participants of the Wabash National Study on Liberal Arts Education). Finally, the findings are also inconsistent often because they do not consider variations in program characteristics.

In sum, over the past decades, study abroad has come to occupy a more central role in undergraduate education and the number of students going abroad has dramatically increased. As a consequence, there has been a substantial growth in study abroad research with the goal of documenting the unique benefits of living and learning outside one's home country. Nevertheless, while these studies demonstrate a welcomed movement toward study abroad assessment, their lack of methodological rigor provides little evidence to support the purported positive effects of participation. With the growth in concerns about the escalating costs of higher education, colleges and universities face increasing demands to provide clear evidence of the value that a study abroad program adds to an undergraduate education (Paige et al., 2009).

Purpose of the Dissertation

The purpose of this dissertation is to examine the effects of study abroad participation on academic and intercultural outcomes at one large research university in the mid-west of the United States. The dissertation consists of three interrelated article manuscripts that focus on different aspects of study abroad (See Table 1.1 for an overview of three studies).

I begin with the first study asking the question, who studies abroad? This study utilizes logistic regression to identify individual characteristics, experiences prior to college entry, and first year college experiences that predict study abroad *intent* and *participation*. In particular, I

[2] Salisbury (2011) conducted an analysis of data from the 2006 cohort of the Wabash National Study of Liberal Arts Education (N=1,593). In addition to various controls assessing demographic characteristics, pre-college attitudes, institutional context, academic pursuits, college experiences, he used a propensity score to account for potential selection bias.

examine if factors that predict intentions at the time of entrance predict actual participation during students' second or third years in college. Based on findings, I provide implications for studies that use intentions as a proxy for participation.

The purpose of the second study is to estimate the effect of study abroad participation on academic performance and interest in international specializations. To address the methodological limitations of prior research, this study utilizes propensity score matching to create a sample of study abroad participants and non-participants that are similar in terms of characteristics that predict participation in study abroad. The effects of study abroad on students' academic performance (time to degree, 4-year degree completion, total credits earned) and academic interests (completed an International Studies major, completed a major with international/global/language theme) are assessed.

The third study co-authored with Dr. Janet Lawrence, is an exploratory attempt to demonstrate how qualitative data from multiple short-term faculty led study abroad programs might be used to improve surveys designed to gather data in large-scale studies of the effectiveness of instructional activities. The study examines what measures of instructional activities derived from faculty program proposals and student reports of their study abroad engagement predict students' intercultural competence. Based on findings, we discuss implications for developing and refining surveys of faculty and students that can be used to identify effective practice in study abroad.

Table 1.1. Overview of Three Papers

	Paper 1 (Chapter 2)	**Paper 2 (Chapter 3)**	**Paper 3 (Chapter 4)**
Title	Who studies abroad? Understanding factors that predict study abroad participation	The effect of study abroad on academic performance and interest of undergraduate students	Measuring impact of study abroad program activities
Research question	(1) What factors predict participation and non-participation in study abroad of all types, in long-term, and in short-term? (2) In particular, do factors that predict intentions at the time of entrance predict actual participation during students' second or third years in college? (3) What are the implications for studies that use intentions as a proxy for participation?	After accounting for differences in students' characteristics prior to college entry and first-year college experiences, does study abroad participation affect participants' academic performance and interests?	(1) What measures of instructional activities derived from (a) short-term study abroad program proposals and (b) student reports of their study abroad engagement predict students' intercultural competence at the program's conclusion? (2) What are the implications for developing surveys of study abroad faculty that capture more detailed information about the learning activities they intentionally incorporate and can be used to identify effective practice? (3) What are the implications for refining surveys of students used to assess the effectiveness of instructional activities in study abroad programs?
Methods	Logistic regression	Propensity score matching	Multiple method (Content analysis, OLS regression)
Data	Freshman survey (CIRP), Student academic records (registrar), Open Doors tracking study abroad participation	Freshman survey (CIRP), Student academic records (registrar), Open Doors tracking study abroad participation	53 short-term program faculty proposals, student pre/post surveys on intercultural learning and program activities
Dependent variable(s)	Intent to study abroad (1=Yes) Participated in study abroad (1=Yes)	Academic performance (time to degree, 4-year degree completion, total credits)	Intercultural learning (knowledge of host culture, negotiating interactions, perspective taking, cultural

		Academic interest (completion of major with international theme)	self-awareness, cultural judgement)
Independent variables	Individual characteristics, predispositions, high school/college experiences	Individual characteristics, predispositions, high school/college experiences	Individual characteristics, prior college experiences, faculty planned program activities, student experienced program activities

Significance of the Dissertation

A recent campaign launched by the Institute of International Education (IIE) dubbed Generation Study Abroad seeks to have 600,000 U.S. students studying abroad annually by 2020, which is twice the number of students who went abroad in the 2014-15 academic year. Allen E. Goodman, President of IIE, states that as the careers of all our students will be global ones, they will need to function effectively in multi-national teams. He continues, "Studying abroad must be viewed as an essential component of a college degree and critical to preparing future leaders." A diverse array of institutions has pledged to join the Generation Study Abroad initiative to increase the diversity of students who study abroad, ensuring quality, and removing barriers to participation. Salisbury (2014) aptly points out that "as this effort steam, we have to stay focused on learning" and not just on accomplishing the goal of doubling participation rates.

The three studies in this dissertation will contribute to expanding our knowledge about study abroad program impact, particularly as it relates to understanding the interplay of various factors that influence students' decision to study abroad, to employing a more robust methodology to examine the effect of study abroad participation, and to developing and refining measures of instructional practice that can be used to identify effective features of study abroad

programs. The findings of these studies will have the following implications for research and practice.

These studies will provide additional insights into establishing conceptually and methodologically rigorous outcome assessment programs, which can provide a foundation for future research on study abroad impact. An empirical analysis of characteristics that differentiate study abroad participants and non-participants not only informs practical efforts to expand and equalize participation across these groups but also provides a solid basis to better account for the selection bias in research examining the effects of study abroad. The use of an analytical method that can increase accuracy in estimating the effect of a non-randomly assigned treatment could yield additional understandings in conducting methodologically sound research documenting the value of study abroad. Investigations into study abroad program activities can contribute to expanding our understanding of how measures of instructional practice can be strengthened to better identify "what works" across a variety of programs.

The study findings also have important practical implications. Evidence to support the contribution that studying abroad makes to student outcomes could inform public higher education policy decisions to increase or decrease postsecondary investment in study abroad infrastructure or scholarships. It could also help institutional leaders in identifying and expanding the type of international or intercultural experiences that benefit students most or developing ways to diversify students who go abroad. Above all, the findings from these studies could be used to better inform students and parents about what students will study and experience abroad, helping them make better choices in terms of their academic trajectories when they prepare to go overseas.

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Chapter 2: Who Studies Abroad?
Understanding Factors that Predict Study Abroad Participation

Introduction

In many decision domains, intentions are found to be the best predictors of behavior (e.g., Fishbein & Ajzen, 1975; 1980). Consequently, intervention strategies to replace, alter, or maintain behaviors (Sheppard et al., 1988). Within the field of higher education, researchers examine intentions to understand college choice (Pitre et al., 2006), college persistence (Okun et al., 1996), academic success over students' college careers (Harackiewicz et al., 2002), and participation in college programs such as volunteering (Okun & Sloan, 2002). Given study abroad intent is positively associated with actual participation (Twombly et al., 2012), inquiries into study abroad have frequently examined factors that influence *intent* to study abroad (e.g., Booker, 2001; Peterson, 2003; Rust et al., 2007; Salisbury et al., 2010; Stroud, 2010). Researchers argue that determining discrepancies in intent would aid efforts to effectively market study abroad programs and to remove potential barriers to going abroad (Li et al., 2013).

One reason for the prevalence of studies that focus on study abroad intent appears to be the availability of data gathered in freshmen surveys conducted by most colleges or universities. The Cooperative Institutional Research Program (CIRP) Freshmen Survey, for instance, provides data on incoming college student demographics, high school experiences, attitudes, behaviors, and expectations for college, and specifically includes a question that asks an individual's plans to study abroad in college. Accordingly, many studies have devoted efforts to understanding

individual characteristics and experiences *prior* to college entry that predict intent to study abroad.

However, reports indicate that although students exhibit awareness of study abroad opportunities upon college entry and an intent to participate, a large proportion of them do not actually partake. For instance, the American Council on Education (2008) reported that students express interest in gaining international learning experiences in college. In fact, 55% of college-bound students said that they were certain or fairly certain they would participate in study abroad programs, with another 26% reporting a strong intent to study abroad (American Council on Education, 2008). Nevertheless, despite such awareness and interest, the number of American college students who studied abroad remained low and participation was unevenly distributed across groups. Open Doors 2016 reports that more than 313,000 U.S. students studied abroad for credit during 2014-15, which is an increase from the past years but still constitutes less than 2 percent of all undergraduates enrolled in U.S. colleges and universities (IIE, 2016). Given ongoing efforts among higher education institutions to prioritize study abroad, reflected in the diverse array of programs available, such low numbers do not appear to be due to lack of international opportunities (Twombly et al., 2012).

The statistics suggest that international educators need a better understanding of not only the factors that predict participation in study abroad but also the potential reasons for the gap between intent and actual participation. One wonders, for example, if the factors that are known to predict intent also predict participation and what role curricular and co-curricular college experiences (e.g., student clubs, government, learning community) may play in students' decisions to participate in study abroad. In light of the diverse array of study abroad programs, it

is also important to consider how program characteristics, such as duration, language requirements and such, affect students' participation.

Hence, there is a need for longitudinal studies that capture not only intent at college entry but also college experiences and study abroad program characteristics that may affect participation in study abroad programs. Using surveys and institutional data across three cohorts of undergraduate students I aim to address this need. I use a data set that provides a unique opportunity to examine (1) the characteristics and experiences both prior to and during the first year of college of student participants in study abroad of all types, in short-term, and in long-term in comparison to their non-participating peers, and (2) the individual characteristics and experiences prior to college enrollment that predict either or both study abroad intent and participation. A more accurate understanding of the characteristics that differentiate study abroad participants and non-participants will not only inform practical efforts to expand and equalize participation but also provide a solid basis to better account for the selection bias in research examining the effects of study abroad (Salisbury et al., 2013).

Literature Review

There is a substantial body of research on the factors affecting intent and actual study abroad participation. Studies that focus on intentions assume intent is the best predictor of participation and thereby justify the use of intent as a proxy for participation. Study abroad intentions capture student plans or perceived chances of studying abroad, generally measured through surveys or interviews. Studies that focus on study abroad participation, on the other hand, assess how different student characteristics and experiences, one of which is intent to study abroad, are associated with actual engagement. These studies are based on institutional records

(e.g., program applications, transcripts) or graduation surveys gathered after students study abroad. Hence, in this section, I first review literature that uses intent to study abroad and then examine inquiries that identify factors that influence actual participation. Finally, I discuss the Theory of Reasoned Action (Ajzen & Fishbein, 1980), a framework widely used to explain and predict behaviors, to help explicate the theoretical relationship between study abroad intent and participation.

Factors Predicting Study Abroad Intent

As I stated earlier, given the strong association between intent to study abroad and actual participation (e.g., Goldstein & Kim, 2006; Luo & Jamieson-Drake, 2014; Twombly et al., 2012) as well as an interest in increasing engagement among U.S. students, researchers have directed attention to understanding factors that shape intentions. The assumption is that factors that shape intent to study abroad would yield strategies to effectively market study abroad programs and to develop programs that better fit student interests (Li et al., 2013; Rust et al., 2007).

Perhaps due to the availability of multi-institutional surveys such as the CIRP, researchers tend to conduct cross-sectional studies to understand the influence of characteristics at college entry on intent to study abroad. Many of these inquiries have centered on identifying individual socio-demographic characteristics (e.g., Booker, 2001; Salisbury et al., 2009; Thomas & McMahon, 1998), high school or college experiences (e.g., Rust et al., 2007; Salisbury, 2011; Salisbury et al., 2009), and predispositions or motivations (e.g., Goldstein & Kim, 2006; Rust et al., 2007; Salisbury et al., 2009; Stroud, 2010) that are associated with intent to study abroad.

Individual characteristics. Stroud (2010), in her study of 2,258 University of Massachusetts-Amherst full-time freshmen who completed the CIRP Freshman survey, finds that gender is most influential, with the odds of women intending to study abroad 2.4 times higher

than men. Similarly, Luo & Jamieson-Drake (2014) from their analyses of three entering cohorts who participated in the CIRP Freshman survey show that women are more likely than men to indicate a strong interest in studying abroad. Using data based on 2,772 undergraduates from 19 different institutions in the Wabash National Study of Liberal Arts, Salisbury et al. (2010) conduct a close examination of the differences between male and female intent to study abroad to understand why more women than men plan to participate. They found that while women's intent to study abroad is affected by influential authority figures and educational contexts, men's intent to study abroad appeared to be primarily shaped by personal values, experiences, and peer influence. Based on these results, the authors conclude that experiences prior to college entry and in college differentially affect the formation of study abroad aspirations, potentially creating discrepancies in participation rates between the two groups.

Research also demonstrates that socioeconomic status and parental income constitute powerful influences on the intent to study abroad (e.g., Carlson et al., 1990; Dessoff, 2006; Salisbury et al., 2009). Studies have consistently found perceived constraints due to lack of finances to be negatively associated with study abroad intent (e.g., Thompson, 2007; Dessoff, 2006; Van Der Meid, 2005). Nevertheless, scholars argue that it is not simply the financial costs involved but levels of social and cultural capital individuals accumulate that influence study abroad intentions. Drawing from college choice frameworks (e.g., McDonough, 1997; Paulsen & St. John, 2002; Perna, 2006), Salisbury et al. (2009) theorize that students from high SES families are likely to come to college with high levels of social and cultural capital or habitus. Such pre-college capital plays an important role in the development of interest in study abroad, as it creates differences among SES groups in terms of availability of information about study abroad, the perceived educational importance of participation, awareness of and interest in

international events and issues, or previous travel abroad. Nevertheless, the evidence supporting this perspective appears to be mixed. While some studies such as Salisbury et al. (2009) find that lower income students are indeed less likely than higher income students to intend to study abroad, others find no significant associations between parental income or education and student intentions (e.g., Luo & Jamieson-Drake, 2014; Stroud, 2010).

Financial constraints and lack of social and cultural capital are particularly prominent among the reasons cited for low minority student participation in study abroad (Brux & Fry, 2010; Dessoff, 2006; Stallman et al., 2010; Twombly et al., 2012). For instance, the perception that study abroad is irrelevant appears to be more prevalent among underrepresented minority students; according to Burr (2005), Hispanic students reported that study abroad was primarily for high-income students. Brux & Fry (2010) suggest that cultural differences and lack of family support and role models contribute to this belief that study abroad is not useful.

Several studies also consider the effect of high school GPA and ACT/SAT scores as proxies for knowledge or skills accumulated prior to attending college that may influence the intent to study abroad (e.g., Luo & Jamieson-Drake, 2014; Salisbury et al., 2009; Stroud, 2010). The results are mixed, however, with some studies reporting no significant effect of SAT scores (e.g., Luo & Jamieson-Drake, 2014) and others such as Salisbury, Paulsen, and Pascarella (2011), indicating ACT/SAT scores predict racial and ethnic minority student interest in studying abroad.

To summarize, many studies focus attention on individual characteristics that influence intentions to study abroad. More specifically, scholars highlight the important role of pre-college human, social, and cultural capital in shaping an individual's interest in study abroad.

High school experiences. Evidence from existing research suggests that involvement in certain high school experiences predicts intent to study abroad (e.g., Luo & Jamieson-Drake,

2014; Rust et al., 2007; Salisbury et al., 2009). For example, Rust et al. (2007) in their analyses of the CIRP data show that students who frequently interact with members of racial/ethnic groups different from their own in high school are much more likely to plan to go abroad than those who do not. In addition, students who report that they were active participants in social, political, community, and academic activities in high school (e.g., social interaction with peers, political interest and activity, volunteerism) are more likely to report stronger intentions to go abroad than those who were not (Rust et al., 2007). The authors surmise that because study abroad is about intentionally moving beyond one's comfort zone and navigating a new environment, students who are more involved in such high school activities are likely to make deliberate choices to encounter environments that require personal change and adaptation to values different from their own (Rust et al., 2007).

Other categories of high school activities have been examined and perhaps due to the nature of the activities examined, studies report inconsistent results regarding the association between high school involvement and study abroad intentions. For example, Luo & Jamieson-Drake (2014) find no significant associations between high school activities (i.e., volunteer work, asked teacher for advice after class, voted in a student election, used internet for research or homework) and interest in study abroad. Salisbury et al. (2009) find that their composite measure of high school involvement, based on student use of internet for homework or research, participation in extracurricular activities, studying with a friend, talking with teachers outside of class, participating in community service or volunteering, is negatively related with intent to study abroad.

College experiences prior to study abroad. Given that study abroad intention has been examined mostly through cross-sectional studies of entering freshmen, our understanding of the

influence of college experiences on students' plans to study abroad is limited. Except for academic major and students' intentions to participate in curricular or co-curricular experiences in college, which is frequently captured in studies of freshmen intentions to study abroad, other facets of the college experience such as actual extracurricular involvement or diverse interactions have been examined to a lesser extent.

Consistent with the discrepancies observed in study abroad participation among academic majors, a number of studies show that students studying natural sciences and engineering are less likely to plan to study abroad (e.g., Luo & Jamieson-Drake, 2014; Stroud 2010). Researchers note that unlike the coursework in the humanities, the coursework for engineering is more structured and sequenced (Carlson et al. 1990; Stroud 2010). In addition to curricular inflexibility, prior research identifies institutionally created barriers such as lack of information about study abroad opportunities (e.g. Coldwell, 2013; Brux & Fry, 2010), limited administrative and faculty support (e.g., Brown, 2002; Gore, 2009), ineffective marketing (e.g., Gore, 2005), and scarcity of resources (e.g., Salisbury et al., 2011) to be deterrents to study abroad plans.

Results based on a small body of research suggest extracurricular involvement and campus practices that facilitate diverse interactions are strong predictors of intentions to study abroad. Salisbury et al. (2009), for instance, based on estimates derived from logistic regressions find that the amount and quality of diversity experiences (e.g., how often a student participated in a racial or cultural awareness workshop during academic year, how often a student had serious conversations with students of a different race or ethnicity) and the number of hours per week a student spends participating in co-curricular activities significantly increased the probability students plan to study abroad. The authors posit that such diversity experiences provide a means to accumulate social capital (i.e., awareness and access to resources, networks, timelines,

processes about study abroad) and cultural capital (i.e., values, attitudes, and beliefs that emphasize the importance of study abroad) that result in study abroad intentions. Such findings fit with research examining the effect of college diversity experiences in general (e.g., Bowman, 2012; Bowman et al., 2011; Gurin, 1999). For example, Bowman (2012) reports that students' engagement with diversity experiences during their first year are associated with increased involvement in diversity-related activities in their subsequent years in college.

Motivations and predispositions. Researchers have also looked at the effect of student predispositions on intentions to study abroad. Findings indicate that students who want to expand their understanding of other cultures and countries are more likely to aspire to study abroad (Dessoff, 2006; Luo & Jamieson-Drake, 2014; Stroud, 2010). Kim & Goldstein (2005) in a study based on a survey of 282 first year undergraduates at a small liberal arts college show that students with higher levels of ethnocentrism and prejudice are less likely to study abroad; in other words, students with unfavorable expectations of study abroad may believe they have little gain from experiencing another culture (ethnocentrism) (Kim & Goldstein, 2005). Not surprisingly, the authors also find high levels of language interest predict favorable expectations for study abroad. Li et al. (2013) in their study of 431 survey participants enrolled in an Introduction to Psychology class found that personality traits such as desire to work hard and to do things well (achievement motivation), appreciation for and/or a desire to have new experiences (neophilia), and tendencies to be highly mobile (migrant personality) are positively associated with intentions to study abroad.

Summary and limitations. The literature on study abroad suggests a host of student background characteristics (e.g., gender, race/ethnicity, socioeconomic status), motivations (e.g., to improve linguistic ability, to gain cultural knowledge), predispositions (e.g., interest in

understanding other cultures), and engagement in select high school or college activities (e.g., academic major, interactions with students of another racial/ethnic group, diversity interactions) predict *study abroad intentions*. Based on a comprehensive review of study abroad research literature, Twombly et al. (2012) conclude that there is strong evidence indicating an association between intentions and actual study abroad participation. Nevertheless, studies consistently find that an increasing number of students who planned to study abroad upon college entry do not participate (e.g, American Council on Education, 2008; Luo & Jamieson-Drake, 2014; Pope et al., 2014). This may be due in part to the emphasis given to the activities and interests of students prior to or at the beginning of college with limited attention to what they do in college. In other words, the predictors of intent to study abroad identified in these studies may be accurate at the time of college entry, but are susceptible to change over time as students become immersed in college academic and social life, which may reinforce or alter their plans.

Factors Predicting Study Abroad Participation

Early research on study abroad aimed to understand qualities of a "typical" study abroad participant (Nruyes, 2015). As such, resultant findings sketch a profile or offer descriptive data about an average student who goes abroad (See for example, the Open Doors report published by the Institute of International Education, which has reported U.S. students studying abroad for academic credit since 1985). Hence, our understanding of some of the demographic characteristics of study abroad participants both nationally and within particular types of higher education institutions is comprehensive.

Individual attributes. Researchers note the disparities in study abroad participation rates by gender, race, and socioeconomic status (e.g., Carlson et al., 1990; Twombly et al., 2012). Prior studies and annual reports find that women are consistently far more likely than men to

study abroad; nearly two-thirds of study abroad participants were women in each of the years from 2002 to 2015 (Dessoff, 2006; IIE, 2016; Stallman et al., 2010). Moreover, white students were nearly four times more likely to study abroad than minority students during the same period, an indication that the historic underrepresentation of racial and ethnic minorities in higher education overall is reflected in study abroad as well (Twombly et al., 2012).

A number of studies have also shown that American students studying abroad typically come from higher income families, have more educated parents, are high academic achievers, and a high proportion of them have already been abroad (e.g., Carlson et al., 1990; Gonyea, 2008; Miller, 2004). For example, a study based on the University System of Georgia (Sutton & Rubin, 2010) examined the effect of financial aid on students' decision to study abroad. Findings indicate that for each $1,000 of unmet need, the probability of study abroad decreased by four percentage points. To a similar extent, Paus & Robinson (2008), in comparing study abroad participants and non-participants in Mount Holyoke College, point out that not only financial expenses involved in studying abroad but also the potential opportunity costs involved due to loss of a part-time job is an important consideration particularly for those who are from low socioeconomic backgrounds.

College experiences prior to study abroad. College academic performance, as reflected by GPA, and majors students choose also appear to strongly influence their proclivity to study abroad. For instance, Paus & Robinson (2008) show that students with higher GPAs are significantly more likely to study abroad; they conjecture that students with lower GPAs feel less confident about their ability to succeed abroad.

There is much more evidence conveying the influence of academic major on study abroad behavior. Study abroad has historically been the domain of students in humanities and

social sciences. According to the 2016 Open Doors report, 17.3 percent of all students studying abroad in 2014-2015 were social science majors, 20.1 percent business majors, and 14.6 percent humanities and international studies majors (IIE, 2016). Nevertheless, a dramatic increase in Science, Technology, Engineering, and Math (STEM) majors over the past decade is noteworthy. STEM students comprised 16.3 percent of students abroad in 2004-2005, which more than doubled over the past decade with 23.9 percent of U.S. study abroad participants coming from the STEM fields in 2014-2015 (IIE, 2016). Even so, the number of study abroad students majoring in the STEM fields is undeniably lower than those majoring in humanities and social science fields (e.g., Obst, Bhandari, and Witherell, 2007; Stallman et al., 2010). Prior studies suggest lack of curricular flexibility as a major reason for low participation rates among STEM majors (e.g., Carlson et al., 1990; Twombly et al., 2012).

Motivations and predispositions. Several researchers also note that study abroad participants and non-participants exhibit different predispositions and motivations. Based on a survey of 179 undergraduates at a small liberal arts college, Goldstein & Kim (2006) conclude that compared to non-participants, participants held more positive expectations (e.g., participating in an international study program would build my self-confidence) about study abroad, were less ethnocentric, and less racially biased. In a similar vein, Van der Maid (2003), in his study based on a survey of 153 Asian American students from across the United States, finds that Asian American students who study abroad are more adventurous and motivated compared to their non-participant counterparts. Several studies also find that in contrast with non-participants, study abroad participants show higher levels of cross-cultural interest (e.g., Bates, 1997; Carlson et al., 1990). For example, Bates (1997), in her dissertation study of 49 undergraduates who qualified to be participants in the Honors International Program at a public

university in South Carolina, found that 14 study abroad participants, compared to 35 non-participants, were more interested in experiencing other cultures and were concerned about international issues.

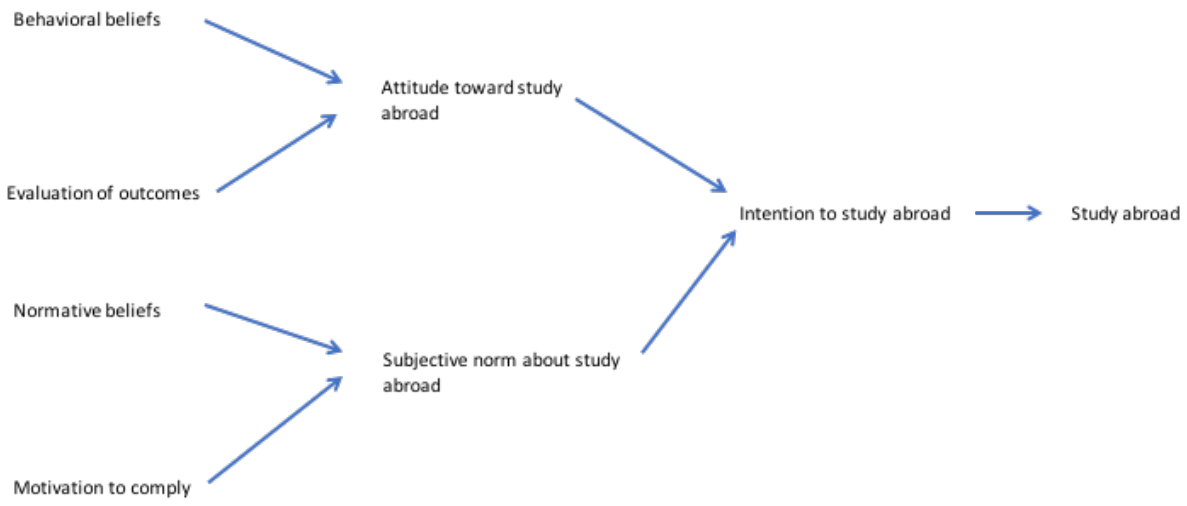
Prior research on students' goals for studying abroad indicates that they go abroad to improve their foreign language skills based on the belief that immersion in the host culture will facilitate improved linguistic ability (Allen, 2010). Students may also choose to study abroad in hopes of gaining cultural knowledge (Goldstein & Kim, 2006), or to improve their future job prospects (Dessoff, 2006; McKeown, 2009; Relyea et al., 2008). Perhaps contrary to the primary objectives of study abroad proposed by international educators, such as developing intercultural competencies or preparing to live in a global and diverse world, many studies indicate that one of the strongest influences on students' decision to study abroad is a desire to have fun (e.g., Forsey et al., 2012; He & Chen, 2010). For example, a University of Western Australia study based on surveys and focus group interviews of study abroad participants shows that for many of them, prioritize having fun, traveling, making friends, and getting a break from serious work (Forsey et al., 2012).

Intent to study abroad. Intent to study abroad, as a predictor of actual participation, has been examined in many studies. Generally, these studies operationalize study abroad intent as a single variable that asks students to estimate their chances of participating in study abroad; findings consistently show that intent is a strong predictor of actual participation (Luo & Jamieson-Drake, 2014; Goldstein & Kim, 2006). For instance, Luo & Jamieson-Drake (2014) in their study of three student cohorts from 2009 to 2011 at a medium-sized, private, highly selective research university demonstrate that entering students with a strong intent to study abroad are significantly more likely to participate than their peers with a weak intent. Estimates

derived from logistic regressions suggest that the odds of going abroad are about 4.77 times greater for students with a strong intent.

A few dissertation studies move beyond conceptualizations of study abroad intent as a single variable that predicts participation (e.g., Booker, 2001; Kasravi, 2009; Peterson, 2001, 2003). These inquiries aptly point out that existing studies have no theoretical framework or model for understanding the complex nature of the study abroad decision process. They utilize Fishbein and Ajzen's (1980; 1985) Theory of Reasoned Action (TRA) to conceptualize study abroad decisions and the possible relationship between intention and behavior. Peterson (2001), for instance, adapts Fishbein and Ajzen's TRA (1980) to develop a study abroad decision model to examine determinants of the formation of study abroad intentions (see Figure 2.1).

Figure 2.1. Peterson's model of decision to study abroad



Using survey data of 539 undergraduates in Michigan State University who had not studied abroad, Peterson (2001) tests the model using multiple regression and structural equation modeling techniques. Based on preliminary tests of model fit, the author confirms that student intentions to study abroad at college entry can be predicted by determining attitude (i.e., strength and evaluation of salient beliefs about study abroad) and subjective norm (i.e., perceived

normative beliefs about study abroad and motivation to comply with expectations of salient referents) (Peterson, 2001).

To a similar extent, Booker (2001) uses survey data to examine the difference between study abroad program applicants (77 students) and non-applicants (105 students) in terms of their personal characteristics, study abroad preferences, and perceptions of institutional support for international education. Applying TRA, he also examines the perceived outcomes, perceived social pressures, and perceived obstacles in students' decisions to study abroad. His study finds that some of the salient factors that directly shaped the decision to study abroad are faculty and advisors' influence, perception that study abroad would delay graduation, and finances (Booker, 2001).

An important contribution of these studies is application of TRA to explain students' decision to study abroad. In particular, using TRA, what they suggest is a broader approach that considers and integrates multiple factors, such as attitudes of others toward study abroad participation, which is a shift from the focus of prior studies on identifying individual factors (Peterson, 2003). In the next section, I provide a more in-depth overview of TRA and the benefits of the framework to better understand the relationship between intention and participation.

Theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA) assumes behavior is the result of deliberate decision-making and intentions constitute a key element. The framework posits that a behavioral intention, defined as the subjective probability that an individual will perform a behavior (e.g., planning to study abroad), is the single best predictor of whether he or she will engage in a behavior (e.g., study abroad participation) (Fishbein & Ajzen, 1980).

The TRA posits that attitudes and subjective norms influence an individual's intention to perform an action or behavior. Attitudes toward a behavior are composed of (1) beliefs about the outcomes a behavior might yield and (2) evaluations of these outcomes (Ajzen & Fishbein, 1980). For example, if an individual considers study abroad as having favorable consequences (e.g., better job opportunities), then the individual's intention to engage in behaviors related to studying abroad is increased. Subjective norms, on the other hand, refer to an individual's perceptions of the social expectations of significant others (e.g., faculty, parents, peers) and a willingness to comply (Pitre et al., 2006). TRA would suggest that a student's intention to study abroad is greater if a student highly values her parents' expectations and perceives her parents think that she should participate. TRA (Ajzen & Fishbein, 1980) suggests, then, that intentions to participate are a joint function of favorable or unfavorable attitudes toward study abroad and of subjective norms that encourage or discourage participation. When students evaluate study abroad positively and believe that important others think that they should take part, students intend to participate. However, when attitudes and subjective norms are inconsistent (e.g., student thinks study abroad will improve job prospects but parents think it will delay graduation and therefore, discourage participation) or attitudes and subjective norms are consistently negative, it is likely that individuals will develop weak or no intentions to participate (Ajzen & Fishbein, 1980).

It is important to note, however, that prior research finds the predictive validity of TRA is supported if the following three criteria are met: (1) measures of intended and performed behaviors are comparable, (2) intention does not change between the time it is assessed and the actual behavior is performed, and (3) the investigated behavior is under the individual's immediate control (Sheppard et al., 1988). In particular, Ajzen (1985) notes that certain factors

may cause the intentions of individuals to change, creating discrepancies between initial intention and subsequent behavior. One such factor is the events that occur in the period between the declaration of intention and the corresponding action. Such events may trigger changes in attitudes toward the behavior or the expectations of social referents toward engaging in the action, which in turn may lead to changes in intentions. Specifically, in the context of study abroad, between the time students estimate the probability they will participate in study abroad (intent) and when they decide whether to participate (behavior), different events happen in their lives (e.g., taking courses, interactions with diverse individuals). These events can shift the weighing and valence of factors that enter the decision-making process, altering intentions and attenuating the intention-behavior relation.

The TRA framework helps to understand the limitations of current research and suggests potential reasons why we observe discrepancies between intent and participation. First, there are inherent complexities involved in the decision-making process to participate in study abroad that are typically not captured in current research. To provide a more accurate assessment of intentions to study abroad, evidence of a student's attitudes and subjective norms must be measured. In short, it is important to know what are the factors that contributed to an initial intention and that might change between the initial assessment and at the time one must act. Most prior studies measure study abroad intentions at college entry while actual participation mostly occurs one to three years later, creating a long temporal distance between the assessed intent and behavior. Hence, many interceding events, especially first year college experiences, may produce changes in intent.

Second, there is a distinction between predicting individual behavior and predicting the behavior of large sample of people. Ajzen & Fishbein (1980) note that predicting behavior of

large samples tends to produce more stable intentions over time, as idiosyncratic events are likely to balance out at the aggregate level. Nevertheless, intentions at the individual level (e.g., planning to study abroad) tend to be unstable over time, creating a potential source of disconnect between intent and behavior.

Third, TRA research suggests that the relationship between attitude and behavioral intention is enhanced when attitudes are based on direct experience. Given intentions are typically assessed at college entrance, it is likely that students will have abstract and not concrete knowledge of study abroad opportunities at the time intentions were measured. Findings from Chieffo (2000) support this argument as they show that less than 30 percent of the sample of 1,060 students at a large research university reported to know more than just fundamental basics about study abroad programs. Since study abroad programs are not uniform and vary in terms of duration (e.g., short-term, long-term), program emphasis (e.g., service learning, research), or destination just to name a few aspects, a lack of concrete knowledge about study abroad opportunities may lead students to draw conclusions based on faulty assumptions.

In sum, it is clear that the predictive validity of findings based on study abroad intentions has several limitations. Conceptually, most studies do not consider student experiences that can shape intent and that occur between the time intentions are assessed and a decision to study abroad is made, potentially weakening the intention-behavior relation. The factors prior studies have taken into account in predicting intent often consist of experiences prior to college entry or predispositions gauged at college entry that may become less salient after a year or two of college. This suggests that study abroad intentions measured in prior research may be accurate at the time of measurement (e.g., at college entry) but as a result of college experiences and life events, intentions may change by the time students make the decision to participate.

To address the limitations of prior research, I use longitudinal data that incorporates the widely used CIRP Freshmen survey, Open Doors, and institutional records of three cohorts of undergraduate students to examine predictors of study abroad intent and study abroad participation. I use the theoretical lens of TRA to interpret the findings and offer propositions regarding the study abroad decision-making process and the role of intentions in that process that might be pursued in future research. The specific research questions that guide this inquiry are:

(1) What factors (students' background characteristics, predispositions, intentions, experiences prior to college entry, first year college experiences) predict participation in study abroad of all types, in long-term, and in short-term?

(2) In particular, do factors that predict intentions at the time of entrance predict actual participation during students' second or third years in college?

(3) What are the implications for the use of intentions as a proxy for participation?

Methods

Data Source and Sample

The data for the study are drawn from multiple sources gathering information about three cohorts of undergraduates at one large research university in the mid-west. The university is known for its active engagement in international initiatives as reflected in the large number of students studying abroad, a strong presence of international students on-campus, and availability of many academic programs focused on world regions and global themes. In particular, more than 200 study abroad programs are available to students.

Specific data sources of the study include: (1) institutional records capturing students' background characteristics and their academic pathways, (2) CIRP Freshman Survey data

administered at college entry, and (3) Open Doors data tracking study abroad participants. I collected institutional data over the course of students' entire academic careers including demographic information, high school GPA, SAT/ACT scores, course registration information (number of credits, course title, and grade point averages each term), major/minor declaration, and degree completion records. CIRP Freshman Survey data provided information on incoming first-year students' demographic backgrounds, predispositions and college expectations. Finally, Open Doors accurately identified students who participated in study abroad. I combined these three data sources to create a unique longitudinal data set to examine the determinants and outcomes of study abroad. Major strengths of this data set are the availability of student information relevant to study abroad over the entire course of his/her academic career, in particular, student behaviors (e.g., number of first year credits, cumulative GPA, participated in learning communities) in addition to self-reported predispositions (e.g., intent to study abroad, goal to improve understanding of other cultures).

Institutional records were available for 18,299 new freshman students who entered college directly from high school in the Fall 2008, Fall 2009, or Fall 2010. I matched these records with CIRP Freshmen Survey data using student identification numbers; however, only 57% of the records were ultimately matched because (1) survey participation was voluntary and not all freshmen completed it and (2) a number of students did not report their student identification numbers or provided incorrect information that prevented linking their survey data to institutional records. I selected the Fall 2008, Fall 2009, and Fall 2010 student cohorts to examine predictors of study abroad participation associated with academic credit (credit-bearing) during academic years 2010-2011 (from Fall 2010 to Summer 2011) or 2011-2012 (from Fall 2011 to Summer 2012) (see Table 2.1). As a result, for the cohorts 2008 and 2010, one year of

study abroad participation data was included while for the cohort 2009, two years of participation data was included. I selected these cohorts and the study abroad participation time periods based upon input from administrative personnel from study abroad offices at the university. They indicated that beginning in 2010, the study abroad data collection process became more systematic and reliable.

Since a majority of students go abroad during their sophomore and junior years (IIE, 2016) due to basic program eligibility requirements that make participation among freshmen very unusual during the study timeframe, I only considered those students who participated in study abroad during their second or third years at the university (as shown in Table 2.1). Hence, I excluded from the sample, students with credit-bearing study abroad experiences prior to the 2010-2011 and 2011-2012 academic years. In addition, I sampled only domestic students given that for international students, pursuing a degree in the U.S. is already a form of study abroad. The selection criteria resulted in an effective sample size of 9,151 students.

Table 2.1. Sample Cohorts

2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
Cohort 2008 (1st yr)	Cohort 2008 (2nd yr)	Cohort 2008 (3rd yr) – Study abroad	Cohort 2008 (4th yr)		
	Cohort 2009 (1st yr)	Cohort 2009 (2nd yr) – Study abroad	Cohort 2009 (3rd yr) – Study abroad	Cohort 2009 (4th yr)	
		Cohort 2010 (1st yr)	Cohort 2010 (2nd yr) – Study abroad	Cohort 2010 (3rd yr)	Cohort 2010 (4th yr)

Measures

The outcomes of interest in this study are study abroad intent and participation. For study abroad intent, I dummy coded the original response categories (very good chance, some chance, very little chance, no chance) to the survey item "What is your best guess as to the chances you

will participate in a study abroad program?" To ease comparison of study results with previous findings (e.g., Luo & Jamieson-Drake, 2014; Salisbury et al., 2009; Stroud, 2010), I chose to examine a binary indicator of study abroad intent, rather than using original response categories. This also simplifies comparison of factors that predict intentions and actual participation, since participation is a dichotomous variable. Study abroad intent is, then, a binary variable indicating an individual's best guess at the time of initial enrollment regarding the chances that he or she would participate in a study abroad program; 1 represents some to very good chance and 0 represents no to very little chance.[1] As prior studies indicate study abroad intent is a strong predictor of actual participation, I also included this variable as an explanatory variable of interest in the models predicting actual participation.

Study abroad participation is a binary indicator where 1 indicates a student participated in a credit-bearing study abroad experience during his or her second or third years (2010-2011 or 2011-2012 academic years)[2]; 0 indicates the student did not participate. I included three binary variables indicating students' initial year of entry (i.e., cohort 2008, cohort 2009, cohort 2010) to control for potential cohort effects (The definitions of variables used in this study are summarized in Appendix 2.A1).

I selected the explanatory variables based on prior inquiries into factors associated with study abroad intentions and participation. I derived variables representing *individual characteristics* mostly from the institutional records. Given that women and white students are

[1] Since the outcome variable of intent to study abroad is originally on a 4-point scale, an alternative approach would be to employ a multinomial logistic regression model. Some preliminary analyses (i.e., likelihood ratio and Wald tests) indicate the categories of the outcome variable are distinct and cannot be combined, which suggests that conducting a multinomial logistic regression may provide further insights into factors that predict study abroad intent.

[2] Types of study abroad programs varied in terms of location and type (e.g., service learning, language focused, faculty-led) but other than program duration, program characteristics were not adequately accounted for due to the limited program information available.

far more likely than men and underrepresented minorities to study abroad (IIE, 2016; Twombly et al., 2012), I included binary variables representing gender (1=Men) and underrepresented minority status (1=Yes). I combined racial and ethnic groups categorized as Hispanic/Latinos, African-Americans, and American Indians/Alaskan Natives to create a binary variable indicating underrepresented minority status (1=Yes). As for parental education, I used father's education and mother's education provided in the institutional records and CIRP data to flag cases where at least one parent had a college degree or higher. I derived parental income from a CIRP variable that categorized income using a 14-point scale; these income categories were recoded into low-income (less than $50,000), medium-income ($50,000-$100,000), and high-income groups (more than $100,000). Finally, I included three binary variables of high school GPA (low: 2.99 or less, medium: 3.0-3.49, high: 3.5-4.0) and a continuous variable of ACT scores as proxies for students' pre-college knowledge, skills or abilities. I converted SAT scores provided in the institutional records to an ACT metric.

I drew variables representing *student predispositions and intentions at college entry* that may influence the decision to study abroad, such as self-reported competencies, importance of certain goals or values, and probabilities they would engage in particular college experiences (intentions) from the CIRP survey. In the CIRP survey, items representing these variables utilized four-point scales (intentions: no chance, very little chance, some chance, very good chance; goals: not important, somewhat important, very important, essential) except for self-ratings of one's competencies, which employ a five-point scale. I converted four-point scale items asking about goals and intentions into binary variables with 0=no to very little chance/not to somewhat important, and 1=some to very good chance/very important to essential.

Prior research indicates that predispositions toward openness to diversity and interest in cross-cultural and racial understanding increase the likelihood of studying abroad (e.g., Luo & Jamieson-Drake, 2014; Rust et al., 2007; Stroud, 2010). Therefore, I included binary indicators of plans to interact with someone who is racially/ethnically different and perceived importance of improving cross-cultural understanding. In addition, I utilized eight binary variables that may potentially support or deter decisions to study abroad; specifically, these variables asked about chances that a student will (1) change major field, (2) change career choice, (3) work full-time while attending college, (4) need extra time to complete degree requirements, (5) get a job to help pay for college expenses, (6) participate in student government, (7) participate in student clubs or groups, and (8) socialize with someone of another racial/ethnic group.

I created a scaled variable representing student self-perceptions of his or her ability to work effectively in multicultural settings (diversity rating) through a series of exploratory principle component factor analyses and varimax rotation (alpha reliability=0.79). Specific survey items included (1) ability to see the world from someone else's perspective, (2) tolerance of others with different beliefs, (3) openness to having my own views challenged, (4) ability to discus and negotiate controversial issues, and (5) ability to work cooperatively with diverse people.

I also included a set of variables representing actual behaviors during the last year of high school (*high school experience*). High school experiences related to diversity involvement are captured by three binary variables drawn from the CIRP survey indicating student self-reports of the extent (0=none to occasional, 1=frequently) to which they performed volunteer work, socialized with someone of another racial and ethnic group, and performed community service as part of a class during their final year in high school.

I created another set of variables from institutional records to capture *college experiences*. To account for the discrepancies in study abroad participation by academic major, I formed three variables indicating school or college of enrollment at the end of the first academic year; namely, (1) Humanities & Sciences (HS), (2) Engineering, and (3) Other (i.e., Music, Nursing, Art & Design, Kinesiology).[3] I created total number of credits taken and cumulative grade point average at the end of the first academic year given that prior research indicates high academic achievers are more likely to study abroad and study abroad application processes often require students to have a minimum number of credits and GPA. I included another indicator for high academic performance which is a binary variable flagging those students selected to receive a prize awarded to first-term freshmen who rank in the upper five percent of their class within their school or college.

I considered participation in living-learning communities as a key student experience that may increase the likelihood of studying abroad. Living-learning communities involve a residential component designed to offer more intentional and structured curricular and co-curricular experiences and often revolve around a theme (Bowman, 2012; Rocconi, 2011). They have been associated with a wide range of educational outcomes, including more openness to diversity (Pike, 2002) and increased engagement in diversity-related experiences (Zhao & Kuh, 2004), one of which may be studying abroad. At the institution of this study, eight learning

[3] School or college of the student may change over his or her academic career given that some students change majors or are admitted to and begin a program after their first year (e.g., business, public policy, information). As such, school/college variable is the best estimate of students' affiliation gauged at the end of their first academic year, which may differ from their school/college affiliation when they graduate. However, analyses of students' affiliation at graduation indicate that most students remained in the school/college they were affiliated with at the end of their first academic year. Specifically, among students in the Engineering school at the end of year one, 90% graduated with an engineering degree. Among students in HS, 90% graduated with a BA or BS degree, indicating that their school/college affiliation mostly did not change.

communities[4] are available for freshmen but due to their popularity among incoming students, admission into these programs is selective and space is limited. All new, first-year students have an opportunity to apply to two of the learning communities; they submit an application that includes an essay about their interests in a particular program. Students are admitted to a program based on the fit of their interests with the themes of the learning communities. I created a binary variable representing participating in living learning communities to understand how it may relate to students' decisions to study abroad.

According to Kim & Goldstein (2005) and Goldstein & Kim (2006), high levels of language interest predict intentions to study abroad. Allen (2010) also points out that language learning is a strong motivation for students. As such, I utilized a variable representing the total number of language credits taken by the end of the first academic year (see Appendix 2.A1 for detailed variable definitions).

Analyses

The first goal of this study is to identify student characteristics, predispositions, and high school and college experiences that differentiate students who go abroad from those who do not. I apply binary logistic regression to examine the factors that predict study abroad participation (research question #1). To understand if these factors varied by duration of the study abroad program, I estimated two separate models which used the same dependent and independent variables but different samples. To examine the determinants of long-term (one semester or more) study abroad participation, I excluded all short-term (2-8 weeks) participants from the sample.

[4] The theme of the eight learning communities are: health sciences, arts, research, science and engineering for women, writing and arts, community service, honors program (HS only), and residential college (HS only)

Similarly, I dropped long-term participants from the sample to examine determinants of short-term study abroad participation.[5]

The second goal of this study is to determine the extent to which student characteristics at college entry that predict study abroad intent are similar to or different from those that predict study abroad participation (research question #2). As the outcome variables are dichotomous, I estimated two binary logistic regression models to identify predictors of study abroad intent and participation. I do not include first year academic experiences in these models because study abroad intent is measured at college entry. To enable comparison of the two models predicting intent and participation, I also excluded first year experiences in the model predicting study abroad participation.

Limitations

A few limitations of this study should be acknowledged. First, categories of long-term and short-term study abroad included programs that varied in terms of location and type (e.g., service learning, language focused, faculty-led) that were not adequately accounted for due to the limited program information that was available. These variations may well exert influence on students' decisions about going abroad but this study only examined whether factors that predict study abroad differ by program duration (i.e., short-term or long-term). Second, participants in this study are not representative of all students who study abroad. However, the sample provides a more nuanced understanding of a specific cadre of students enrolled in a large, elite research university who generally tend to be highly motivated and from high socioeconomic backgrounds. Therefore, the findings cannot be generalized across all American college students who go

[5] Open Doors (2016) uses three categories of program duration: *short-term* is summer or eight weeks or less, *mid-length* is one semester or one or two quarters, and *long-term* is academic or calendar year. Following this trend, I define short-term as 2-8 weeks and long-term as one semester or more, combining the mid-length and long-term categories used by Open Doors.

abroad, particularly those who may be non-traditional students entering as transfer students. Third, study abroad participants in this study were limited to those who engaged in activities abroad for academic credit. Given that there is a growth in the number of students who participate in non-credit work, internships, and volunteering abroad (IIE, 2016), the study findings may not be applicable to students who have engaged in such experiences. Finally, and as I point out earlier, only 57% of the institutional records were matched with CIRP data because not all first-year students participated in the CIRP survey and because some responses could not be linked to institutional records due to inaccurate student information provided in the survey. This may have introduced nonresponse bias that merits future analysis that compares the characteristics of respondents and non-respondents.

Results

Sample Description

Table 2.2 summarizes descriptive statistics for all students (N=9,151) and by study abroad participation. It also presents the t-tests of mean differences for study abroad participants and non-participants within the total sample. Students who have studied abroad constitute 13% of the sample (n=1,201) and there are clear differences between the two groups. Consistent with Open Doors data, a higher percentage of the participants are women (52%) and are from high-income backgrounds (66%). There also appear to be differences between the participant and non-participant groups in terms of predispositions at the beginning of college. For instance, a higher percentage of the participant group self-reported they are likely to change their choices of career (75%) and major (68%). A larger number of participants also report strong intentions to study abroad with 92% of the group reporting they plan to study abroad as compared to 70% of the

non-participant group. Sixty-eight percent of the participant group report that improving the understanding of other countries and cultures is important while only 56% of the non-participant group perceive such goal to be important. Comparisons of college experiences also indicate some differences between groups. The average cumulative GPA at the end of first year, total number of credits and total number of language credits earned by the end of first year are slightly higher for the participant group than for the non-participant group. Nearly 80% of study abroad participants are HS students.

Table 2.2. Descriptive Statistics by Study Abroad Participation [a]

	Participants		Non-Participants		*t-test*	All students	
Outcomes							
Studied abroad						0.13	(0.34)
Will study abroad	0.92	(0.27)	0.70	(0.46)	***	0.73	(0.44)
Individual Characteristics							
Men	0.31	(0.46)	0.52	(0.50)	***	0.49	(0.50)
Under-represented minority	0.10	(0.31)	0.10	(0.30)		0.10	(0.30)
Low-income (less than $50,000)	0.13	(0.33)	0.15	(0.36)	*	0.15	(0.35)
Medium-income ($50,000-$100,000)	0.21	(0.41)	0.27	(0.44)	***	0.26	(0.44)
High-income (more than $100,000)	0.66	(0.47)	0.58	(0.49)	***	0.59	(0.49)
Parental education (college degree)	0.89	(0.32)	0.85	(0.36)	**	0.86	(0.35)
Low high school GPA (2.99 or less)	0.01	(0.10)	0.01	(0.12)		0.01	(0.11)
Medium high school GPA (3.0-3.49)	0.09	(0.29)	0.08	(0.27)		0.08	(0.28)
High high school GPA (3.5-4.0)	0.90	(0.30)	0.91	(0.29)		0.90	(0.29)
ACT score	29.19	(2.90)	29.08	(3.08)		29.10	(3.06)
Predispositions							
Diversity self-rating (scale)	4.05	(0.53)	4.00	(0.56)	**	4.00	(0.56)
Will get a job to pay for college expenses	0.77	(0.42)	0.82	(0.38)	***	0.81	(0.39)
Will work full-time while attending college	0.17	(0.38)	0.20	(0.40)	*	0.19	(0.39)
Will need extra time to complete	0.32	(0.47)	0.32	(0.47)		0.32	(0.47)
Will change career choice	0.75	(0.43)	0.62	(0.49)	***	0.64	(0.48)
Will change major field	0.68	(0.47)	0.58	(0.49)	***	0.60	(0.49)
Will socialize with other racial/ethnic group	0.98	(0.12)	0.98	(0.13)		0.98	(0.13)
Will participate in student clubs/groups	0.97	(0.18)	0.92	(0.27)	***	0.93	(0.26)
Will participate in student government	0.40	(0.49)	0.32	(0.47)	***	0.33	(0.47)
Improve understanding of other countries/cultures	0.68	(0.47)	0.56	(0.50)	***	0.58	(0.49)
High School Experience							
Performed volunteer work (high school)	0.42	(0.49)	0.41	(0.49)		0.41	(0.49)
Performed community service (high school)	0.70	(0.46)	0.71	(0.45)		0.71	(0.45)
Socialized other racial/ethnic group (high school)	0.14	(0.34)	0.15	(0.36)		0.15	(0.36)

College Experience							
Participated in learning community	0.18	(0.39)	0.12	(0.32)	***	0.13	(0.33)
Cumulative GPA end of 1st year	3.40	(0.39)	3.20	(0.55)	***	3.23	(0.54)
Total credits end of 1st year	31.05	(3.64)	29.96	(4.68)	***	30.11	(4.57)
Received for high academic performance	0.06	(0.23)	0.04	(0.19)	**	0.04	(0.20)
Total language credits end of 1st year	4.90	(4.28)	3.37	(3.92)	***	3.57	(4.00)
College: HS end of 1st year	0.79	(0.41)	0.68	(0.47)	***	0.69	(0.46)
College: Engineering end of 1st year	0.12	(0.32)	0.23	(0.42)	***	0.22	(0.41)
College: Other end of 1st year	0.09	(0.28)	0.09	(0.29)		0.09	(0.29)
Cohort 2008	0.36	(0.48)	0.32	(0.47)	**	0.32	(0.47)
Cohort 2009	0.41	(0.49)	0.27	(0.45)	***	0.29	(0.45)
Cohort 2010	0.24	(0.42)	0.41	(0.49)	***	0.39	(0.49)
Observations	1,201		7,950			9,151	

Note. * p<0.05, ** p<0.01, *** p<0.001. Asterisks indicate there is a statistically significant difference between the two group means (study abroad participant, non-participant) as determined by t-tests.
[a] This table summarizes the means and standard deviations (in parenthesis) by study abroad participation and the entire sample.

Predictors of Study Abroad Participation

I first examine results of logistic regression models that include characteristics at college entry and first year college academic experiences to identify factors that predict participation in the following types of study abroad: (1) any type, (2) long-term (one semester or more), and (3) short-term (2 to 8 weeks). Tables 2.3 and 2.4 include coefficient estimates and their respective standard errors, odds ratios, and statistics assessing the model fit. While the significant predictors are generally consistent across the three models, the results provide more detailed information regarding which factors may influence students' decisions to commit for a longer or shorter stay overseas.

Table 2.3. Logistic Regression –Model Predicting Study Abroad Participation

	Parameter Estimate	Standard Error	Odds Ratio
Constant	-5.99***	0.63	
Individual Characteristics			
Men	-0.61***	0.08	0.54
Under-represented minority	0.25	0.13	1.28
Low-income (less than $50,000) [a]	-0.11	0.12	0.89
Medium-income ($50,000-$100,000) [a]	-0.26**	0.09	0.77

Parental education (college degree)	0.00	0.12	1.00
Low high school GPA (2.99 or less) [b]	0.09	0.36	1.09
Medium high school GPA (3.0-3.49) [b]	0.22	0.14	1.25
ACT score	-0.01	0.02	0.99
Predispositions			
Diversity self-rating (scale)	0.12	0.07	1.13
Will get a job to pay for college expenses	-0.45***	0.09	0.64
Will work full-time while attending college	-0.02	0.10	0.98
Will need extra time to complete	0.01	0.08	1.01
Will change career choice	0.49***	0.10	1.63
Will study abroad	1.20***	0.12	3.32
Will change major field	-0.03	0.10	0.97
Will socialize with other racial/ethnic group	-0.35	0.29	0.70
Will participate in student clubs/groups	0.34	0.19	1.41
Will participate in student government	0.20*	0.08	1.22
Improve understanding of other countries/cultures	0.08	0.08	1.09
High School Experience			
Performed volunteer work (high school)	-0.06	0.08	0.94
Socialized other racial/ethnic group (high school)	-0.11	0.08	0.90
Performed community service (high school)	-0.20	0.11	0.82
College Experience			
Participated in learning community	0.27*	0.10	1.31
Cumulative GPA end of 1st year	0.69***	0.10	1.99
Total credits end of 1st year	0.01	0.01	1.01
Received award for high academic performance	-0.22	0.17	0.80
Total language credits end of 1st year	0.04***	0.01	1.04
College: Engineering end of 1st year [c]	-0.07	0.12	0.93
College: Other end of 1st year [c]	0.11	0.15	1.12
Cohort 2008 [d]	0.53***	0.09	1.70
Cohort 2009 [d]	0.94***	0.09	2.57
-2 log likelihood	-2574.40		
LR chi2 (Df=31)	698.58		
Pseudo-R2	0.12		
HL goodness-of-fit statistic	0.04		
Correct classification rate	65.5%		
Sensitivity	70.8%		
Specificity	64.7%		
"c" statistic	0.75		
N [e]	7,576		

Note. * p<0.05, ** p<0.01, *** p<0.001
[a] Reference group is high-income group
[b] Reference group is high high school GPA
[c] Reference group is college of HS
[d] Reference group is Cohort 2010
[e] Sample includes all students

Table 2.4. Logistic Regression – Long-term and Short-term Study Abroad Participation

	Long-term Participation			Short-term Participation		
	Parameter Estimate	Standard Error	Odds Ratio	Parameter Estimate	Standard Error	Odds Ratio
Constant	-8.81***	1.01		-6.04***	0.79	
Individual Characteristics						
Men	-0.64***	0.12	0.53	-0.59***	0.10	0.55
Under-represented minority	-0.18	0.23	0.83	0.45***	0.15	1.57
Low-income (less than $50,000) [a]	-0.46*	0.22	0.63	0.08	0.14	1.08
Medium-income ($50,000-$100,000) [a]	-0.34*	0.15	0.71	-0.18	0.11	0.83
Parental education (college degree)	0.42	0.23	1.52	-0.18	0.14	0.83
Low high school GPA (2.99 or less) [b]	0.55	0.51	1.73	-0.13	0.49	0.88
Medium high school GPA (3.0-3.49) [b]	0.09	0.23	1.09	0.29	0.17	1.33
ACT score	-0.03	0.02	0.97	0.00	0.02	1.00
Predispositions						
Diversity self-rating (scale)	0.17	0.11	1.18	0.10	0.09	1.11
Will get a job to pay for college expenses	-0.79***	0.13	0.45	-0.17	0.12	0.84
Will work full-time while attending college	-0.03	0.16	0.97	-0.03	0.12	0.97
Will need extra time to complete	0.10	0.12	1.10	-0.04	0.10	0.96
Will change career choice	0.72***	0.17	2.06	0.39***	0.12	1.47
Will study abroad	1.71***	0.23	5.52	0.95***	0.14	2.59
Will change major field	0.01	0.15	1.01	-0.07	0.12	0.93
Will socialize racial/ethnic group	-0.59	0.42	0.56	-0.26	0.38	0.77
Will participate in student clubs/groups	0.56	0.31	1.75	0.24	0.23	1.27
Will participate in student government	0.23	0.12	1.26	0.19	0.10	1.21
Improve understanding of other countries	0.07	0.13	1.07	0.11	0.10	1.11
High School Experience						
Performed volunteer work (high school)	-0.24***	0.12	0.78	0.07	0.09	1.07
Performed community service (high school)	-0.16	0.12	0.85	-0.07	0.10	0.93
Socialized racial/ethnic group (high school)	-0.14	0.17	0.87	-0.26	0.13	0.77
College Experience						
Participated in learning community	0.20	0.15	1.23	0.30*	0.12	1.35
Cumulative GPA end of 1st year	0.62***	0.16	1.86	0.72***	0.12	2.05
Total credits end of 1st year	0.03	0.01	1.03	0.00	0.01	1.00
Received for high academic performance	-0.45	0.29	0.63	-0.08	0.20	0.92
Total language credits end of 1st year	0.06***	0.01	1.06	0.04***	0.01	1.04
College: Engineering end of 1st year [c]	-0.34	0.20	0.71	0.11	0.14	1.11
College: Other end of 1st year [c]	-0.53	0.27	0.59	0.38*	0.17	1.46
Cohort 2008 [d]	2.26***	0.21	9.63	-0.30*	0.12	0.74
Cohort 2009 [d]	2.32***	0.21	10.19	0.49***	0.10	1.63
-2 log likelihood	-1212.22			-1841.65		
LR chi2	669.74			335.88		
Pseudo-R2	0.22			0.08		
HL goodness-of-fit statistic	0.68			0.36		
Correct classification rate	73.7%			62.8%		

Sensitivity	81.5%	70.6%
Specificity	73.2%	62.1%
"c" statistic	0.84	0.72
N	6,998 [e]	7,171 [f]

Note. * p<0.05, ** p<0.01, *** p<0.001
[a] Reference group is high-income group
[b] Reference group is high high school GPA
[c] Reference group is college of HS
[d] Reference group is Cohort 2010
[e] Sample includes long-term program participants only
[f] Sample includes short-term program participants only

Individual attributes. Estimates across the three models indicate that gender and income are significantly associated with participation in all types of study abroad. More specifically, men are 46% less likely to study abroad than women (odds ratio=0.54, p<0.001; Table 2.3) and similar odds ratios are associated with long-term (odds ratio=0.53, p<0.001; Table 2.4) and short-term (odds ratio=0.55, p<0.001; Table 2.4) study abroad participation. Variables related to finances are negatively associated with studying abroad, particularly for long-term. Compared to students from the high-income group, students from the low-income group are 37% less likely, and the medium-income group is 29% less likely to go on a study abroad program for a semester or longer. Further corroborating the importance of income, students who perceive higher probabilities of getting a job to pay for college expenses are 55% less likely to study abroad long-term than their counterparts who report lower chances. However, such differences between participants and non-participants are not observed for short-term study abroad programs. One other individual characteristic that appears to predict only short-term study abroad participation is underrepresented minority status; the odds of engaging in a short-term study abroad program is significantly higher for minority students (odds ratio=1.57, p<0.01; Table 2.4).

Predispositions. Two predisposition variables, an individual's subjective probability that he or she will change career choice and participate in a study abroad program, significantly and strongly predict study abroad participation in all three models. Students who think they are likely

to change their career choices exhibit a significantly higher likelihood of studying abroad (long-term and short-term) than students less likely to expect a change. Supporting prior research, intention to study abroad is a strong predictor of actual participation. Students with stronger intentions to study abroad are 3.32 times, 5.52 times, and 2.59 times more likely to participate in study abroad programs of all types, long-term, and short-term (respectively) than students reporting weaker intentions. The very high odds associated with intent to study abroad predicting long-term participation suggests that strong intentions may play an important role in pushing students to not only study abroad but to spend a longer time abroad. Finally, while prior studies have suggested that participating in student leadership activities may be a barrier to study abroad, results from this study indicate students who think they are likely to participate in student government are significantly more likely to study abroad (odds ratio=1.22, $p<0.05$; Table 2.3).

College experience. A number of first-year college experiences also appear to increase the likelihood of studying abroad. For instance, among students who participated in learning communities during their freshmen year the odds of going abroad, especially short-term, are about 1.3 times higher than students who were not part of a learning community. Cumulative GPA and the total number of foreign language credits taken by the end of the first year in college differentiate participants and non-participants in both long-term and short-term study abroad programs. For instance, a one-point change in cumulative GPA increases the odds of going abroad for a long-term by a factor of 1.86 (Table 2.4). Similarly, *ceteris paribus*, a one-credit change in the number of language credits, increases the odds of going abroad for a long-term by a factor of 1.06 (Table 2.4). Although the results are only marginally significant, compared to HS students, students enrolled in Engineering and other schools (i.e., Music, Nursing, Art & Design, Kinesiology) are less likely to participate in long-term study abroad programs. Students enrolled

in schools/colleges of Music, Nursing, Art & Design, and Kinesiology, on the other hand, are 46% more likely to participate in short-term study abroad programs than HS students (odds ratio=1.46, $p<0.05$; Table 2.4).

Assessing model fit. Given strong effects of some of the first-year college academic experiences, I conducted the likelihood ratio test to determine if adding college experience variables improved model fit. I first specified the restricted model and the unrestricted model; specifically, (1) the restricted model consisted of variables pertaining to individual characteristics, predispositions, and high school experience, and (2) the unrestricted model consisted of all the variables included in the restricted model plus college experience variables. Then, I conducted the likelihood ratio test to determine if there is a significant difference between the log likelihood of the restricted model and the unrestricted model. The result shows that the likelihood ratio test is significant, which indicates that the unrestricted model fits the data better than the restricted model (LRX^2=239.97, df=9, $p<0.001$). In other words, there is strong evidence that first year college experiences examined in this study are likely to be important factors that affect study abroad participation.

In addition, to determine the predictive accuracy of all models, a Hosmer-Lemeshow goodness-of-fit statistic and correct classification rate, and the C statistic were calculated and the results are displayed at the bottom of Tables 2.3 and 2.4. The HL goodness-of-fit statistic indicates that the all student model (Table 2.3) does not fit the data well as the test yielded a small p-value of 0.04. The models for long and short-term programs, however, have non-significant p-values from the Hosmer-Lemeshow test, indicating good model fit. The predictive accuracy of the models was also tested graphically by plotting the receiver operating

characteristics (ROC) curve. The C statistics, or area under the ROC curve are between 0.72 and 0.84, providing further evidence of good model fit.

Characteristics at College Entry Predicting Study Abroad Intent and Participation

Next, I consider if intention measured at the time of college entry is a good proxy for actual participation. Table 2.5 presents the results of logistic regressions, indicating the characteristics that are predominant predictors of study abroad intent and participation. It is clear from the results that factors predicting stronger intentions to study abroad differ from those that predict actual participation. For instance, socio-demographic characteristics appear to be more salient predictors of stronger intentions to study abroad than they are for participation. Gender and income are the only attributes that significantly predict both intentions and participation; men and students from the middle-income group have significantly lower odds of not only reporting stronger intent but also participating in a study abroad program compared to women and students from the high-income group. Students who are minorities, whose parents earned a baccalaureate degree, and those with high ACT scores are more likely to report stronger intentions to study abroad compared to those who are non-minorities, whose parents have less formal education and with low ACT scores. More specifically, being a minority or having parents who earned a baccalaureate degree increases the odds of reporting stronger intentions by a factor of 1.52 and 1.29, respectively; a one-point increase in ACT scores increases the odds of reporting stronger intentions by a factor of 1.04 (Table 2.5).

There appears to be more overlap in the student predispositions that predict study abroad intent and participation. For example, individuals who report they are more likely to change career choices or participate in student clubs or government and those who are personally invested in improving their understanding of other countries and cultures are significantly more

likely to intend and to participate in study abroad. In particular, the magnitude of the effect of student plans to participate in student clubs (odds ratio=2.58, p<0.001), and desire to improve understanding of other countries and cultures (odds ratio=2.41, p<0.001) is most potent among variables that predict study abroad intent (see Table 2.5). Students' self-ratings of their ability to tolerate diversity and self-reports that they are likely to change their majors and to need extra time to complete their degree predict intent but not participation. Students who perceive a higher probability of getting a job to pay for college expenses are less likely to participate in a study abroad program compared to students who do not report such need (odds ratio=0.67, p<0.001); no significant difference is observed in terms of their intentions to study abroad. Among the student predispositions predicting study abroad participation, the magnitude of the odds ratio is the largest for intent to study abroad (odds ratio=3.38, p<0.001) which confirms prior studies that indicate a strong correlation between intent and participation (e.g., Twombly et al., 2012). Together, these results suggest that characteristics at college entry better predict whether students plan to study abroad than whether they participate in study abroad.

Table 2.5. Logistic Regression – Characteristics at College Entry Predicting Study Abroad Intent and Participation

	Study Abroad Intent			**Study Abroad Participation**		
	Parameter Estimate	Standard Error	Odds Ratio	Parameter Estimate	Standard Error	Odds Ratio
Constant	-2.26***	0.40		-3.68***	0.56	
Individual Characteristics						
Men	-0.88***	0.06	0.41	-0.74***	0.08	0.48
Under-represented minority	0.42***	0.11	1.52	0.14	0.13	1.16
Low-income (less than $50,000) [a]	-0.28***	0.09	0.75	-0.13	0.12	0.88
Medium-income ($50,000-$100,000) [a]	-0.33***	0.07	0.72	-0.24*	0.09	0.78
Parental education (college degree)	0.25***	0.09	1.29	0.07	0.12	1.07
Low high school GPA (2.99 or less) [b]	0.13	0.26	1.14	-0.06	0.35	0.94
Medium high school GPA (3.0-3.49) [b]	0.07	0.11	1.08	0.10	0.13	1.11
ACT score	0.04***	0.01	1.04	0.01	0.01	1.02
Predispositions						

Diversity self-rating (scale)	0.12*	0.05	1.13	0.12	0.07	1.13
Will get a job to pay for college expenses	0.05	0.07	1.05	-0.40***	0.09	0.67
Will work full-time attending college	0.10	0.07	1.10	-0.08	0.10	0.92
Will need extra time to complete	0.17*	0.06	1.18	0.00	0.08	1.00
Will change career choice	0.17*	0.07	1.18	0.54***	0.10	1.72
Will change major field	0.40***	0.07	1.49	-0.03	0.09	0.97
Will socialize with racial/ethnic group	0.12	0.20	1.12	-0.30	0.28	0.74
Will participate in student clubs/groups	0.95***	0.10	2.58	0.41*	0.19	1.51
Will participate in student government	0.48***	0.07	1.62	0.20*	0.08	1.23
Improve understanding of other cultures	0.88***	0.06	2.41	0.18*	0.08	1.20
Will study abroad				1.22***	0.12	3.38
High School Experience						
Performed volunteer work	0.04	0.06	1.04	-0.07	0.08	0.93
Performed community service	-0.05	0.06	0.95	-0.13	0.08	0.88
Socialized other racial/ethnic group	-0.06	0.08	0.94	-0.21*	0.11	0.81
-2 log likelihood	-3903.64			-2696.00		
LR chi2	1116.12			458.99		
Pseudo-R2	0.13			0.08		
HL goodness-of-fit statistic	0.42			0.68		
Correct classification rate	67.3%			60.3%		
Sensitivity	67.2%			71.8%		
Specificity	67.8%			58.5%		
"c" statistic	0.74			0.70		
N	7,589			7,589		

Note. * p<0.05, ** p<0.01, *** p<0.001
[a] Reference group is high-income group
[b] Reference group is high high school GPA

Discussion

In the past decade, postsecondary institutions and third party providers dramatically expanded study abroad opportunities for college students, while advocates of international education have actively encouraged participation. Due in part to such concerted efforts, today, we see record numbers of American students studying abroad every year, but considering the entire college student population in the U.S., study abroad participation rates remain low. As such, a number of recent studies have empirically explored the obstacles to increasing

participation (e.g., Luo & Jamieson-Drake, 2014; Salisbury et al., 2009; Stroud, 2010). In doing so, researchers have frequently examined factors that influence intent to study abroad, under the assumption that an individual with a strong intent to study abroad is more likely to participate. Nevertheless, researchers have found that many students who express an interest do not follow through and take part in study abroad programs (Heisel & Stableski, 2009).

The same pattern is observed in this study; only 17% of the students who reported intentions to study abroad at the time of college entrance actually participated. Consequently, I undertook this study to better understand the relationship between intent to study abroad and actual participation using the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980) as a conceptual lens. The theory predicts that students' attitudes (beliefs about and evaluations of the outcomes they associate with participation in study abroad) and subjective norms (perceptions of the participation expectations of significant individuals in the student's life and willingness to comply with these expectations) at college entry interact to form an initial intent to study abroad. However, Ajzen (1985) would further suggest that events occur in the period between the time intentions are typically gathered in study abroad inquiries (i.e., made in the first semester of a student's first year) and when students decide whether to participate (i.e., end of first or second year of undergraduate study). Such events can trigger changes in attitudes, subjective norms and intentions, creating discrepancies between initial intentions and subsequent behavior.

The importance of first year college experiences viewed through the TRA lens suggests these experiences may be conceptualized as intervening events that interact with other student characteristics, such as socio-demographic background or interests, to alter intentions at the time of college entrance and strengthen or diminish their influence on actual study abroad participation. In this study, participation in residential learning communities significantly

increased the likelihood of studying abroad. Research on college diversity experiences indicates that involvement in living-learning communities is associated with increased engagement in diversity-related activities (e.g., Zhao & Kuh, 2004) and studies have also shown that active participation in diversity activities is significantly and positively related to intent to study abroad (Rust et al., 2007; Salisbury et al., 2009). The learning communities at this institution draw students and faculty from diverse backgrounds with common intellectual interests. As such, study findings may be conveying that an individual who participates in a residential learning community could potentially have greater exposure to diversity activities in his or her first year of college than those who do not participate. This may increase his or her interest in study abroad, a form of diversity-related experience given the opportunity to learn new languages, cultures, and ways of life. TRA might further suggest these faculty and peers constitute a key group in terms of subjective norms. On the one hand, support for study abroad among influential members of the living-learning community might strengthen intentions among those already interested in study abroad. Students with weak intentions to study abroad, on the other hand, may develop perceptions that study abroad is valued by their peer group and if they seek to comply with their peers' expectations, initial intentions may be changed toward participation.

First-year academic performance and the number of language credits taken are strong determinants of study abroad participation; namely, students who have a high cumulative GPA, and those who have completed more foreign language credits are significantly more likely to study abroad than those who have a low cumulative GPA and fewer language credits completed by the end of first year. On the one hand, this finding confirms prior reports of study abroad participants as more likely to be high academic achievers (e.g., Carlson et al., 1990; Gonyea, 2008) with high levels of language interest (Goldstein & Kim, 2006). Specifically, assuming that

the number of language credits completed reflect an individual's language interest, the greater the number of credits, the higher the interest in that language. Goldstein & Kim (2006) would suggest an individual with strong language interest might be more motivated to study abroad to improve his or her linguistic skills and TRA would suggest a student's interested in language would likely hold positive attitudes toward the study abroad experience. On the other hand, this finding might also suggest that individuals who enter college with the intent to study abroad may be aware of the eligibility requirements (e.g., minimum GPA, language fluency) of study abroad programs and plan accordingly, beginning in their first year. First year academic performance may be conceptualized as a life event that intervenes between declaration of intent to study abroad at college entry and participation at a later time point. From the perspective of TRA, it can be anticipated that for students who earn good grades, intentions to study abroad may be strongly related to participation given that they meet the basic eligibility requirements. In contrast, low grades may undermine the intention of some students as it may reduce their subjective valuations of participation. This suggests that when assessing the impact of intentions on study abroad participation, program requirements and student achievement ought to be taken into account.

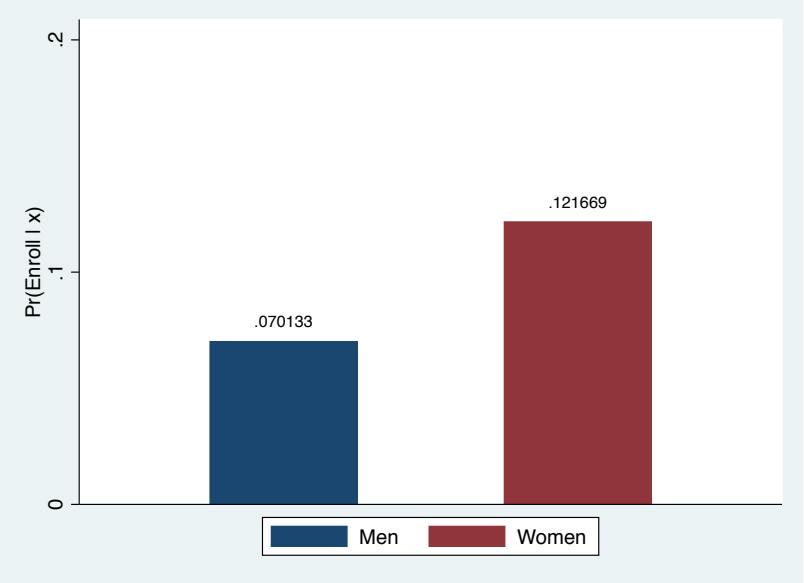
Unlike previous research on major differences in study abroad participation, I found no statistically significant differences in the likelihood of study abroad participation among students in different colleges or schools (i.e., HS, Engineering, other). However, it is worth noting that although marginally significant, HS students are more likely to engage in long-term study abroad programs than students in other colleges. This finding is understandable given that coursework required for engineering majors, for instance, is more structured and sequenced, making it more challenging for students to engage in a long-term study abroad program. Nonetheless, the fact

that engineering majors are no less likely to study abroad than humanities and sciences students overall is interesting and may in part be attributable to institutional efforts to expand the number of engineering students going abroad. For example, the College of Engineering has a dedicated study abroad office to accommodate the needs of engineering students with interests in study abroad and to design and implement programs that can more easily be structured into the engineering undergraduate requirements. Study abroad programs focused on conducting research, carrying out an engineering project, learning a theme that relates to the subject matter, or taking courses that could fulfill degree requirements at home are made available, providing much leeway for students to study abroad, and yet meet their academic requirements. Clearly, this study finds that engineering students do not appear to display lower interest in study abroad than students in other majors, which illustrates the importance of subjective norms within a college. Readily available institutional support and messages from college leaders and faculty that study abroad is an important component of preparation for a global engineering workforce appear to increase the likelihood that students will develop intentions to study abroad. In addition, removing barriers caused by inflexible curricula can potentially increase the number of engineering students who study abroad.

While I highlight predictors of study abroad participation that pertain to college experiences, it is also essential to note that study results generally confirm prior findings as regards characteristics at college entry, with a few exceptions. For example, individual socio-demographic characteristics such as gender and parental income influence whether students participate in study abroad, which accords with prior research (e.g., Carlson et al., 1990; Twombly et al., 2012). Figure 2.2 displays the predicted probabilities of men and women to participate in a study abroad program, holding all other variables in the model at their means;

men are 5% less likely to study abroad than women. Follow-up subsample analyses of men and women provide some preliminary insights to why this occurs (see Appendix 2.A2).

Figure 2.2. Probability of Study Abroad by Gender



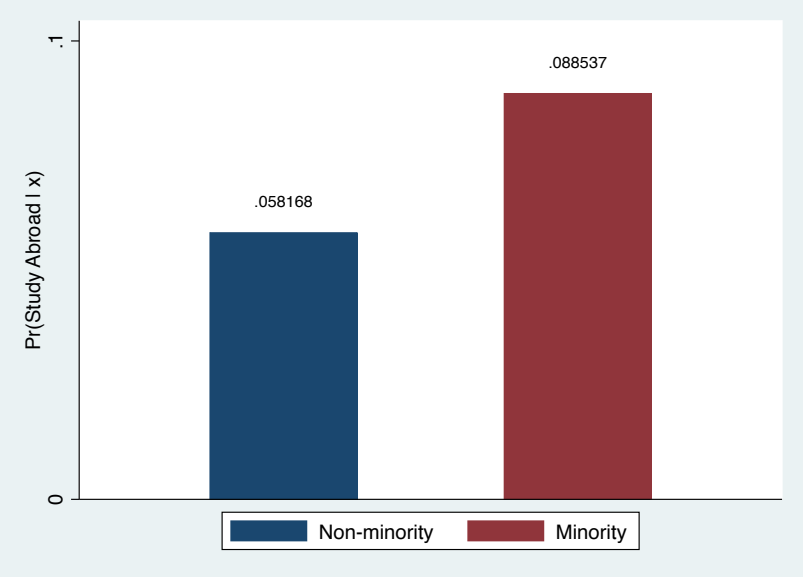
For men, characteristics such as parental income or performing community service in high school differentiate participants from non-participants while for women, there are no differences between the two groups as regards these characteristics. For women, several predispositions gauged at college entry (i.e., plans to participate in student government/clubs, personal goals to improve understanding of other cultures) enhance the likelihood of study abroad participation. For men, these same predispositions make no difference in their likelihood of studying abroad. However, first-year cumulative GPA and the number of language credits taken are positively associated with the likelihood of study abroad participation for both men and women. Together, these results suggest that male and female students differ in certain predispositions that may create variations in the attitudes and subjective norms within the two groups. TRA would argue that such differences affect the likelihood of study abroad and potentially create discrepancies in participation rates among men and women. Future research

should further examine differences in attitudes and valuations of study abroad within gender groups that may shape initial intentions but change as a result of on campus experiences.

As expected, financial status (i.e., income, likelihood of getting a job to pay for college expenses) appears to be an important factor associated with students' decisions to study abroad. Moreover, findings from the subsample analyses by program duration contribute to a deeper understanding of the role of individuals' finances in their decision to study abroad. The influence of an individual's financial resources is most potent for long-term study abroad participation. Students from low and medium-income groups are significantly less likely to study abroad for one semester or more compared to students from the high-income group. Similarly, students reporting a greater likelihood that they will get a job to pay for college expenses are less likely to engage in long-term study abroad. However, no significant differences in these financial factors are observed for short-term study abroad participation. From the perspective of TRA, student perceptions that study abroad has favorable consequences may interact with their financial situation (e.g., limited resources to pursue study abroad) or expectations of their parents (e.g., perception that study abroad is expensive) that together dissuade them from considering long-term opportunities, but perhaps allow them to consider the alternative of short-term study abroad that involves less cost. In part, this finding supports Long and associates' assertion (2010) that briefer sojourns may be the only realistic option for students with fewer financial resources. Together, the findings suggest that researchers must distinguish between long and short-term programming when estimating the impact of various factors on intent and actual participation in study abroad. Contrary to studies reporting that underrepresented minority students are broadly underrepresented in study abroad (IIE, 2016), I found that underrepresented minorities at this university are significantly more likely to go abroad for short-term than non-minorities. When I

calculated the predicted probabilities that minorities and non-minorities participate in a short-term study abroad program, I observed a 3% difference between these groups, with minorities exhibiting a higher likelihood of participating than non-minorities (Figure 2.3).

Figure 2.3. Probability of Short-term Study Abroad by Minority Status



This result, together with the previous discussion regarding the influence of financial status, seems to convey that discrepancies in study abroad participation rates created by background characteristics are more likely to be attenuated by short-term study abroad than by long-term study abroad programs. However, it is important to note that these results may also be due to the institutional context of this study. For instance, one study abroad program in this institution is a short-term program initiative that makes a concerted effort to actively recruit a wider range of participants (e.g., students from low socioeconomic status, students of color, and non-humanities/social science majors) by lowering direct costs to students. Hence, these results may be reflecting the effectiveness of such initiatives in diversifying the study abroad participants at this institution. This finding fits well with TRA in the sense that such institutional efforts can be thought of as an intervening event that affects cost-benefit analyses and influences

intentions that students initially exhibit. More specifically, a student with low aspiration to study abroad at college entry due to perceived financial constraints may learn about this short-term study abroad initiative that makes study abroad more affordable, which causes him or her to reevaluate plans for study abroad.

It is interesting to note that individuals who report greater chances of changing their career choices are significantly more likely to participate in study abroad programs. This may indicate that students with stronger career commitments have more distinct ideas about the type of curricular or co-curricular experiences they would like to engage in during college. Consistent with the idea of subjective norms proposed by TRA, if an individual chooses a career and the norms of that career do not value study abroad, for instance, then he or she is less likely to develop intentions to study abroad. In contrast, an individual who is open to different career options may be more flexible in the types of curricular or co-curricular experiences they would like to get involved in, one of which may be study abroad. What is more, study abroad may better appeal as an opportunity to improve future job prospects for students who are less set in the type of careers they want to pursue. Hence, along with program duration, institutional context in terms of financing available to students along with predominant norms regarding the importance of study abroad should be taken into account.

While some research findings suggest that student leaders or active participants in student clubs are less likely to participate in study abroad (e.g., Dessoff, 2006), findings from this study suggest otherwise. Students who report plans to become involved in student clubs and government in college are more likely to study abroad than their counterparts. This may imply that for individuals in this study, plans to get involved in other types of college co-curricular activities do not lower their interest in study abroad, even though going abroad may restrict the

amount of time available to participate in these activities. More research is needed to better understand under what circumstances student involvement in other college activities promotes or impedes study abroad participation.

High involvement in high school activities such as volunteering or service, on the other hand, appears to lower the probability of study abroad, which has been observed in other studies (e.g., Salisbury et al., 2009). However, research suggests that through high school involvement, students gain social and cultural capital (e.g., networks for acquiring knowledge, experiences and information about curricular or co-curricular activities) that inform their decisions about engagement in educational experiences in college (e.g., Astin, 1993; Walpole, 2003). Consequently, one might conjecture that frequent participation in volunteering or service learning activities would increase the likelihood of study abroad participation, rather than decrease the likelihood. Along the lines of Salisbury et al. (2009), the study results may be indicating that the type of resources students gain through their high school involvement in volunteering or service learning benefit educational experiences in college other than study abroad. TRA suggests that such participation may lead to formation of different subjective norms and attitudes that, in turn, would differentially predict the likelihood of study abroad participation. For instance, students may have developed a genuine interest in volunteering or service during high school, which would promote engagement in college experiences that would involve these components, especially given the multitude of volunteering and service learning opportunities available at this institution. It is also worth noting the growth in volunteering or service learning abroad programs that are non-credit based are not captured in this study; it is plausible that students who reported frequent participation in volunteering in high school might exhibit higher likelihood in volunteering for non-credit bearing options abroad, for instance. As

such, inquiries in the future should take into account availability of other types of co-curricular activities on-campus or abroad that may enhance or dissuade students from participating in study abroad experiences.

In light of these findings that identify predictors of study abroad participation, I considered whether or not individual attributes gauged at college entry that significantly predict study abroad participation would also predict study abroad intent measured at college entry. The study's results demonstrate that while there are factors that predict both intent and participation, a number of factors only predict intent and not participation, or vice versa. A larger number of individual background characteristics such as gender, minority status, parental income, and ACT scores predict stronger intent to study abroad but not all of them predict participation. On the other hand, students' assumptions that they will need to get a job to pay for college expenses predict non-participation, but not intentions. This suggests that intent can be moderated by the effects of factors such as student beliefs that participation may enhance employment opportunities (attitude) and parental expectations that they should participate (subjective norms) that can change in response to increased knowledge of their chosen majors and family economic circumstances, respectively. What is more, the process of planning to study abroad extends over time and may be perceived as demanding for some students (Doyle et al., 2010), which may in turn alter initial intentions to study abroad. Hence, from the perspective of TRA, study findings suggest that intervening events, such as college experiences and family circumstances, interact with other student characteristics, such as interests, to strengthen or diminish the influence of intentions to study abroad at the time of college entrance. The observed differences in the percentage of students who initially say they intend to study abroad and those who actually participate may be due to alterations in intentions that are not assessed in current research.

Finally, when study abroad intent was examined as a predictor of actual participation, results demonstrate that intent is a strong predictor of actual participation across all models, even after accounting for first year college experiences. However, study abroad intent appears to be particularly important to engagement in long-term study abroad programs; compared to students who report weaker intent to study abroad, students who report stronger intent are nearly 6 times more likely to have participated in a long-term study abroad program. These results are consistent with prior findings (e.g., Luo & Jamieson-Drake, 2014; Salisbury et al., 2009), and suggest that regardless of whether an individual actually participates or not, having an initial interest in study abroad may be a necessary but not sufficient factor to explain participation.

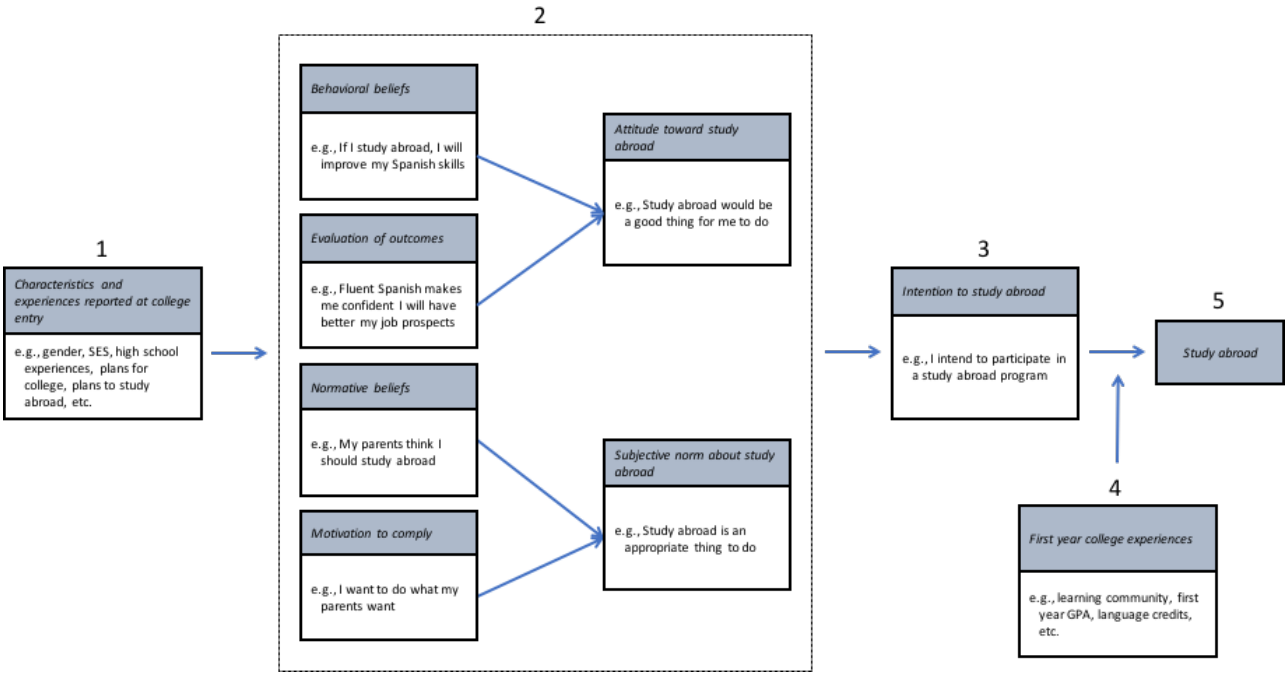
Implications for Research

Together, the findings of this study present several research implications for higher education and study abroad researchers. In light of the study results, I offer propositions regarding the study abroad decision-making process and the role of intentions in that process particularly as they relate to TRA that might be pursued in future research.

To improve understanding of the study abroad decision-making processes, more research on how intent is formulated is essential. Figure 2.4 uses TRA and Peterson's model of decision to study abroad to provide an overview of prior and current studies' approach to understanding study abroad intent and participation. The figure provides preliminary insights into important constructs that need to be considered when examining the study abroad decision making process and student information that would need to be gathered accordingly. As discussed earlier, most studies thus far, have focused on identifying *student characteristics and experiences at college entry* (#1 in Figure 2.4) that predict either *intent to study abroad at college entry* (#3 in Figure

2.4) as a proxy for participation or actual *study abroad participation* (#5 in Figure 2.4). In this study, I examined if intent to study abroad at college entry would serve as a reasonable proxy for actual participation. Results demonstrate that characteristics at college entry better predict whether students plan to study abroad than whether they participate in study abroad. In other words, the predictors of intent to study abroad may be accurate at the time of college entry, but may change over time as students become immersed in college academic and social life. Following the TRA framework, this suggests the importance of gauging study abroad intent closer to actual participation (e.g., end of first year of college) or at multiple time points to more accurately represent the relationship between intent and participation.

Figure 2.4. Constructs of study abroad intent and participation



A few studies such as Peterson (2003) or Booker (2001) have applied the TRA framework to examine determinants of the formation of study abroad intentions (#2 in Figure 2.4). Nevertheless, the evidentiary basis is weak with limited application of the model for the prediction of behavioral intentions in study abroad, and hence, lack of development and testing

of the measures that reflect the core constructs of TRA. The TRA framework would indicate, for instance, that intentions to study abroad are based on students' subjective assessments of the value of such experiences (e.g., benefits to employment opportunities), likelihood they meet requirements to participate (e.g., GPA), and perceptions of the value of influential individuals (e.g., faculty, peers) ascribe to study abroad. Improvement in measures that capture behavioral intention would provide a more accurate explanation of why students study abroad.

Another contribution of this study is the examination of the effect of *first year college experiences* (#4, Figure 2.4) in addition to *student characteristics and experiences at college entry* (#1 in Figure 2.4) on *study abroad participation* (#5, Figure 2.4). Findings suggest that future research should further examine how intervening college experiences moderate the effect of study abroad intention on subsequent participation. As stated earlier, TRA suggests life events and social circumstances can produce changes in intentions that, in turn, can create discrepancies between initial intentions and subsequent behavior. The results of this study provide some intriguing evidence that first year experiences exert a strong influence on decisions to study abroad. Building on these findings, future studies should consider ways to better and holistically account for college curricular and co-curricular experiences that affect the study abroad decision-making process. TRA, for instance, would suggest it is important to see if certain college experiences lead the students to ascribe greater or less value to study abroad and other college opportunities and campus activities that require them to remain on campus. Moreover, specific findings from my study indicate that when assessing the impact of intentions on study abroad participation, the following aspects pertaining to college experiences should be taken into account: (1) study abroad program requirements and student achievement, (2) differences in attitudes and valuations of study abroad within gender groups, (3) study abroad program

characteristics such as long and short-term duration, (4) institutional context, particularly financing available to students and predominant norms regarding the importance of study abroad, and (5) availability of other types of co-curricular activities that may enhance or dissuade students from participating in study abroad experiences.

Accordingly, collecting student data relevant to these aspects would involve interviews or questionnaires that inquire students about their specific curricular experiences, co-curricular activities, and institutional support for and requirements of study abroad programs. More specifically, aspects of curricular experiences relevant to study abroad that may be captured are student perceptions of the emphasis on international perspectives in courses offered at the university writ large and in individual school/college/department, encouragement for study abroad among faculty, staff, and peers in the college or school, and the extent to which study abroad can be integrated into general and major curricula.

Ideally, student participation data for all types of co-curricular activities on- and off-campus would help to identify which activities encourage or discourage students to study abroad (e.g., opportunities to do internships off-campus could dissuade students from study abroad). However, the diverse array of activities challenges efforts to holistically capture all student engagement and initial efforts might begin by gathering participation information on activities that may *enhance* decisions to study abroad. Some examples include, but are not limited to, student involvement in international oriented clubs (e.g., student organizations focused on language or culture of another country), volunteering (e.g., alternative spring break, service learning in local communities), or other opportunities that may not necessarily take place in a foreign country but still provide authentic intercultural learning experiences (e.g., participating in

a short-term intercultural program at New Orleans to explore how life and the arts essential to the lives of local residents changed in the aftermath of Hurricane Katrina).

Finally, information about requirements of study abroad participation (e.g., GPA, language competency, class standing, major) and the availability of institutional support for study abroad programs (e.g., number and types of programs sponsored or approved by the institution, offices and personnel devoted to study abroad program management, financial aid for study abroad participants) would need to be gathered along with student perceptions of the accessibility and effectiveness of these support services.

Implications for Practice

The presence of a gap between intent and participation suggests some implications for practice. Namely, efforts to increase study abroad participation would need to involve (1) ways to attract students who may have no interest in study abroad at initial enrollment and (2) to remove potential barriers to study abroad participation for those who initially show high intentions to study abroad. Such efforts are ongoing at the study institution and are often discussed within the best practice literature. For instance, my findings confirm that study abroad offices organizing ongoing introductory sessions targeted particularly for first-year students to raise awareness and interest at an early stage is essential. Such information sessions can help students plan to include study abroad in their coursework and with other desired collegiate experiences. From the students' perspective, it is important to be able to study abroad, yet also complete their required coursework and graduate on time. Having said this, it may also be effective for academic advisors to introduce study abroad opportunities to students, explaining how academic requirements can be fulfilled when a student chooses to go abroad. As TRA

would suggest, it is also likely that if academic advisors or faculty communicate the benefits of study abroad, students are more likely to see its value since a student's intention to perform a behavior is greater if that student perceives that others who are important think he or she should perform the behavior. Such practices may be particularly helpful for majors with less flexible curricula or with norms that do not particularly value study abroad experiences.

Second, the findings of this study are a useful resource for targeting efforts to diversify study abroad participants. Comparing results based on study abroad program duration reveals that while students from low- and medium-income groups are significantly less likely to engage in long-term study abroad, there is no difference in participation rates in short-term programs. What is more, underrepresented minorities are significantly more likely to participate in short-term study abroad programs than non-minorities. Given that it is reasonable to think engaging in a short-term study abroad program may be cheaper than engaging in a long-term program, efforts to reverse the disparities in study abroad participation could begin with designing accessible, yet high quality short-term study abroad programs. As discussed earlier, a short-term faculty-led program offered at the study institution serves as a good example. During my study timeframe, the provost's office was actively involved in this initiative to recruit a wider range of participants (e.g., students from low socioeconomic status, students of color, or non-humanities/social science majors). In other words, the goal of this initiative was to lower the "sticker price" of this program to better appeal to student groups that are less likely to study abroad. Results of this study confirms the effectiveness of such short-term initiatives to diversifying study abroad participants.

However, given the benefits of different types of study abroad programs vary (e.g., Dwyer, 2004), simultaneous efforts should be made to find ways to make long-term programs

affordable (e.g., financial aid, scholarships). For instance, identifying effective ways for study abroad officials to coordinate with financial aid officials to provide incoming first-year students with information regarding how their financial aid can be used for their overseas study has been an ongoing concern among international educators (e.g., NAFSA). This is based on the notion that student groups that are underrepresented in study abroad need to be targeted earlier on to have them consider an overseas opportunity, which otherwise may seem too expensive.

Together, these implications suggest that efforts to diversify study abroad participants should begin with understanding the behaviors, and perceptions of student groups who are likely and less likely to study abroad. For example, during this study timeframe, the engineering study abroad office began to offer subsidized summer programs, given that summer was the only realistic period that engineering students thought about incorporating an overseas experience. Nevertheless, study abroad officials also came to realize that such opportunities better appealed for early career engineering students (i.e., freshmen and sophomores) as more advanced students preferred to use their summer months to engage in technical internships relevant to their major. Hence, to increase the number of engineering students studying abroad, the engineering study abroad office targeted their efforts to having their students study abroad earlier on in their academic careers. I see in my results engineering majors are no less likely to study abroad than humanities and social sciences students overall, which may in part be attributable to such institutional efforts.

Finally, the fact that I observed differences in the factors that predict long- and short-term study abroad suggests that it would be helpful to consider other program characteristics – for example, whether a program includes service learning, is project based, faculty-led, or third party provided– to see if certain student characteristics predict participation in different types of

programs. Such understanding can inform more targeted efforts to recruit groups who are underrepresented in study abroad. Only when study abroad programs or processes are developed and improved based on knowledge of who goes abroad to pursue what type of experience, can they better accommodate the needs of students and promote their participation.

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Appendices

Table 2.A1. Variable Definitions

Variables	Definitions
Outcomes:	
Will study abroad	Student self-reported response to the question: What is your best guess as to the chances that you will participate in study abroad program (0=no to very little chance; 1=some to very good chance)
Studied Abroad	Participated in study abroad associated with academic credit during their 2nd or 3rd years (0=No; 1=Yes)
Individual Characteristics:	
Male	Sex (0=Female; 1=Male)
URM	Underrepresented minority status; Hispanic/Latinos, African-Americans, and American Indians/Alaskan Natives (0=No; 1=Yes)
Low-income	Income less than $50,000 (0=No; 1=Yes)
Medium-income	Income $50,000-$100,000 (0=No; 1=Yes)
High-income	Income more than $100,000 (0=No; 1=Yes)
Parental Education	At least one parent has college degree (0=No; 1=Yes)
Low GPA (high school)	High school GPA 2.99 or less (0=No; 1=Yes)
Medium GPA (high school)	High school GPA 3.0 – 3.49 (0=No; 1=Yes)
High GPA (high school)	High school GPA 3.5 – 4.0 (0=No; 1=Yes)
ACT score	ACT score
Predispositions:	
Diversity self-rating (Cronbach's Alpha=0.79)	Scaled variable representing students' self-rating on each of the following traits as compared with the average person his/her age: (1) Ability to see the world from someone else' perspective (factor score=0.72) (2) Tolerance of others with different beliefs (factor score=0.77) (3) Openness to having my own views challenged (factor score=0.75) (4) Ability to discuss and negotiate controversial issues (factor score=0.71) (5) Ability to work cooperatively with diverse people (factor score=0.76)
Will get a job to pay for college expenses	Student self-reported response to the question: What is your best guess as to the chances that you will get a job to help pay for college expenses (0=no to very little chance; 1=some to very good chance)

Will work full-time while attending college	Student self-reported response to the question: What is your best guess as to the chances that you will work full-time while attending college (0=no to very little chance; 1=some to very good chance)
Will need extra time to complete	Student self-reported response to the question: What is your best guess as to the chances that you will need extra time to complete (0=no to very little chance; 1=some to very good chance)
Will change career choice	Student self-reported response to the question: What is your best guess as to the chances that you will change career choice (0=no to very little chance; 1=some to very good chance)
Will change major choice	Student self-reported response to the question: What is your best guess as to the chances that you will change major choice (0=no to very little chance; 1=some to very good chance)
Will socialize with other racial/ethnic group	Student self-reported response to the question: What is your best guess as to the chances that you will socialize with other racial/ethnic group (0=no to very little chance; 1=some to very good chance)
Will participate in student clubs/groups	Student self-reported response to the question: What is your best guess as to the chances that you will participate in student clubs/groups (0=no to very little chance; 1=some to very good chance)
Will participate in student government	Student self-reported response to the question: What is your best guess as to the chances that you will participate in student government (0=no to very little chance; 1=some to very good chance)
Improve understanding of other countries/cultures	Student self-reported response to the question: Please indicate the importance to you personally of improving understanding of other countries and cultures (0= not to somewhat important; 1= very important to essential)
High school or college experiences:	
Performed volunteer work (high school)	Student self-report of having performed volunteering work (0=none to occasional; 1=frequently)
Performed community service (high school)	Student self-report of having performed community service during the past year (0=none to occasional; 1=frequently)
Socialized other racial/ethnic group (high school)	Student self-report of having socialized with someone of another racial/ethnic group during the past year (0=none to occasional; 1=frequently)
Learning community	Student participated in a residential learning community during freshman year (0=No; 1=Yes)
First year cumulative GPA	Cumulative grade point average at the end of first academic year
First year total number of credits	Total number of credits taken by the end of first academic year
Received award for high academic performance during freshman year	Student received an award for outstanding academic performance during their freshman year (0=No; 1=Yes)

First year total number of language credits	Total number of foreign language credits taken by the end of first academic year
College: HS	Enrolled in College of Humanities and Sciences at the end of first academic year (0=No; 1=Yes)
College: Engineering	Enrolled in College of Engineering at the end of first academic year (0=No; 1=Yes)
College: Other	Enrolled in College of Music, Nursing, Art & Design, Kinesiology at the end of first academic year (0=No; 1=Yes)
Cohort 2008	Fall 2008 entering cohort (0=No; 1=Yes)
Cohort 2009	Fall 2009 entering cohort (0=No; 1=Yes)
Cohort 2010	Fall 2010 entering cohort (0=No; 1=Yes)

Table 2.A2. Logistic Regression – Men and Women Study Abroad Participation

	Men			Women		
	Parameter Estimate	Standard Error	Odds Ratio	Parameter Estimate	Standard Error	Odds Ratio
Constant	-5.84***	1.05		-6.70***	0.84	
Individual Characteristics						
Under-represented minority	0.28	0.25	1.32	0.22	0.16	1.25
Low-income (less than $50,000)	-0.37	0.24	0.69	-0.01	0.15	0.99
Medium-income ($50,000-$100,000)	-0.44*	0.17	0.65	-0.16	0.11	0.85
Parental education (college degree)	0.19	0.25	1.21	-0.07	0.15	0.93
Low high school GPA (2.99 or less)	-0.45	0.76	0.63	0.30	0.43	1.35
Medium high school GPA (3.0-3.49)	0.05	0.24	1.05	0.31	0.18	1.36
ACT score	-0.02	0.03	0.98	-0.01	0.02	0.99
Predispositions						
Diversity self-rating	0.14	0.12	1.15	0.11	0.09	1.12
Will get a job to pay for college expenses	-0.37*	0.15	0.69	-0.50***	0.12	0.60
Will work full-time while attending college	0.15	0.17	1.17	-0.11	0.12	0.89
Will need extra time to complete	-0.12	0.14	0.88	0.07	0.10	1.07
Will change career choice	0.44**	0.16	1.56	0.52***	0.13	1.67
Will study abroad	1.10***	0.17	2.99	1.37***	0.19	3.95
Will change major field	-0.19	0.15	0.83	0.05	0.13	1.05
Will socialize with other racial/ethnic group	-0.19	0.40	0.82	-0.42	0.43	0.66
Will participate in student clubs/groups	-0.05	0.25	0.95	0.78**	0.30	2.19
Will participate in student government	0.17	0.14	1.19	0.22*	0.09	1.25
Improve understanding of other countries/cultures	-0.17	0.14	0.85	0.22*	0.11	1.24

Curricular/co-curricular experiences						
Performed volunteer work (high school)	-0.01	0.14	0.99	-0.06	0.09	0.94
Performed community service (high school)	-0.61*	0.24	0.55	-0.09	0.13	0.92
Socialized other racial/ethnic group (high school)	-0.03	0.14	0.97	-0.16	0.10	0.85
Participated in learning community	0.20	0.19	1.23	0.29*	0.12	1.34
Cumulative GPA end of 1st year	0.79***	0.17	2.20	0.65***	0.13	1.91
Total credits end of 1st year	-0.01	0.02	0.99	0.02	0.01	1.02
Received for high academic performance	-0.31	0.32	0.73	-0.16	0.21	0.85
Total language credits end of 1st year	0.05***	0.02	1.05	0.04***	0.01	1.04
College: Engineering end of 1st year	-0.22	0.17	0.81	0.05	0.17	1.06
College: Other end of 1st year	0.29	0.27	1.34	0.05	0.18	1.05
Cohort 2008	0.37*	0.16	1.45	0.62***	0.12	1.86
Cohort 2009	0.79***	0.15	2.21	1.03***	0.11	2.80
-2 log likelihood	-961.09			-1594.83		
LR chi2 (Df=30)	205.02			381.04		
Pseudo-R2	0.10			0.11		
N	3,736			3,840		

Note. * p<0.05, ** p<0.01, *** p<0.001
[a] Reference group is high-income group
[b] Reference group is high high school gpa
[c] Reference group is college of HS
[d] Reference group is Cohort 2010
[e] Sample includes all students

Chapter 3: The Effect of Study Abroad on Academic Performance and Interests of Undergraduate Students

Introduction

Stakeholder groups argue that U.S. higher education institutions must incorporate educational opportunities to enhance graduates' intercultural, international, and global competencies (e.g., Bennett, 2008; Horn et al., 2007; Middlehurst, 2013; Soria & Troisi, 2014). National reports (e.g., *Succeeding Globally through International Education and Engagement*, 2012) and legislative efforts (e.g., Lincoln Commission, 2005; 100,000 Strong Foundation) emphasize the importance of study abroad in preparing graduates who understand and appreciate cultural perspectives different from their own, are able to reflect critically on their own culture (Horn et al., 2007), and can communicate and engage with individuals in culturally diverse groups (Stroud, 2010). Quoting the Supreme Court (2003), Bennett (2008) asserts, "Today's global marketplace and the increasing diversity in the American population demand that cross-cultural experience and understanding [is] gained from education" (p.2). Green (2012) aptly summarizes the goals and student outcomes of such global and international education to encompass: understanding how one's culture shapes identity and perceptions; developing cultural empathy; enhancing knowledge about global issues, understanding the interdependence of individuals and nations; and applying critical thinking and principled decision-making to trans-national issues. Collectively, these multi-dimensional capacities have been generally referred to as intercultural competence (Deardorff, 2006).

Understandably, a substantial body of research has been devoted to demonstrating the positive effects of study abroad participation on the development of different aspects of intercultural competence (Engberg, 2013; Linder & McGaha, 2013; NAFSA, 2003; Vande Berg, Paige, & Lou, 2012). Notwithstanding a few exceptions, findings from these studies generally affirm study abroad as a beneficial educational activity. However, international educators have consistently found that tailoring time invested in study abroad to fit with their undergraduate careers is a salient concern among students (Brux & Fry, 2010; Van Der Meid, 2003). In other words, it is highly likely that students think about study abroad within the context of their academic plans, gauging how incorporating the experience would affect their completion of degree requirements and time to degree. Such concerns explain, in part, the inherent gap between intentions and actualization of plans to study abroad observed in prior studies (e.g., Bhandari & Chow, 2008; Heisel & Stableski, 2009) and the continuing place of study abroad at the margins of students' academic experiences. What is needed then is an improved understanding of whether study abroad participation affects more specific measures of academic performance, such as degree completion.

Several prior studies have devoted efforts to counter students' concerns about study abroad. Descriptive and analytical studies based on large research institutions (e.g., University of Minnesota-Twin Cities, University of California, San Diego, Georgia System), for instance, suggest that study abroad results in timely degree attainment (e.g., Hamir, 2011; Sutton & Rubin, 2010). However, scholars note inconsistencies in the research findings and highlight methodological issues that constrain generalizations (Anderson et al., 2006; Van de Vijver & Leung, 2009; Salisbury, et al., 2013). One of the main statistical issues inherent in estimating the effects of study abroad is selection bias. A substantial body of literature, reviewed in the

following section, suggests a wide range of factors (e.g., gender, socioeconomic status, major) that both determine decisions to study abroad and likely influence academic performance. Consequently, to obtain accurate estimates of the independent effect of study abroad, it is necessary to account for these characteristics.

In the present inquiry, I demonstrate how propensity score matching (PSM) can be used to account for the selection into study abroad when estimating the effect of participation on outcomes such as degree completion. This technique accounts for selection bias by matching study abroad participants to non-participants using the estimated probability of choosing to study abroad. PSM is a useful way to account for selection because, unlike traditional regression techniques that assume specific functional forms (e.g., linear relationships) that are often not supported in the data, it assumes a nonparametric relation between an individual's treatment status and the outcomes of interest (Dehejia & Wahba, 1999). Using survey and student records data across three cohorts of undergraduates, including information on student demographic characteristics, predispositions, college experiences, academic performance, and study abroad participation, I employ PSM to examine the effect of study abroad involvement on academic outcomes (e.g., time to degree) while accounting for specific individual characteristics and college experiences between enrollment and participation in study abroad.

Understanding the link between study abroad and academic outcomes is important for stakeholders in the higher education community for several reasons. Researchers such as Kuh et al. (2005) assert study abroad is an educational endeavor that positively contributes to retention and graduation. However, as stated earlier, many students are not willing to take the chance despite being aware of participation benefits. For example, research shows that students perceive study abroad could or will delay graduation (e.g., Carlson et al., 1990; Lucas, 2009; Shirley,

2006). They are also concerned about racial relations and safety in other countries (e.g., Stallman et al., 2010; Van Der Meid, 2003), believe they cannot afford to attend (e.g., Brux & Fry, 2010; Dessoff, 2006; Stallman et al., 2010; Twombly et al., 2012), or may think that study abroad is irrelevant to their careers (e.g., Brux & Fry, 2010; Twombly et al., 2012). Hence, more data demonstrating the impact of study abroad on outcomes that are critical and salient for students is necessary.

As indicated by national reports, less than two percent of U.S. undergraduate students participate in study abroad (IIE, 2016). If study abroad improves academic performance, then students who do not participate may be at a disadvantage. Changing student perceptions about costs and benefits of study abroad may be key to increasing participation, particularly among those who initially hold high intentions but do not go abroad. A critical first step in changing students' perceptions is estimating the extent to which participation is an advantage and non-participation is a lost opportunity.

Literature Review

This study is informed by scholarship on the decision to study abroad as well as the impact of the experience on college students' academic outcomes. Hence, I discuss prior research on (1) factors that might constitute a "selection effect," that is, influences on the decision to participate in study abroad, and (2) effects of study abroad on academic outcomes.

Predictors of Study Abroad Participation

There is a substantial body of research on the factors affecting study abroad intent and participation. A majority of these studies centers on identifying the individual demographic, social and academic characteristics (e.g., Dessoff, 2006; Institute of International Education,

2016; Lincoln Commission, 2005; Salisbury et al., 2010, 2011; Stallman et al., 2010), high school and college experiences (e.g., Rust et al., 2007; Salisbury, 2011; Salisbury et al., 2009), and predispositions or motivations (e.g., Goldstein & Kim, 2006; Rust et al., 2007; Salisbury et al., 2009; Stroud, 2010) that predict decisions to study abroad.

Individual characteristics. Investigations find that personal factors such as gender, race, or socioeconomic status play a role in students' decisions to participate in study abroad (e.g., Carlson et al., 1990; Salisbury et al., 2010; Twombly et al., 2012). For instance, prior studies and annual reports tracking the number and types of U.S. students studying abroad find that women are consistently far more likely than men to study abroad; nearly two-thirds of study abroad participants were women in each of the years from 2002 to 2015 (IIE, 2016; Salisbury et al., 2010). Salisbury et al. (2010) suggest that experiences prior to college entry and in college differentially affect the formation of study abroad aspirations among men and women, potentially creating discrepancies in participation rates between the two groups.

Records also indicate that over the past decade or so, white students were nearly four times more likely to study abroad than underrepresented minority students (IIE, 2016). This conveys that the historic underrepresentation of racial and ethnic minorities in higher education overall is reflected in study abroad as well (Twombly et al., 2012). In addition, several studies show that American students studying abroad typically come from higher income families, have more educated parents, are high academic achievers, and a high proportion of them have already been abroad (e.g., Carlson et al., 1990, Gonyea, 2008). Salisbury et al. (2009), in their analysis of data from the Wabash National Study of Liberal Arts Education based on 2,772 undergraduates from 19 different institutions, demonstrate that socioeconomic status and parental income constitute a powerful influence on the decision to study abroad.

Studies consistently find perceived constraints due to lack of finances to be negatively associated with plans to study abroad (e.g., Dessoff, 2006; Van Der Meid, 2003). For instance, a study within the University System of Georgia (Sutton & Rubin, 2010) examined the effect of financial aid on students' decision to study abroad. Findings indicate that for each $1,000 of unmet need, the probability of study abroad decreased by four percentage points. To a similar extent, Paus & Robinson (2008), in comparing study abroad participants and non-participants in Mount Holyoke College, point out that the potential opportunity costs involved due to loss of a part-time job, for instance, is an important consideration particularly for those who are from low socioeconomic backgrounds.

Nevertheless, scholars argue that it is not simply the financial costs involved but levels of social and cultural capital individuals accumulate that influence decisions to study abroad. Drawing from the college choice frameworks (e.g., McDonough, 1997; Paulsen & St. John, 2002; Perna, 2006), Salisbury et al. (2009) theorize that students from high SES families are likely to come to college with high levels of social and cultural capital or habitus. Such pre-college capital plays an important role in the development of interest in study abroad, as it creates differences among SES groups in terms of availability of information about study abroad, the perceived educational importance of participation, awareness of and interest in international events and issues, or previous travel abroad. However, the evidence supporting this perspective appears to be mixed. While some studies such as Salisbury et al. (2009) find that lower income students were indeed, less likely than higher income students to intend to study abroad, others find no significant associations between parental income or education and student intentions to go abroad (e.g., Luo & Jamieson-Drake, 2014; Stroud, 2010).

Financial constraints and lack of social and cultural capital are particularly prominent among the reasons cited for low minority student participation in study abroad (Brux & Fry, 2010; Dessoff, 2006; Stallman et al., 2010; Twombly et al., 2012). The perception that study abroad is irrelevant appears to be more prevalent among underrepresented minority students; according to Burr (2005), Hispanic students reported that study abroad was primarily for high-income students. Past studies suggest that cultural differences and lack of family support or lack of role models contributes to this belief that study abroad is not useful (Brux & Fry, 2010).

Several studies also consider the effect of high school GPA and ACT/SAT scores as proxies for knowledge or skills accumulated prior to attending college that may influence the intent to study abroad (e.g., Luo & Jamieson-Drake, 2014; Salisbury et al., 2009; Stroud, 2010). The results are mixed, however, with some studies reporting no significant effect of SAT scores on intent (e.g., Luo & Jamieson-Drake, 2014) and others such as Salisbury, Paulsen, and Pascarella (2011), indicating ACT/SAT scores predict racial and ethnic minority student interest in studying abroad.

Prior high school experiences. Research suggests that involvement in certain high school activities predict intent to study abroad (e.g., Carlson et al., 1990; Goldstein & Kim, 2006; Rust et al., 2007; Salisbury et al., 2009; Stroud, 2010). For example, Rust et al. (2007) in their analyses of the CIRP Freshman Survey show that students who in high school frequently interacted with members of racial/ethnic groups different from their own are much more likely to plan to go abroad than those who did not. In addition, students who reported that they were active participants in social, political, community, and academic activities in high school (e.g., social interaction with peers, political interest and activity, volunteerism) were more likely to report stronger intentions to go abroad than those who were less involved (Rust et al., 2007). The

authors surmise that because study abroad is about intentionally moving beyond one's comfort zone and navigating a new environment, students who are more involved in such high school activities are likely to make deliberate choices to encounter environments that require personal change and adaptation to values different from their own (Rust et al., 2007).

Other categories of high school activities have been examined and perhaps due to the different nature of the activities, studies report inconsistent results regarding the association between high school involvement and study abroad intentions. For example, Luo & Jamieson-Drake (2014) find no significant associations between their category of high school activities (i.e., volunteer work, asked teacher for advice after class, voted in a student election, used internet for research or homework) and interest in study abroad. Salisbury et al. (2009) find that their composite measure of involvement while in high school, based on student use of internet for homework or research, participation in extracurricular activities, studying with a friend, talking with teachers outside of class, participating in community service or volunteering, was negatively related with intent to study abroad.

College experiences prior to study abroad. College academic performance, as reflected by GPA, and major students choose also appear to strongly influence their proclivity to study abroad. For instance, Paus & Robinson (2008) show that students with higher GPAs are significantly more likely to study abroad; they conjecture that students with lower GPAs feel less confident about their ability to succeed abroad.

There is much more evidence showing the influence of academic major on study abroad behavior. Study abroad has historically been the domain of students in humanities and social sciences. According to the 2016 Open Doors report, 17.3 percent of all students studying abroad in 2014-2015 were social science majors, 20.1 percent business majors, and 14.6 percent

humanities and international studies majors (IIE, 2016). Nevertheless, a dramatic increase in Science, Technology, Engineering, and Math (STEM) majors over the past decade is noteworthy. STEM students comprised 16.3 percent of students abroad in 2004-2005, which more than doubled over the past decade with 23.9 percent of U.S. study abroad participants coming from the STEM fields in 2014-2015 (IIE, 2016). Even so, the number of study abroad students majoring in the STEM fields is undeniably lower than those majoring in the humanities and social science fields (e.g., Obst, Bhandari, and Witherell, 2007; Paus and Robinson, 2008; Stallman et al., 2010). Prior studies suggest lack of curricular flexibility as a major reason for low participation rates among STEM majors (e.g., Carlson et al., 1990; Twombly et al., 2012). In addition to curricular inflexibility, prior research identifies institutionally created barriers such as lack of information about study abroad opportunities (e.g. Coldwell, 2013; Brux & Fry, 2010), limited administrative and faculty support (e.g., Brown, 2002; Dessoff, 2006; Gore, 2009), ineffective marketing (e.g., Gore, 2005), and scarcity of resources (e.g., Salisbury et al., 2011) to be deterrents to study abroad plans.

Results based on a small body of research suggest extracurricular involvement and campus practices that facilitate diverse interactions are strong predictors of intentions to study abroad. For instance, Salisbury et al. (2009) based on estimates derived from logistic regressions found that the amount and quality of diverse experiences (e.g., how often a student participated in a racial or cultural awareness workshop during academic year, how often a student had serious conversations with students of a different race or ethnicity) and the number of hours per week a student spends participating in co-curricular activities significantly increased the probability students plan to study abroad. The authors posit that such diversity experiences provide a means to accumulate social capital (i.e., awareness and access to resources, networks, timelines,

processes about study abroad) and cultural capital (i.e., values, attitudes, and beliefs that emphasize the importance of study abroad) that result in study abroad intentions. Such findings fit with research examining the effect of college diversity experiences in general (e.g., Bowman, 2012; Bowman et al., 2011; Gurin, 1999). For example, Bowman (2012) reports that students' engagement with diversity experiences during their first year are associated with increased involvement in diversity-related activities in their subsequent years in college.

Motivations and predispositions. Several researchers note that study abroad participants and non-participants exhibit different predispositions and motivations. Findings indicate that students who want to expand their understanding of other cultures and countries more likely aspire to study abroad (Dessoff, 2006; Luo & Jamieson-Drake, 2014; Stroud, 2010). Based on a survey of 179 undergraduates at a small liberal arts college, Goldstein & Kim (2006) conclude that compared to non-participants, participants held more positive expectations (e.g., participating in an international study program would build my self-confidence) about study abroad, were less ethnocentric, and less racially biased. In a similar vein, Van der Maid (2003) in his study based on a survey of 153 Asian American students from across the United States finds that Asian American students who study abroad are more adventurous and motivated compared to their non-participant counterparts. Several studies also find that in contrast with non-participants, study abroad participants show higher levels of cross-cultural interest (e.g., Bates, 1997; Carlson et al., 1990). For example, Bates (1997), in her dissertation study of 49 undergraduates who qualified to be participants in the Honors International Program at a public university in South Carolina, found that 14 study abroad participants, compared to 35 non-participants, were more interested in experiencing other cultures and were concerned about international issues. Li et al. (2013) in their study of 431 survey participants enrolled in an

Introduction to Psychology class find that personality traits such as desire to work hard and to do things well (achievement motivation), appreciation for and/or a desire to have new experiences (neophilia), and tendencies to be highly mobile (migrant personality) are positively associated with intentions to study abroad.

Prior research on goals for studying abroad indicates that students go abroad to improve their foreign language skills based on the belief that immersion in the host culture will facilitate improved linguistic ability (Allen, 2010). Students may also choose to study abroad in hopes of gaining cultural knowledge (Goldstein & Kim, 2006), or to improve their future job prospects (Dessoff, 2006; McKeown, 2009; Relyea et al., 2008). Perhaps contrary to the primary objectives of study abroad proposed by international educators, such as developing intercultural competencies or preparing to live in a global and diverse world, many studies indicate that one of the strongest influences on students' interest in studying abroad is a desire to have fun (e.g., Forsey et al., 2012; He & Chen, 2010). For example, a University of Western Australia study based on surveys and focus group interviews of study abroad participants shows that many prioritize having fun, traveling, making friends, and getting a break from serious work (Forsey et al., 2012).

Most importantly, intent to study abroad has been found to be a strong predictor of actual participation (Goldstein & Kim, 2006; Luo & Jamieson-Drake, 2014). For instance, Luo & Jamieson-Drake (2014) in their study of three student cohorts from 2009 to 2011 at a medium-sized, private, highly selective research university demonstrate that entering students with a strong intent to study abroad are significantly more likely to participate than their peers with a weak intent. Estimates derived from logistic regressions suggest that the odds of going abroad are about 4.77 times greater for students with a strong intent. Nevertheless, the same study also

finds that an increasing number of students who planned to study abroad upon college entry did not participate in study abroad. This may be an indication that although research on the factors affecting plans to study abroad provides important insights regarding who is more likely to study abroad, it fails to capture key factors that may account for the gap between intent and actual engagement (Heisel & Stableski, 2009). For instance, research identifying barriers to study abroad participation suggests that despite strong intentions to study abroad, student leaders, athletes, and club members might find it more difficult to get away from campus (Dessoff, 2006; Silver, 2012).

To summarize, the literature on the factors that affect study abroad intent and participation suggests a host of student background characteristics (e.g., gender, race/ethnicity, academic achievement, socioeconomic status), goals (e.g., to improve linguistic ability, to gain cultural knowledge), predispositions (e.g., interest in understanding other cultures, intentions to study abroad), and engagement in high school/college activities (e.g., academic major, interactions with students of another racial/ethnic group, volunteering, community service, learning communities, diversity courses) predict decisions to study abroad. These factors constitute a "selection effect" that needs to be taken into account when estimating the independent effect of study abroad on participation outcomes.

Study Abroad and Educational Outcomes

Early research on education abroad assessment focused attention on gains in students' knowledge or skills in a single learning domain, namely second-language learning (e.g., Engle & Engle, 2004; Milleret, 1990; Segalowitz et al., 2004). More recent studies have expanded the focus to include general academic outcomes such as graduation rates (e.g., Hamir, 2011; Sutton & Rubin, 2010), grade point average (e.g., Posey, 2003; Thomas & McMahon, 1998), or

increased engagement in other educationally beneficial college experiences (Gonyea, 2008). However, due to methodological and analytical weaknesses, extant empirical research provides little evidence to back up the claim that study abroad improves students' academic outcomes. Among the specific concerns are sampling issues (Salisbury, et al., 2013; Tarrant, et al., 2014; Sutton, Miller & Rubin, 2007), failure to control for factors other than program participation that may affect outcomes (Salisbury et al., 2013), and overdependence on cross-sectional designs and student perception data (Tarrant et al., 2014).

Graduation outcomes. The often-heard concern on the part of students and parents is that studying abroad may delay graduation (Ingraham & Peterson, 2004). However, findings mostly from unpublished dissertations based on single-institution studies conducted at large, public research universities indicate that study abroad does not negatively impact time to degree or graduation rates. For instance, in her study of students enrolled in a large, northeastern research university, Flash (1999) finds no significant difference in time to degree completion between study abroad participants and non-participants. Hamir (2011) and Sutton and Rubin (2010) also show that study abroad does not delay time to degree in their respective studies of first time freshmen at the University of Texas and participants in the Georgia Learning Outcomes of Students Studying Abroad Research Initiative (GLOSSARI) project. Specifically, participation in study abroad increased a participant's likelihood of graduating in four years by 14 to 16 percent.

Posey (2003) finds that study abroad participants generally graduate at a higher rate than non-participants. Similarly, Hamir (2011) provides some evidence that study abroad participation positively affects graduation rates of minority students, a finding consistent with those studies that convey a potential link between retention and study abroad (e.g., Day-Vines et al., 1998;

Malmgren & Galvin, 2008; Metzger, 2006; Pascarella et al., 2004). For instance, Day-Vines et al. (1998) show that African American students who participated in study abroad programs reported increased academic achievement and motivation post-study abroad, demonstrated through their greater involvement in intellectual activities and improved GPAs.

In sum, research shows no clear negative effect of study abroad on graduation measures; rather, study findings point to positive effects of study abroad with participants taking less time to graduate than those who did not go abroad. Nevertheless, Ingraham and Peterson (2004) and a number of other researchers (Malmgren & Galvin, 2008; Posey, 2003) express a note of caution when interpreting these results, pointing out that a host of other factors, in addition to study abroad, could potentially affect rates of graduation. Therefore, the relationship between study abroad and graduation measures may be equivocal.

Grades. Only a limited number of studies examine the effects of study abroad participation on college grade point average (GPA) which may be in part due to the challenges involved in translating the host institution's grading scheme to the student's home institution's scale (Merva, 2003). Thomas & McMahon's (1998) study is one of only a few that examines the relationship between pre-departure GPAs and grades attained during the study abroad year. Analysis of student records of 1,600 University of California study abroad participants on year-long programs indicated that pre-departure GPAs are strongly correlated with GPAs during the study abroad year. Posey (2003) simply compares average GPA scores of study abroad participants and non-participants and finds that the former group maintained a higher GPA. Sutton & Rubin (2010), on the other hand, examine change in average GPAs for students who studied abroad and for a comparison group in the same period. Consistent with Posey (2003), they find that study abroad participants maintained higher GPAs before and after study abroad

and showed a slightly larger increase in GPA points compared to non-participants. Moreover, within the group of study abroad participants, researchers find that the later a student studies abroad, the less the disruption of his or her final GPA (Sutton & Rubin, 2010).

However, Posey (2003) accurately points out that it is not possible to make a conclusive statement that study abroad is the cause of higher GPA due to an abundance of confounding variables. In particular, the issue of self-selectivity in the application process to study abroad and the eligibility criteria for studying abroad set by program administrators can result in relatively higher GPAs among study abroad participants (Hadis, 2005).

Student engagement. The voluminous research on college student development indicates that student involvement in high impact educational practices are the best predictors of learning and personal development (Astin, 1984; Kuh et al., 2005; Pascarella & Terenzini, 1991). Astin's theory of involvement (1984) posits that student involvement is the time and effort students devote to a particular academic experience. If the activity a student engages in leads to gains in the desired learning, it is more likely he or she will achieve desired outcomes. Astin (1984) further postulates that learning is directly related to an educational activity's capacity to increase student involvement (Astin, 1984). Building on Astin's theory (1984), Kuh et al. (2005) use National Survey of Student Engagement (NSSE) data to identify clusters of educational practices that promote student involvement in activities that are associated with degree completion. The clusters of effective education practices include academic challenge, active and collaborative learning, student interactions with faculty members, enriching educational experiences, and supportive campus environment. Study abroad is among the enriching educational experiences, which also include internships or field experiences, community service or volunteer work, foreign language coursework, independent study or self-designed major, co-

curricular activities, and a culminating senior experience. A few researchers have used the concept of student involvement to understand the effects of study abroad participation on student outcomes, testing the assumptions that study abroad is related to growth in intercultural competencies (Stebleton et al., 2012) and greater involvement in other aspects of the college experience (Gonyea, 2008; Rust et al., 2007).

Stebleton et al. (2012) use the Student Experience in the Research University (SERU) survey based at the University of California, Berkeley to examine the relationships between different types of travel and study abroad experiences (i.e., formal study abroad programs, travel abroad for service, volunteering, and work experience, travel abroad for informal education, travel abroad for recreation) and students' global and intercultural competencies. Their findings suggest that participating in formal study abroad opportunities contributes significantly to an increase in students' understanding of the complexities of global issues, application of disciplinary knowledge in a global context, linguistic or cultural competency in another language, ability to work with people from other cultures, and comfort working with people from other cultures. They also show that traveling abroad for service learning, volunteering, or work experience is significant to the development of students' cross-cultural interpersonal skills, providing additional support to Kuh et al. (2005)'s inclusion of internships, field experiences, and community service or volunteer work as high-impact educational practices. Gonyea (2008), using longitudinal NSSE data, finds that those seniors who have participated in study abroad report significantly higher levels of engagement in reflective learning (e.g., applying concepts to practical problems), integrative learning (e.g., including diverse perspectives in class discussions or writing assignments), and diversity experiences on campus (e.g., having serious conversations with students of a different race or ethnicity).

Interest in international affairs. Academic outcomes other than graduation, grades, or engagement have been given less attention in the research literature on study abroad. The few studies that examine other outcomes have focused on changes in academic interests or behavior subsequent to the study abroad experience (e.g., Carlson et al., 1990; Dolby, 2004, 2007; Gonyea, 2008; Hadis, 2005; Rowan-Kenyon & Niehaus, 2011; Vande Berg, 2007).

Based on a survey of New Jersey college students who studied abroad between Fall 1997 and Summer 2002, Hadis (2005) shows that study abroad participants perceive their international experience contributed to their increased curiosity and interest in academic matters upon their return. Findings from the multi-national Study Abroad Evaluation Project (SAEP) conducted by Carlson et al. (1990) indicate that students who study abroad are more interested in international affairs after this experience. This result has been supported by a number of recent studies that demonstrate study abroad participants show greater interest in international economic, political, and cross-cultural issues (e.g., Paige et al., 2002; Ryan & Twibell, 2000) and stronger commitment to peace and international cooperation (e.g., Gary et al., 2002; Nesdale & Todd, 1993). While these findings generally convey that students exhibit higher academic interest upon their return from study abroad, they are based on self-reported student surveys and lack data that track actual alterations in academic behavior such as change in major or change in course taking patterns.

Limitations of Prior Research

The literature suggests that, overall, study abroad participation is positively associated with academic outcomes. Nevertheless, even the most extensive efforts to demonstrate the effect of study abroad participation on academic and intercultural outcomes suffer from a number of weaknesses. First, with the exception of those inquiries that utilize graduation measures or

grades, study abroad impact studies examining academic outcomes have been primarily based on self-reported student surveys. In other words, research that includes a behavioral component such as completing a major or minor, course taking patterns, or actual engagement in curricular or co-curricular activities is limited. Deardorff (2006), in her discussion of the construct of intercultural competence, states that the concept not only includes student attitudes or perceptions but also specific behaviors such as communicating appropriately and effectively in intercultural situations. The same argument applies to academic outcomes; an exclusive focus on student reports of their attitudes or perceptions toward academic interests, trajectories, or activities may provide only a partial picture of relevant student outcomes.

Furthermore, a number of studies such as Salisbury et al. (2009, 2010, 2011) and Stroud (2010) do not examine students' actual participation in study abroad but rather use study abroad intent as a proxy. As noted earlier, this may pose as a limitation to accurately gauging the effects of study abroad, given that not all individuals who express an intention toward a particular behavior actually engage in that behavior (Heisel & Stableski, 2009; Luo & Jamieson-Drake, 2014). Hence, to understand the impact of study abroad this study attempts to address this limitation of prior research by focusing on the performance and behaviors associated with the academic trajectories of study abroad participants and non-participants.

Second, as stated earlier, it is unclear how much of the relationship between study abroad participation and academic outcomes that is estimated in prior studies reflects the actual effect of study abroad and how much is due to confounding factors such as personal characteristics or general college experiences that are known to affect both study abroad participation and academic performance. It is important to note that study abroad participation in most cases is optional, and therefore, students are not randomly selected. As one can speculate, a host of

factors such as individual characteristics, predispositions, and prior high school and college experiences are associated with students' interest in study abroad. As a result, it is possible that, on average, students who do and do not study abroad comprise dissimilar groups with different levels of educational preparation and aspirations and experience college in different ways.

Therefore, when studying the effects of study abroad involvement on academic outcomes, statistical techniques should be employed that address the non-random distribution of student participation. However, most prior research including some of the large-scale studies such as the Study Abroad Evaluation Project (Carlson et al., 1990), the Georgetown Consortium Project (Vande Berg et al., 2009), and the GLOSSARI project (Sutton & Rubin, 2010) are based on ordinary-least squares (OLS) or logistic regression analysis, which are likely to be ineffective at equalizing dissimilar groups through covariance adjustment (Guo & Fraser, 2009; Reynolds & DesJardins, 2009). Consequently, these regression-based estimates of the effect of study abroad on academic and intercultural outcomes may, depending on the outcome, contain considerable bias by overestimating or underestimating its effect. To more accurately estimate program impact, a few recent studies such as Salisbury (2011) employ quasi-experimental statistical approaches to estimate the causal effect of study abroad participation. The present study follows this trend to account for issues of endogeneity. Specifically, the research question of this study is: After accounting for differences in individual characteristics prior to college entry and first year college experiences, does study abroad affect participants' academic performance and interests?

Methods

Data Source and Sample

The data for the study are drawn from multiple sources gathering information about three cohorts of undergraduates at one large research university in the mid-west. The university is known for its active engagement in international initiatives as reflected in the large number of students studying abroad, a strong presence of international students on-campus, and availability of many academic programs focused on world regions and global themes. In particular, more than 200 study abroad programs are available to students.

Specific data sources of the study include: (1) institutional records capturing students' background characteristics and their academic pathways, (2) CIRP Freshman Survey data administered at college entry, and (3) Open Doors data tracking study abroad participants. I collected institutional data over the course of students' entire academic careers including demographic information, high school GPA, SAT/ACT scores, course registration information (number of credits, course information, and grade point averages each term), major/minor declaration, and degree completion records. CIRP Freshman Survey data provided information on incoming first-year students' demographic backgrounds, predispositions and college expectations. Finally, Open Doors data accurately identified students who participated in study abroad. I combined these three data sources to create a unique longitudinal data set that can be used to examine how study abroad participation impacts college success such as degree completion.

Institutional records were available for 18,299 new freshman students who entered college directly from high school in the Fall 2008, Fall 2009, or Fall 2010. I matched these records with CIRP Freshmen Survey data using student identification numbers; however, only 57%

of the records were ultimately matched because (1) survey participation was voluntary and not all freshmen completed it and (2) a number of students did not report their student identification numbers or provided incorrect information that prevented linking their survey data to institutional records. I selected the Fall 2008, Fall 2009, and Fall 2010 student cohorts to examine predictors of study abroad participation associated with academic credit (credit-bearing) during academic years 2010-2011 (from Fall 2010 to Summer 2011) or 2011-2012 (from Fall 2011 to Summer 2012) (see Table 3.1). As a result, for the cohorts 2008 and 2010, one year of study abroad participation data was included while for the cohort 2009, two years of participation data was included. I selected these cohorts and the study abroad participation time periods based upon input from administrative personnel from study abroad offices at the university. They indicated that beginning in 2010, the study abroad data collection process became more systematic and reliable.

Since a majority of students go abroad during their sophomore and junior years (IIE, 2016) due to basic program eligibility requirements that make participation among freshmen very unusual during the study timeframe, I only considered those students who participated in study abroad during their second or third years at the university (as shown in Table 3.1). Hence, students with credit-bearing study abroad experiences prior to the 2010-2011 and 2011-2012 academic years were excluded from the sample. In addition, I sampled only domestic students given that for international students, pursuing a degree in the U.S. is already a form of study abroad. Finally, I only considered graduates to examine degree outcomes such as time to degree or completion of a major with international theme. The selection criteria resulted in an effective sample size of 7,718 students, of which 1,151 (15%) participated in study abroad. This

participation rate is nearly identical to the percentage of U.S. bachelor's students who studied abroad during their degree program (15.1%) in the 2014-15 academic year (IIE, 2016).

Table 3.1. Sample Cohorts

2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
Cohort 2008 (1st yr)	Cohort 2008 (2nd yr)	Cohort 2008 (3rd yr) – Study abroad	Cohort 2008 (4th yr)		
	Cohort 2009 (1st yr)	Cohort 2009 (2nd yr) – Study abroad	Cohort 2009 (3rd yr) – Study abroad	Cohort 2009 (4th yr)	
		Cohort 2010 (1st yr)	Cohort 2010 (2nd yr) – Study abroad	Cohort 2010 (3rd yr)	Cohort 2010 (4th yr)

Measures

The definitions of variables used in this study are summarized in Appendix 3.A1. I selected these variables based on prior research that examines factors that predict study abroad participation and that effect academic outcomes. I constructed multiple models to account for differences in outcomes and their covariates. In this section, I provide details of all variables used in the study; while I included some variables in all models, others I included only in one or two of the models (See Appendix 3.A2 for list of covariates included in models pertaining to each outcome).

Outcomes. My research question asks whether study abroad participation affects an individual's graduation behavior and academic interest in international issues. I measure degree outcomes with three variables: (1) a continuous variable of time to degree (years), (2) a dichotomous indicator variable for whether an individual completed his or her degree in four years (1=Yes), and (3) a continuous variable of total number of credits earned in college to capture the academic intensity of an individual's coursework. If students are reaching their milestone of graduation, the total credits earned to graduate may have fewer implications.

However, I consider this outcome to gain preliminary insights into whether treated and untreated individuals exhibit different academic behaviors (e.g., Compared to non-participants, do study abroad participants earn a greater or smaller number of credits prior to graduation?).

To examine interest in international affairs, I generate two measures as approximate proxies[1]: (1) a dichotomous variable for whether a student completed an International Studies major, and (2) a dichotomous variable for whether a student completed a major with international/global/language theme (e.g., Asian Studies, French, Hebrew & Jewish Studies).[2] I only consider completion in majors rather than minors under the rationale that completing a major should reflect more commitment, interest, and accrual of knowledge on the topic of the major because requirements for completing a major are much more rigorous than completing a minor. Furthermore, I only examined these outcomes for College of Humanities and Sciences (HS) students because very few students in the College of Engineering complete the international related major that is comprised of courses primarily offered in the HS. This is expected, given that the engineering curriculum is less flexible and does not readily accommodate double majors in different fields of study. On the campus where I conducted this study, engineering students with interests in international affairs mostly choose to complete an engineering international minor that is tailored to fit within the engineering curriculum. Moreover, the engineering minor requires students to have an overseas experience that, by definition, precludes examination of the

[1] It is important to note that examining student majors patterns is complex. Some of the issues include, but are not limited to: (1) the number of factors that exert influences on an individual's decision to choose a major (e.g., GPA, academic interest, future job prospects, influence of faculty and peers, prior coursework) which cannot be fully captured by the study data, and (2) the fact that students can declare a major or minor at any point in time during the academic year, which introduces issues of reverse causation given that students' decision to declare a major may precede study abroad participation. With these limitations in mind, I use completion of majors related to international affairs as rough estimates for an individual's interest in the topic and commitment to accrue certain set of related skills and knowledge.

[2] I developed this category of majors by identifying all majors with a foreign language requirement. For the full list of majors, please see Appendix 3.A3.

causal relationship between study abroad participation and interest in international affairs. HS majors with international/global/language theme, on the other hand, recommend but do not require students to study abroad. Accordingly, I generated outcome variables related to completion of majors with international emphasis for sub-sample analyses of HS students only. However, it is important to acknowledge that some individuals may have chosen an international related major prior to studying abroad, creating an issue of reverse causation. To best address this issue, I excluded from the HS sub-sample, individuals who declared these majors at the end of their first academic year.

Treatment. The study's "treatment" is participation in study abroad during a student's second or third academic years. This measure is a binary indicator where 1 represents participation in a study abroad program associated with academic credit (credit-bearing) during their second or third years (2010-2011 or 2011-2012 academic years)[3]; 0 represents the student did not participate in a credit-bearing study abroad program.

Covariates. I selected the explanatory variables based on inquiries into factors associated with study abroad participation and degree completion. Variables representing *individual characteristics* consist of factors that predict both students' decisions to study abroad and their academic achievement. I derived these variables mostly from the institutional records. I include binary variables representing gender (1=Men) and underrepresented minority status (1=Yes). I combined racial and ethnic groups categorized as Hispanic/Latinos, African-Americans, and American Indians/Alaskan Natives to create a binary variable indicating underrepresented minority status (1=Yes). I also created binary variables indicating parental education and income. As for parental education, I used father's education and mother's education provided in the

[3] Types of study abroad programs varied in terms of location and type (e.g., service learning, language focused, faculty-led) but other than program duration, program characteristics were not adequately accounted for due to the limited program information available.

institutional records and CIRP data to flag cases where at least one parent had a college degree or higher. I derived parental income from a CIRP variable that categorized income using a 14-point scale; I recoded these income categories into low-income (less than $50,000), medium-income ($50,000-$100,000), and high-income groups (more than $100,000). Finally, I included three binary variables of high school GPA (low: 2.99 or less, medium: 3.0-3.49, high: 3.5-4.0) and a continuous variable of ACT scores as proxies for students' pre-college knowledge, skills or abilities. I converted SAT scores provided in the institutional records to an ACT metric.

I drew variables representing *student predispositions and intentions at college entry*, such as self-reported competencies, importance of goals or values, and probabilities they would engage in particular college experiences (intentions) from the CIRP survey. In the CIRP survey, items capturing these categories utilized four-point scales (intentions: no chance, very little chance, some chance, very good chance; goals: not important, somewhat important, very important, essential) except for self-ratings of one's competencies, which employ a five-point scale. I converted four-point scale items asking about goals and intentions into binary variables with 0=no to very little chance/not to somewhat important, and 1=some to very good chance/very important to essential.

I included a binary variable indicating the personal importance of improving one's understanding of other countries and cultures as prior studies show that such a tendency significantly predicts intentions to study abroad (e.g., Luo & Jamieson-Drake, 2014; Stroud, 2010) and may relate to students' decisions to pursue a major with an international theme. In addition, I utilized nine binary variables asking: what is your best guess as to the chances that you will (1) change major field, (2) change career choice, (3) work full-time while attending college, (4) need extra time to complete degree requirements, (5) get a job to help pay for college

expenses, (6) participate in student government, (7) participate in student clubs or groups, (8) participate in a study abroad program, and (9) socialize with someone of another racial/ethnic group. While having to work full-time or getting a job to pay for college expenses are identified as financial barriers (e.g., Paus & Robinson, 2008), needing extra time to complete degree requirements, changing major fields or career choices are identified as curricular features that can not only deter study abroad participation but also delay graduation (e.g., Twombly et al., 2012). The study abroad literature suggests that student leaders or active participants in student clubs are less likely to participate in study abroad (e.g., Dessoff, 2006) while the college retention literature indicates these activities are proxies for student involvement that predict favorably to academic outcomes (e.g., Astin & Oseguera, 2005; Berger & Milem, 1999). Hence, I included variables capturing students' self-assessed probabilities that they will participate in student government or in clubs.

Since some researchers find that strong intentions to study abroad predict actual participation (e.g., Luo & Jamieson-Drake, 2014), I included a variable indicating students' intentions to study abroad. Prior research also indicates that predispositions toward openness to diversity and interest in cross-cultural and racial understanding increase the likelihood of studying abroad (e.g., Rust et al., 2007; Salisbury et al., 2009). It is also reasonable to think that such predispositions may increase the likelihood of completing a major with an international component. Therefore, I included plans to interact with someone who is racially/ethnically different and perceived importance of improving cross-cultural understanding.

I created a scaled variable representing student self-perceptions of his or her ability to work effectively in multicultural settings (diversity rating) through a series of exploratory principle component factor analyses and varimax rotation (alpha reliability=0.79). Specific

survey items were: (1) ability to see the world from someone else' perspective, (2) tolerance of others with different beliefs, (3) openness to having my own views challenged, (4) ability to discuss and negotiate controversial issues, and (5) ability to work cooperatively with diverse people.

I included a set of variables representing actual behaviors during the last year of high school and first year of college because they are known to affect decisions to study abroad as well as timely degree completion. One is a binary variable drawn from the CIRP survey indicating student self-reports of the extent (0=none to occasional, 1=frequently) to which she socialized with someone of another racial and ethnic group during their final year in high school. Other variables that I created from institutional records capture college experiences. To account for the discrepancies in study abroad participation and graduation rates by academic major, I formed three variables indicating school or college of enrollment at the end of the first academic year; namely, (1) Humanities and Sciences (HS), (2) Engineering, and (3) Other (i.e., Music, Nursing, Art & Design, Kinesiology).[4] I created total number of credits taken and cumulative grade point average at the end of the first academic year given that prior research indicates high academic achievers are more likely to study abroad and study abroad application processes often require students to have a minimum number of credits and GPA. High first year academic performance is also predictive of positive academic outcomes (e.g., DesJardins et al., 1999). Another indicator for high academic performance that I included is a binary variable flagging

[4] School or college of the student may change over his or her academic career given that some students change majors or are admitted to and begin a program after their first year (e.g., business, public policy, information). As such, school/college variable is the best estimate of students' affiliation gauged at the end of their first academic year, which may differ from their school/college affiliation when they graduate. However, analyses of students' affiliation at graduation indicate that most students remained in the school/college they were affiliated with at the end of their first academic year. Specifically, among students in the Engineering school at the end of year one, 90% graduated with an engineering degree. Among students in HS, 90% graduated with a BA or BS degree, indicating that their school/college affiliation mostly did not change.

those students selected to receive a prize awarded to first-term freshmen who rank in the upper five percent of their class within their school or college.

Living-learning communities involve a residential component designed to offer more intentional and structured curricular and co-curricular experiences and often revolve around a theme (Bowman, 2012; Rocconi, 2011). They have been associated with a wide range of educational outcomes, including higher persistence and graduation rates (Johnson et al., 1998; Knight, 2003), more openness to diversity (Pike, 2002), and increased engagement in diversity-related experiences (Zhao & Kuh, 2004). At the institution of this study, eight learning communities[5] are available for freshmen but due to their popularity among incoming students, admission into these programs is selective and space is limited. All new, first-year students have an opportunity to apply up to two of the learning communities; they submit an application that includes an essay about their interests in a particular program. Students are admitted to a program based on the fit of their interests with the themes of the learning communities. I created a binary variable representing participation in living learning communities.

According to Kim & Goldstein (2005) and Goldstein & Kim (2006), high levels of language interest predict intentions to study abroad. Allen (2010) also points out that language learning is a strong motivation for students. As such, I utilized a variable representing the total number of language credits taken by the end of the first academic year. It is also reasonable to think that students who have earned more language credits are more likely to complete a major with a language requirement than students who have completed a lower number of language credits by end of their first year.

[5] The theme of the eight learning communities are: health sciences, arts, research, science and engineering for women, writing and arts, community service, honors program (HS only), and residential college (HS only)

Finally, I included three binary variables indicating students' initial year of entry (i.e., cohort 2008, cohort 2009, cohort 2010) to control for potential cohort effects.

Empirical Approach: Propensity Score Matching

The goal of the study is to determine the impact of study abroad participation on students' academic interests and performance. In an effort to make causal attributions, I employ the quasi-experimental technique of propensity score matching (PSM). In this section, I first discuss the counterfactual framework, which forms the conceptual grounding of PSM, and then explicate the PSM approach in this study.

Counterfactual framework. Without the option of a randomized controlled trial, individuals must be stratified into subgroups in a manner that will control for the systematic differences between the treated (i.e., study abroad participants) and the non-treated (i.e., non-participants). In recent years, researchers have been developing and using quasi-experimental statistical approaches to help mitigate the problem of selection on observables when examining the effects of college, or specific programs, on an array of student outcomes (e.g., DesJardins et al., 2002; Reynolds & DesJardins, 2009). One such technique is propensity score matching (PSM) which is conceptually grounded in a counterfactual framework advanced by Neyman (1923), Rubin (1974), and Holland (1986).

A counterfactual is defined as "a potential outcome, or the state of affairs that would have happened in the absence of the cause" (Guo & Fraser, 2015, p. 24). In the context of this study, for a student who participated in a study abroad program, the counterfactual is the hypothetical outcome (e.g., completion of degree in 4 years) had that student not taken part in a study abroad program. By contrast, the counterfactual for a non-participant in study abroad is the potential probability of completing a degree in 4 years if that individual had studied abroad. Comparing

students with similar pre-treatment characteristics allows the differences between study abroad participants and non-participants in the outcome variable to be closer to what one would expect from a random assignment of students to each of the two groups (Eagan et al., 2013; Schneider et al., 2007).

Hence, PSM approximates the desirable properties of randomized experiments by controlling for pre-treatment differences between the treated and untreated by balancing each group's set of observable characteristics on a single propensity score (Dehejia & Wahba, 1999). This score is then used to match treated and untreated individuals; ultimately, these matched individuals differ in the treatment (i.e., study abroad) but the groups will contain individuals with the same probability of participating in study abroad who did not go abroad, as well as those who did go abroad. Accordingly, the effectiveness of propensity score matching is to produce more accurate estimates by removing the effects of observable characteristics through balancing their distributions among treatment and control groups without using a parametric approach such as ordinary least-squares (OLS) regression (Reynolds & DesJardins, 2009).[6] PSM entails the following approaches: (1) estimate the propensity score for each individual in the sample; (2) match cases based on these propensity scores; (3) assess the quality of the matches by examining key assumptions; and (4) estimate whether there are treatment effects.

Estimation of propensity scores. Propensity scores, which represent the probability of receiving the treatment, are estimated by regressing an individuals' treatment status on his or her pre-treatment characteristics (Flaster, 2012). In this study, I specified and estimated a logistic

[6] It is worth noting that while some researchers demonstrate the importance of propensity score matching as a potential tool to help social scientists make strong inferential statements using observational data (e.g., Rosenbaum & Rubin, 1983; Dehejia & Wahba, 2002; Reynolds & DesJardins, 2009; Titus, 2007), other scholars have questioned the perceived uniform effectiveness of PSM in producing more accurate estimates and have shown that this approach may not always improve the accuracy of the findings and is vulnerable to a range of research design and analysis decisions (e.g., Agodini & Dynarski, 2004; Salisbury, 2011; Smith & Todd, 2005).

regression model to predict participation in study abroad. I grounded this model on prior inquiries into factors that predict study abroad participation. I also follow Reynolds & DesJardins (2009) who suggest that including variables that are correlated with the probability of treatment, but not with the outcome, do not help with the matching procedure because such variables cause the common support assumption to fail as they influence the treatment only. Consequently, I used the following criterion to determine which variables would be included in a model: the variables must simultaneously influence the participation decision (i.e., study abroad versus non-study abroad) and the outcome variables (i.e., time to degree, 4-year degree completion, total number of credits taken, completed international studies major, completed majors with international theme).

Matching procedures. Using a matching estimator, I next matched treated individuals to untreated individuals who have similar propensities of receiving treatment. There are multiple matching procedures that can be implemented. Each method involves a tradeoff between bias and variance. Reynolds & DesJardins (2009) aptly state that "the better matches that are made the smaller the bias but the larger the variance of the estimates" (p. 42). Conversely, variance in the matches can be reduced by including more observations but this can introduce more bias by decreasing the matching quality. Being cognizant of this tradeoff, I utilized different matching algorithms to (1) check for consistency in results and (2) determine the algorithm that best balanced the distribution of covariates by analyzing the observed covariates' standardized bias and t-tests of mean differences across the treated and control groups. I employed nearest neighbor (NN) matching with replacement, caliper matching, and kernel-density (KD) matching using STATA modules PSMATCH2 by Leuven and Sianesi (2003) and TEFFECTS PSMATCH by Abadie & Imbens (2012).

Nearest neighbor matching matches individuals in the treatment group to an individual in the control group with the smallest propensity score difference and uses the latter case as the counterfactual for the former (Reynolds & DesJardins, 2009). I used the NN algorithm with replacement which allows one individual in the control group to match up with multiple individuals in the treatment group. However, NN matching faces the risk of poor matches if the nearest neighbor is far away. This can be avoided by employing caliper matching, which specifies a maximum propensity score distance (caliper) by which a match can be made (Heinrich et al., 2010). Imposing a caliper helps to avoid bad matches and hence, improves the matching quality. However, if fewer matches are found as a consequence, variance of the estimates increases. Unlike NN and caliper matching algorithms where the weight placed on each control observation is the same, kernel-density matching uses the weighted averages of all cases in the control group to construct the outcome estimate. Hence, one major advantage of KD matching is that it lowers the variance than those of NN and caliper matching by maximizing the use of information (Heinrich et al., 2010).

Testing assumptions. After I completed the matches, I checked the validity of the PSM models by testing if the assumptions required in matching methods were met. These assumptions are: common support, conditional independence, and covariate balance (Reynolds & DesJardins, 2009). A necessary condition for estimating treatment effects is that a match can be made between treated and untreated observations, namely, they are in the region of common support (Reynolds & DesJardins, 2009). In other words, the common support assumption ensures that there is sufficient overlap in pre-treatment characteristics between the treatment and control groups and that specific values of the covariates do not completely determine treatment. I

conducted a visual examination of the density distribution of the propensity scores in both treatment and control groups to determine if this assumption held.

The conditional independence assumption holds if the model captures all the components of the actual selection mechanism. One way to determine if this assumption holds is to test for the presence of hidden bias by conducting a sensitivity analysis such as Rosenbaum Bounds (Rosenbaum, 2002). This approach examines the degree to which an unobserved variable would have to affect the treatment status to make a significant treatment effect determined by propensity score matching insignificant (Caliendo & Kopeinig, 2008; Rosenbaum, 2002).

Finally, it is essential to test for covariate balance when estimating propensity scores. This is done by comparing the means of the covariates in the control and treatment groups before and after matching to check if any differences remain after conditioning the propensity score. I use the t-test approach (Rosenbaum & Rubin, 1985) to see whether previous differences in the covariate means between the two groups persist.

Treatment effects. Estimation of treatment effects involves examination of the difference in average outcomes between the treatment and the control groups (Flaster, 2012). Unlike linear or logistic regression that estimates the average treatment effect (ATE), propensity score matching methods can estimate the average effect of the treatment on the treated (ATT). ATE measures the difference between the average outcome from treatment and the average outcome from non-treatment (Reynolds & DesJardins, 2009). ATT, on the other hand, estimates the average effect of the treatment for individuals who are treated. In the context of this study, while ATE measures the average effect of studying abroad across the whole sample, ATT measures the effect of studying abroad on those who went abroad after equalizing the observable characteristics between the treated and untreated students. Given that ATE compares all

individuals in the sample who may differ substantially in their observable characteristics, a more appropriate comparison is to compare individuals with similar probabilities of being in the treatment group (ATT) (Reynolds & DesJardins, 2009). Nevertheless, I also employ linear probability models to provide a benchmark against which the ATT results from propensity score matching are compared.

I estimated PSM models for the full sample and subsamples of HS and Engineering students given that it is likely the effects vary by school or college of enrollment and doing so will also help improve balance by forcing matches to be made within school/college (Reynolds & DesJardins, 2009). I also estimated PSM models that consider differences in the dosage of treatment, namely, short-term and long-term program participation to examine if shorter or longer stay abroad has different effects on degree completion.[7] Finally, I estimated two PSM models to predict academic interest in international affairs for HS students: (1) probability of completing an *International Studies* major, and (2) probability of completing a major with international/global theme. I present graphical depictions of the density distribution of the propensity scores and tests for covariate balance in Appendix 3.A1. Results indicate that, generally, the common support and balance assumptions are met for all the PSM estimates produced by different models.

Limitations

Before discussing the results, limitations of this study should be acknowledged. First, study abroad programs vary by location and type (e.g., service learning, language focused, faculty-led) and it is reasonable to think that these variations may well exert influence on

[7] Open Doors (2016) uses three categories of program duration: *short-term* is summer or eight weeks or less, *mid-length* is one semester or one or two quarters, and *long-term* is academic or calendar year. Following this trend, I define short-term as 2-8 weeks and long-term as one semester or more, combining the mid-length and long-term categories used by Open Doors.

academic outcomes. However, in this study, I only examined the effect of study abroad by duration (i.e., short-term or long-term). Second, study abroad participants in this study are not representative of all students who study abroad. However, the sample provides a more nuanced understanding of a specific cadre of students enrolled in a large, elite research university who generally tend to be highly motivated and from high socioeconomic backgrounds. Therefore, the findings cannot be generalized across all American college students who go abroad, particularly those who may be non-traditional students entering as transfer students. Third, I limited study abroad participants in this study to be those who engaged in activities abroad for academic credit. Given that there is a growth in the number of students who participate in non-credit work, internships, and volunteering abroad (IIE, 2016), the study findings may not be applicable to students who have engaged in such experiences. Fourth, and as I point out earlier, only 57% of the institutional records were matched with CIRP data because not all Freshmen were willing to participate in the CIRP survey and because some responses could not be linked to institutional records due to inaccurate student information provided in the survey. This may have introduced nonresponse bias which merits further analysis that compares the characteristics of respondents and non-respondents. Finally, it is also possible that the estimates produced are biased due to unobserved confounding variables. Nevertheless, I conducted sensitivity analyses to gauge the rigor of the results to the presence of an unobserved confounder (Guo & Fraser, 2015) and the results indicate that the estimates are moderately robust; I provide a more detailed discussion of these results in the results section.

Results

Table 3.2 presents the t-tests of mean differences for study abroad participants and non-participants within the total sample. Students who have studied abroad constitute 15% of the sample (n=1,151) and there are clear differences between the two groups. Over 70% of the total sample is enrolled in the College of Humanities and Sciences and the largest number of study abroad participants are HS students. A higher percentage of the participants are women (51%) and are from high-income backgrounds (67%). There also appear to be differences between the participant and non-participant group in terms of predispositions at the beginning of college. For instance, a higher percentage of the participant group self-reported they are likely to change their choices of career (76%) and major (69%). A larger number of participants also report high intentions to study abroad with 93% of the group reporting they plan to study abroad as compared to 70% of the non-participant group. Sixty-eight percent of the participant group report that improving understanding of other countries and cultures is important while only 56% of the non-participant group perceive such goals to be important. Comparisons of college experiences also indicate some differences between groups. The average cumulative GPA at the end of first year, total number of credits and total number of language credits earned by the end of first year are slightly higher for the participant group than for the non-participant group. The two groups exhibit differences in degree outcomes as well; higher proportions of the study abroad participant group graduate in 4 years (93%) and with degrees in an international themed major (22%). Nevertheless, it is important to note that the average time to degree for all students is less than four years, suggesting that overall the study sample consists of academically successful students.

Table 3.2. Descriptive Statistics by Study Abroad Participation [a]

	Participants	Non-Participants	*t-test*	All students
Outcomes				
Time to degree	3.69 (0.28)	3.72 (0.37)	***	3.72 (0.35)
4-year degree completion	0.93 (0.25)	0.89 (0.31)	***	0.90 (0.3)
Total credits earned	119.95 (17.81)	122.52 (15.94)	***	122.14 (16.26)
Completed International Studies major	0.07 (0.26)	0.02 (0.14)	***	0.03 (0.16)
Completed major with international theme	0.22 (0.41)	0.05 (0.22)	***	0.07 (0.26)
Treatment				
Studied Abroad				0.15 (0.36)
Individual Characteristics				
Men	0.30 (0.46)	0.51(0.5)	***	0.48 (0.5)
Under-represented minority	0.10 (0.3)	0.09 (0.28)		0.09 (0.29)
Low-income (less than $50,000)	0.12 (0.33)	0.14 (0.34)		0.13 (0.34)
Medium-income ($50,000-$100,000)	0.21 (0.41)	0.26 (0.44)	**	0.26 (0.44)
High-income (more than $100,000)	0.67 (0.47)	0.60 (0.49)	***	0.61 (0.49)
Parental education (college degree)	0.89 (0.31)	0.87 (0.34)	*	0.87 (0.34)
Low high school GPA (2.99 or less)	0.01 (0.09)	0.01 (0.1)		0.01 (0.1)
Medium high school GPA (3.0-3.49)	0.09 (0.29)	0.07 (0.26)	*	0.07 (0.26)
High high school GPA (3.5-4.0)	0.90 (0.3)	0.92 (0.27)	*	0.92 (0.28)
ACT score	29.21 (2.88)	29.26 (2.98)		29.25 (2.96)
Predispositions				
Diversity self-rating (scale)	4.05 (0.53)	3.99 (0.56)	**	4.00 (0.55)
Will get a job to pay for college expenses	0.76 (0.42)	0.82 (0.38)	***	0.81 (0.39)
Will work full-time while attending college	0.17 (0.38)	0.19 (0.39)		0.19 (0.39)
Will need extra time to complete	0.32 (0.47)	0.31 (0.46)		0.31 (0.46)
Will transfer to another college	0.08 (0.28)	0.08 (0.28)		0.08 (0.28)
Will change career choice	0.76 (0.43)	0.63 (0.48)	***	0.65 (0.48)
Will study abroad	0.93 (0.26)	0.70 (0.46)	***	0.74 (0.44)
Will change major field	0.69 (0.46)	0.59 (0.49)	***	0.60 (0.49)
Will socialize with other racial/ethnic group	0.99 (0.12)	0.98 (0.13)		0.98 (0.13)
Will participate in student clubs/groups	0.97 (0.17)	0.93 (0.26)	***	0.93 (0.25)
Will participate in student government	0.40 (0.49)	0.32 (0.47)	***	0.33 (0.47)
Improve understanding of other countries/cultures	0.68 (0.47)	0.56 (0.5)	***	0.58 (0.49)
High school and College Experiences				
Socialized other racial/ethnic group (high school)	0.70 (0.46)	0.71 (0.45)		0.71 (0.45)
Participated in learning community	0.19 (0.39)	0.12 (0.32)	***	0.13 (0.34)
Cumulative GPA end of 1st year	3.41 (0.38)	3.29 (0.45)	***	3.31 (0.45)
Total credits end of 1st year	31.12 (3.5)	30.66 (3.77)	***	30.73 (3.73)

Received for high academic performance	0.06 (0.23)	0.04 (0.21)		0.05 (0.21)
Total language credits end of 1st year	4.96 (4.25)	3.50 (3.95)	***	3.72 (4.03)
College: HS end of 1st year	0.81 (0.39)	0.69 (0.46)	***	0.71 (0.46)
College: Engineering end of 1st year	0.11 (0.31)	0.22 (0.42)	***	0.21 (0.4)
College: Other end of 1st year	0.08 (0.28)	0.09 (0.29)		0.09 (0.28)
Cohort 2008	0.37 (0.48)	0.35 (0.48)		0.35 (0.48)
Cohort 2009	0.42 (0.49)	0.29 (0.45)	***	0.31 (0.46)
Cohort 2010	0.21 (0.41)	0.37 (0.48)	***	0.35 (0.48)
	1,151	6,567		7,718

Note. * p<0.05, ** p<0.01, *** p<0.001. Asterisks indicate there is a statistically significant difference between the two group means (study abroad participant, non-participant) as determined by t-tests.
[a] This table summarizes the means and standard deviations (in parenthesis) by study abroad participation and the entire sample.

Tables 3.3 to 3.5 present the treatment effects for degree completion for all students and subgroups of students by college. Table 3.6 reports the treatment effects for completing an international themed major among HS students. As discussed earlier, I employed three matching algorithms (i.e., nearest neighbor matching, caliper matching, kernel density matching) to match untreated observations with appropriate counterparts for treated observations. As all three techniques yielded similar results, I present in these tables estimates derived from the nearest neighbor matching which produced the lowest value of reduction in standardized mean difference between treated and control observations after matching. I report in these tables the effects estimated from the OLS specification and the average treatment effect on the treated (ATT) as a comparison. The ATT measures the average difference in the outcome of interest between study abroad participants and the outcome that the study abroad participants would have achieved had they chosen not to study abroad. Overall, OLS and PSM estimates are very similar which suggests that for this specific sample and outcomes, using parametric techniques such as OLS might be enough to control for observable differences.

Degree Completion

Contrary to ongoing concerns about studying abroad increasing time to degree, the estimates suggest that study abroad participation does not delay graduation. Estimates for time to degree indicates that both study abroad participant and non-participant groups graduated in about 3.7 years and there are no significant differences between the groups (Table 3.3, column 1). However, when proportions of students who graduate in four years are examined, there is a statistically significant difference. For treated students, study abroad increases their likelihood of completing their degree in 4 years by 3 percentage points. In addition, holding all else constant, the total number of credits earned during their entire academic careers by study abroad participants is about 3 credits less than their matched counterparts.

Table 3.3 column 2 reports the treatment effects for long-term study abroad participation. The treatment effect is more pronounced in these results with statistically significant differences in terms of time to degree, 4-year degree completion, and total number of credits completed. Long-term study abroad participants take significantly less time to graduate compared to their matched non-participants but the difference is less than a month (about 15 days). Analyses of mean differences in the 4-year degree completion (not shown), indicates that 95% of treated students completed their degree in four years, compared to 87% of matched untreated students. However, the difference in the total number of credits earned during college is about 10 credits with long-term study abroad participants completing significantly fewer credits compared to their matched non-participants.

The differences in degree completion of study abroad participants and non-participants are no longer observed when only short-term study abroad is considered (Table 3.3 column 3). The only statistically significant difference between the treated and matched untreated groups is

the total number of credits earned with short-term study abroad participants taking on average about 2.5 more credits, which is in contrast with the results associated with long-term study abroad participation.

Table 3.3. Treatment Effects for Degree Completion: All Students

		All Programs		Long-term		Short-term	
		OLS	ATT	OLS	ATT	OLS	ATT
Time to degree	*Estimate*	-0.014	-0.007	-0.047 **	-0.044 *	0.011	0.015
	S.E.	(0.012)	(0.012)	(0.017)	(0.020)	(0.015)	(0.014)
	N	6,602	6,602	6,045	6,045	6,194	6,194
4-year degree completion (1=Yes)	*Estimate*	0.035 ***	0.032 **	0.078 ***	0.084 ***	0.006	0.003
	S.E.	(0.010)	(0.011)	(0.015)	(0.017)	(0.013)	(0.012)
	N	6,602	6,602	6,045	6,045	6,194	6,194
Total credits taken	*Estimate*	-3.003 ***	-2.607 **	-10.385 ***	-10.167 ***	2.317 **	2.543 **
	S.E.	(0.549)	(0.686)	(0.793)	(0.944)	(0.677)	(0.785)
	N	6,602	6,602	6,045	6,045	6,194	6,194

Notes. * p<0.05, ** p<0.01, *** p<0.001
For column labeled OLS, reported effects are the coefficients on the dummy variable indicating study abroad participation. ATT column reports the average treatment effect on the treated using NN with replacement matching algorithm; all cases were matched. Standard errors are in parenthesis; STATA module *TEFFECTS PSMATCH* is used which accounts for the fact that propensity scores are estimated rather than known when calculating standard errors.

Table 3.4 summarizes treatment effects on the outcomes for HS students. No significant differences between the treated and matched untreated HS students are observed for time to degree and the likelihood of graduating in four years for study abroad participation in any program type. However, similar to the overall results, HS students appear to be impacted by long-term study abroad participation; the ATT estimates indicate that, for treated students, long-term study abroad decreases their time to degree by approximately a half a month compared to untreated students. On average, long-term study abroad increases the probability of graduating in four years by 7 percentage points, on average. At the time of graduation, treated students are likely to have earned fewer credits than matched untreated students, however. As for short-term study abroad participation, estimates reflect no significant differences in degree outcomes but treated students are more likely to graduate with more credits than their matched counterparts.

These estimates resemble overall results, which is understandable given that HS students constituted over 70% of the entire sample.

Table 3.4. Treatment Effects for Degree Completion: HS Students

		All Programs		Long-term		Short-term	
		OLS	ATT	OLS	ATT	OLS	ATT
Time to degree	*Estimate*	-0.014	0.004	-0.044 *	-0.042 *	0.012	0.026
	S.E.	(0.013)	(0.013)	(0.018)	(0.019)	(0.017)	(0.017)
	N	4,648	4,647	4,226	4,226	4,297	4,297
4-year degree completion (1=Yes)	*Estimate*	0.032 **	0.019	0.071 ***	0.072 ***	0.002	-0.005
	S.E.	(0.010)	(0.010)	(0.015)	(0.015)	(0.013)	(0.014)
	N	4,648	4,647	4,226	4,226	4,297	4,297
Total credits taken	*Estimate*	-3.116 ***	-3.129 ***	-10.279 ***	-10.760 ***	2.679 **	3.611 ***
	S.E.	(0.643)	(0.787)	(0.897)	(1.035)	(0.808)	(0.894)
	N	4,648	4,647	4,226	4,226	4,297	4,297

Notes. * p<0.05, ** p<0.01, *** p<0.001
For column labeled OLS, reported effects are the coefficients on the dummy variable indicating study abroad participation. ATT column reports the average treatment effect on the treated using NN with replacement matching algorithm; one treated case was off common support. Standard errors are in parenthesis; STATA module *TEFFECTS PSMATCH* is used which accounts for the fact that propensity scores are estimated rather than known when calculating standard errors.

The results of the PSM estimations reported in Table 3.5 are based on the Engineering student subsample. Estimates for long-term study abroad participation are not reported given the small number of treated cases. The estimates for participation in any study abroad program types suggest no differences in the outcomes of participants and non-participants. However, ATT estimates for short-term study abroad participation indicate that going abroad may increase the probability of graduating in four years by 5 percentage points, but this point estimate is only significant at the 0.1 level. Nonetheless, it appears that on average, engineering students who study abroad short-term complete slightly more credits than those who share similar characteristics but do not study abroad.

Table 3.5. Treatment Effects for Degree Completion: Engineering Students

		All Programs		Short-term			
		OLS	ATT	OLS		ATT	
Time to degree	*Estimate*	0.002	0.023	-0.036		-0.025	
	S.E.	(0.038)	(0.036)	(0.045)		(0.037)	
	N	1,374	1,374	1,339		1,337	
4-year degree completion (1=Yes)	*Estimate*	0.034	0.011	0.063		0.054	†
	S.E.	(0.035)	(0.029)	(0.042)		(0.033)	
	N	1,374	1,374	1,339		1,337	
Total credits taken	*Estimate*	-0.113	-0.811	3.205	†	3.093	**
	S.E.	(1.417)	(1.396)	(1.668)		(1.013)	
	N	1,374	1,374	1,339		1,339	

Notes. † p<0.1, * p<0.05, ** p<0.01, *** p<0.001
For column labeled OLS, reported effects are the coefficients on the dummy variable indicating study abroad participation. ATT column reports the average treatment effect on the treated using NN with replacement matching algorithm; two treated cases were off common support. Standard errors are in parenthesis; STATA module *TEFFECTS PSMATCH* is used which accounts for the fact that propensity scores are estimated rather than known when calculating standard errors.

In sum, the results of this analysis indicate that, among treated students, study abroad participation appears to positively impact degree completion, particularly for HS students. More specifically, long-term but not short-term study abroad participation shortens time to degree for the treated HS students. On average, long-term study abroad participants graduate with fewer credits than matched untreated students while short-term study abroad participants graduate with more credits than their matched counterparts. This finding also applies to engineering students who mostly go abroad for shorter periods of time.

Completing an International Related Major for HS Students

To gain some preliminary insights into the impact of studying abroad on participants' interest in international related issues, I considered whether they complete degree requirements of majors with an international component. Only HS students were examined. As stated earlier, I excluded from the sample individuals who declared these majors at the end of their first

academic year to address the issue of reverse causation.[8] Results indicate that students who participated in study abroad were more likely to complete a major with an international focus. The estimates suggest that the effect of the treatment on the probability that participants complete an International Studies major is increased by 5 percentage points, and the probability that they finish any major with an international component is increased by 13 percentage points, on average (Table 3.6). Nonetheless, given that numerous factors influence a student's decision to declare and complete a major, the results are at best preliminary. Hence, while the results suggest that study abroad plays a role in developing student interest in international issues, caution is needed in interpreting the link between the two.

Table 3.6. Treatment effects for Completion of Majors with International Theme: HS Students

		HS Students			
		OLS		ATT	
Completed *International Studies* major (1=Yes)	*Estimate*	0.053	***	0.052	***
	S.E.	(0.007)		(0.011)	
	N	4,572		4,571	
Completed major with international theme (1=Yes)	*Estimate*	0.130	***	0.128	***
	S.E.	(0.011)		(0.016)	
	N	4,425		4,424	

Notes. * p<0.05, ** p<0.01, *** p<0.001
For column labeled OLS, reported effects are the coefficients on the dummy variable indicating study abroad participation. ATT column reports the average treatment effect on the treated using NN with replacement matching algorithm; one treated case was off common support. Standard errors are in parenthesis; STATA module *TEFFECTS PSMATCH* is used which accounts for the fact that propensity scores are estimated rather than known when calculating standard errors.

Sensitivity Analysis

Propensity score matching, as with other parametric methods, is limited in accounting for unobserved factors. Although there is no way to test for the existence of bias from unobserved

[8] As a form of a sensitivity test, I excluded all individuals who were International Studies major, and international related majors at the end of their *second* academic year, estimated new propensity scores, applied the same matching algorithms, and computed the ATTs for the restricted sample. Results consistently indicate that students who are treated are significantly more likely to complete majors with an international focus but as expected, the effect is less pronounced (ATT is 0.013, p<0.001 for completing International Studies major and 0.023, p<0.05 for completing majors with an international component).

factors when using PSM, a number of methods have been developed to test the extent to which an omitted variable will undermine the estimates of the treatment effects (Guo & Fraser, 2015). I use RBOUNDS (Rosenbaum, 2002) and MHBOUNDS (Mantel-Haenszel, 1959) to determine how large the effect of an unobserved variable on the odds of treatment must be in order to render the significant results insignificant (Becker & Caliendo, 2007). RBOUNDS is used for continuous outcomes and MHBOUNDS is used for binary outcomes. Table 7 presents the gamma values, or the critical value of Rosenbaum Bounds and Mantel-Haenszel test statistic, at which an unobserved variable's effect on the odds of treatment would cause the estimated treatment effect to be insignificant. Effects that maintain their significance at high levels of gamma are unlikely to suffer from hidden bias while effects that become insignificant at low values of gamma likely have some hidden bias associated with them (Becker & Caliendo, 2007).

The results in Table 3.7 suggest that findings regarding total credits taken in the long-term study abroad participation models are the most robust results with large gammas (3.25-3.30). A confounder would need to have a strong relationship with the total credits students take and cause students with the same observed characteristics to differ in their odds of studying abroad long-term by more than 200% for total credits taken to be zero. Nevertheless, other academic outcomes are only moderately robust and are likely to have some hidden bias present as the level of gamma at which the significance of the ATT varies from 1.0 to 2.0. The treatment effects on completion of majors with international focus appear to be more robust. For example, a confounding variable would need to cause the odds of study abroad participation to differ between the treated and control groups by a factor of 2.40 to invalidate the effect of treatment on completion of the International Studies major, and by a factor of 2.75 to invalidate the effect of treatment on completion of a major with an international theme. In sum, the results of the

sensitivity analysis suggest that the matching estimates are moderately sensitive to the presence of hidden biases.

Table 3.7. Sensitivity to Hidden Bias in Significant Outcomes: Gamma Values

	All Program Types		Long-term Participation		Short-term Participation		
	All	HS	All	HS	All	HS	Engin
RBOUNDS							
Time to degree			1.30	1.30			
Total credits taken	1.40	1.50	3.25	3.30	1.00	1.15	1.00
MHBOUNDS							
4-year degree completion	1.20		1.85	1.75			
Completed International Studies major		2.40					
Completed a major with international theme		2.75					

Discussion

While prior research presents the benefits of study abroad participation, the bulk of these studies focus on gains in intercultural competencies (e.g., Braskamp et al., 2009; Paige et al., 2002; Rubin & Sutton, 2001). Surprisingly few studies examine the effect of study abroad on academic outcomes even though study abroad programs are often linked with academic credit and are increasingly being designed to be part of the formal curriculum. What is more, results are often based on small, convenience samples or on research methodologies that cannot adequately address the question of whether the alleged effect of study abroad is a function of the participant's pre-departure characteristics or the study abroad experience. Findings, in many cases, do not examine the effects of study abroad within schools or colleges despite varying curricular structures and degree requirements, nor do they assess the effects of different types of study abroad programs on academic outcomes. Hence, the purpose of this study was to address these limitations by estimating the academic benefits of study abroad participation employing a

more robust statistical method and using a sizable number of educational records and survey data gathered from undergraduates at a research university.

Propensity score matching in the present study accounts for selection into study abroad using individual social and demographic and pre-participation dispositional characteristics along with first year college experiences. The inquiry's results demonstrate that study abroad participation increases the likelihood of degree completion in four years. This confirms previous research findings that indicate study abroad does not delay time to degree (e.g., Flash, 1999; Posey, 2003) but rather increases a participant's probability of graduating in four years (e.g., Hamir, 2011; Sutton & Rubin, 2010). For example, results of the GLOSSARI study (Sutton & Rubin, 2010), which is based on multiple institutions in the University of Georgia System (N=24,482), found that students who study abroad have 10% higher odds of graduating in four years compared to non-participants. In particular, study abroad participants enrolled in research universities, similar to the institutional type of this study, were associated with 16.1% higher odds of graduating in four years compared to non-participants. Given propensity score matching has the potential to provide more accurate estimates of the impact of study abroad compared to the logistic model employed in the GLOSSARI study, the fact that the results in both studies are consistent strengthens the evidentiary basis of the conclusion that participation does not extend time to graduation.

Nonetheless, when program duration is considered, the significant treatment effects on degree completion measures are only observed for long-term study abroad programs and among HS students. The results also demonstrate that students who study abroad long-term are likely to have taken fewer credits than non-participants who share similar pre-departure characteristics. In contrast to long-term study abroad participants, short-term study abroad participants are

significantly more likely to have enrolled for more credits than their matched counterparts. There are no statistically significant differences in degree completion between short-term study abroad participants and a matched sample of non-participant students. These findings are unexpected given that prior studies have shown long-term program participants are likely to take longer to graduate. However, in previous studies the comparison groups have been participants in multiple program types (e.g., Hamir, 2011; Sutton & Rubin, 2007).

Such findings beg the question: why does long-term study abroad participation have a significant effect on degree completion while short-term study abroad participation has no effect? International educators are cognizant of the fact that students may be unable or unwilling to spend a longer period of time abroad because they believe spending time abroad for a longer duration will delay graduation due to credit transfer issues; e.g., courses taken at another institution may not satisfy the major or minor requirement of the home institution (Stroud, 2010). There are several possible reasons why the findings of this study do not support this reasoning. Students who participate in long-term study abroad may be planning their experience earlier in college, and perhaps being more strategic in their choice of majors or course selections that incorporate a semester-long or year-long study abroad experience in their academic programs. The *act* of selecting a program of study that integrates a study abroad experience may contribute to degree completion by initiating careful planning of degree progress. The fact that study abroad participants, on average, take less credits than non-participants who share similar attributes may be conveying how study abroad participants strategize to maximize their use of credits to fulfill degree requirements (e.g., Advanced Placement credit).

Given that this effect is evident for HS students, it may also be that HS students have more curricular flexibility in incorporating studying abroad in their academic experience. Given

the nature of coursework, HS students are more likely to find courses at their study abroad host institution that can satisfy the requirements of their majors or minors. For example, compared to an engineering major, it may be less challenging for a French major studying abroad in France to find courses that can be counted towards his or her major. A related matter would be the availability of institutional support in providing information about which courses taken abroad can be used as credit toward a concentration, for instance. It is important to note that the institution in this study provides many resources (e.g., advising, peer mentors, websites) for students planning to study abroad to help them develop a clear understanding of what the experience entails and how the experience can fit into one's program of study.

The present analysis cannot offer a definitive reason for the positive link between long-term study abroad participation and degree completion. However, one possible explanation may be that the study abroad process facilitates academic planning and engagement both pre-departure and upon return. Nevertheless, given the growing importance of time to degree, the potential mechanism underlying the positive association between long-term study abroad participation and degree completion should be explored in greater depth in future research.

In contrast with semester long programs, short-term study abroad may necessitate an additional term of enrollment for the participants if it occurs during the summer months. This appears to be reflected in the significantly higher number of credits taken by short-term participants. This effect is observed in both the HS and engineering student samples; holding all else constant, short-term study abroad participants completed about three credits more than non-participants. The finding is somewhat contrary to prior studies that report short-term study abroad programs expedite time to degree (e.g., Hamir, 2011). The null effect of short-term participation on other degree outcomes suggests that the student perceptions of short-term study

abroad and the motivations involved in pursing this experience may differ fundamentally from those that relate to long-term study abroad. Given the limited timeframe, participants can only enroll in one or two courses, at the most, and it may be that short-term study abroad participants perceive this experience is an add-on to rather than an integral component of their degree requirements. In such cases, it is reasonable to speculate that students may be more open to engaging in coursework abroad for the sake of interest or personal enrichment (e.g., taking a course about the host culture).

These findings regarding the differential effects of long-term and short-term study abroad participation highlight the need for future research to take into account types of study abroad programs. While duration is important (e.g., Chieffo & Griffiths, 2004; Dwyer, 2004), other features may also be key and need to be examined systematically; for example, whether the program is faculty-led, involves direct enrollment in a host country institution, field research, service-learning, or intensive language learning. Guo & Fraser (2015) discuss ways to model treatment dosage using propensity score procedures which provides insights into examining the effects of differential amounts of treatment (e.g., program duration, level of cultural immersion) on outcomes. For instance, such modeling of a dosage effect can identify an optimal program duration (e.g., less than 8 weeks, one semester, academic year) for a given outcome, which would assist students, and program designers in useful ways. Furthermore, the results strongly suggest that students' goals and motivations for studying abroad play a role in determining what type of study abroad experience they pursue and this decision, in turn, may influence students' academic behavior, particularly satisfactory completion of degree requirements. Ascertaining students' goals and motivations for choosing to participate in a particular study abroad program

may help explain the causal link between study abroad and degree completion shown in this study.

A student's major continued to be a key element in understanding the effects of study abroad on the selected academic outcomes. The effects of long-term study abroad participation on outcomes were observed for HS students only, given that most engineering students went abroad short-term. Although not discussed in the results due to small number of cases, participation in long-term study abroad for engineering students (n=38) lengthened time to degree compared to non-participants. Though it is difficult to draw conclusions based on this finding, it does underscore the importance of disciplinary context in accurately gauging the effects of study abroad.

The finding that all things being equal, treated HS students are 13 percentage points more likely to complete majors with an international theme provides support to prior study findings indicating study abroad participants show higher levels of international concern and cross-cultural interest (e.g., Bates, 1997; Carlson et al., 1990; Goldstein & Kim, 2006). This result is particularly intriguing given the potential causal link between study abroad and development of a strong and extended academic interest in international or cultural issues. However, the result must be interpreted with caution given the complexities involved in disentangling the motivations that drive students to complete a major. For instance, did an individual complete an International Studies major following a study abroad experience because s(he) became genuinely interested in the subject matter, or because s(he) was simply being strategic and looking for a major that could best accommodate the study abroad experience? As stated earlier, the fact that students can declare a major any point in time during their academic career complicates the analyses by introducing issues of reverse causation. In this study, I conducted analyses by

excluding individuals who were already majors by the end of their first and second academic years to derive best estimates of the outcome, but it is likely that there might have been individuals in the sample who declared an International Studies major, for instance, after my arbitrary cut points that preceded their study abroad experience. Hence, future research should build on this preliminary finding and examine more closely and carefully how study abroad affects an individual's academic interest in international issues and behavior such as engagement in subsequent curricular or co-curricular activities with strong international components.

Finally, the lack of difference between the naïve (ordinary least squares) and propensity score models in this study may provide some implications for researchers interested in employing quasi-experimental methods to estimate program effects. Given that both models produced very similar results in this study, one may question first, why there are no differences in results despite the existence of an observed selection effect, and second, the utility of propensity score matching methods if similar results can be derived using regression methods. I suspect that the reason for similar results between naïve and PSM models may be due to the nature of the study sample. More specifically, the study institution is an elite research university with more than three-quarters of undergraduate students completing their degree within four years. As such, it is likely that few differences are observed between the average effect of treatment on the whole sample, which is commonly estimated through linear regression (i.e., average effect of studying abroad on degree completion for all individuals in the sample) and the average treatment effect on the treated (i.e., average effect of studying abroad for individuals who actually studied abroad on degree completion). This result suggests that for this specific sample and outcomes, using OLS is enough in terms of controlling for observable differences. In addition, I stated earlier that not all institutional records were matched with CIRP data. Such

non-response in the CIRP data might have differentially affected the composition of the treated and untreated groups, making them more alike than would otherwise be the case if everyone filled out the CIRP and all responses were matched to institutional records.

Regardless, an important contribution of this study is the application of PSM to control for confounding variables to effectively reduce selection bias when exploring the independent effects of high-cost programs like study abroad. In particular, the advantages of employing PSM such as being able to estimate causal effects on the basis of treatment and control groups or to estimate relevant counter-factual propositions such as the average treatment effects on the treated (ATT) cannot be understated. What is more, it is important to be mindful that each sample is different and as such, PSM generally represents an improvement over parametric methods for estimating treatment effects from observational data and the results in this study are rather an exception.

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Appendices

Table 3.A1. Variable Definitions

Variables	Definitions
Outcomes:	
Time to degree	Time to degree
4-year degree completion	Completed degree in 4 years (0=No; 1=Yes)
Total credits earned	Total number of credits earned in college
Completed International Studies major	(0=No; 1=Yes)
Completed major with international theme	(0=No; 1=Yes)
Treatment:	
Studied abroad	Participated in study abroad program associated with academic credit during their 2nd or 3rd years (0=No; 1=Yes)
Individual Characteristics:	
Male	Sex (0=Female; 1=Male)
URM	Underrepresented minority status; Hispanic/Latinos, African-Americans, and American Indians/Alaskan Natives (0=No; 1=Yes)
Low-income	Income less than $50,000 (0=No; 1=Yes)
Medium-income	Income $50,000-$100,000 (0=No; 1=Yes)
High-income	Income more than $100,000 (0=No; 1=Yes)
Parental education	At least one parent has college degree (0=No; 1=Yes)
Low high school GPA	High school GPA 2.99 or less (0=No; 1=Yes)
Medium high school GPA	High school GPA 3.0-3.49 (0=No; 1=Yes)
High high school GPA	High school GPA 3.5-4.0 (0=No; 1=Yes)
ACT score	ACT score
Predispositions:	

Diversity self-rating (Cronbach's Alpha=0.79)	Scaled variable representing students' self-rating on each of the following traits as compared with the average person his/her age: (6) Ability to see the world from someone else' perspective (factor score=0.72) (7) Tolerance of others with different beliefs (factor score=0.77) (8) Openness to having my own views challenged (factor score=0.75) (9) Ability to discuss and negotiate controversial issues (factor score=0.71) (10) Ability to work cooperatively with diverse people (factor score=0.76)
Will get a job to pay for college expenses	Student self-reported response to the question: What is your best guess as to the chances that you will get a job to help pay for college expenses (0=no to very little chance; 1=some to very good chance)
Will work full-time while attending college	Student self-reported response to the question: What is your best guess as to the chances that you will work full-time while attending college (0=no to very little chance; 1=some to very good chance)
Will need extra time to complete	Student self-reported response to the question: What is your best guess as to the chances that you will need extra time to complete (0=no to very little chance; 1=some to very good chance)
Will transfer to another college	Student self-reported response to the question: What is your best guess as to the chances that you will transfer to another college (0=no to very little chance; 1=some to very good chance)
Will change career choice	Student self-reported response to the question: What is your best guess as to the chances that you will change career choice (0=no to very little chance; 1=some to very good chance)
Will study abroad	Student self-reported response to the question: What is your best guess as to the chances that you will participate in study abroad program (0=no to very little chance; 1=some to very good chance)
Will change major field	Student self-reported response to the question: What is your best guess as to the chances that you will change major field (0=no to very little chance; 1=some to very good chance)
Will socialize with other racial/ethnic group	Student self-reported response to the question: What is your best guess as to the chances that you will socialize with other racial/ethnic group (0=no to very little chance; 1=some to very good chance)

Will participate in student clubs/groups	Student self-reported response to the question: What is your best guess as to the chances that you will participate in student clubs/groups (0=no to very little chance; 1=some to very good chance)
Will participate in student government	Student self-reported response to the question: What is your best guess as to the chances that you will participate in student government (0=no to very little chance; 1=some to very good chance)
Improve understanding of other countries/cultures	Student self-reported response to the question: Please indicate the importance to you personally of improving understanding of other countries and cultures (0= not to somewhat important; 1= very important to essential)
High school and College Experiences:	
Socialized other racial/ethnic group (high school)	Student self-report of having socialized with someone of another racial/ethnic group during the past year (0=none to occasional; 1=frequently)
Learning community	Student participated in a residential learning community during freshman year (0=No; 1=Yes)
First year cumulative GPA	Cumulative grade point average at the end of first academic year
First year total number of credits	Total number of credits taken by the end of first academic year
Received award for high academic performance during freshman year	Student received an award for outstanding academic performance during their freshman year (0=No; 1=Yes)
First year total number of language credits	Total number of foreign language credits taken by the end of first academic year
College: HS	Enrolled in College of Humanities and Sciences at the end of first academic year (0=No; 1=Yes)
College: Engineering	Enrolled in College of Engineering at the end of first academic year (0=No; 1=Yes)
College: Other	Enrolled in College of Music, Nursing, Art & Design, Kinesiology at the end of first academic year (0=No; 1=Yes)
Cohort 2008	Fall 2008 entering cohort (0=No; 1=Yes)
Cohort 2009	Fall 2009 entering cohort (0=No; 1=Yes)
Cohort 2010	Fall 2010 entering cohort (0=No; 1=Yes)

Table 3.A2. List of Covariates included in PSM Models

	Models predicting *Time to degree* *4-year degree completion* *Total credits earned*	Models predicting *Intl Studies major* *Major with intl theme* *(HS only)*
Individual Characteristics		
Men	x	x
Under-represented minority	x	x
Low-income (less than $50,000)	x	x
Medium-income ($50,000-$100,000)	x	x
High-income (more than $100,000)	x	x
Parental education (college degree)	x	x
Low high school GPA (2.99 or less)	x	x
Medium high school GPA (3.0-3.49)	x	x
High high school GPA (3.5-4.0)	x	x
ACT score	x	x
Predispositions		
Diversity self-rating		x
Will get a job to pay for college expenses	x	
Will work full-time while attending college	x	
Will need extra time to complete	x	
Will transfer to another college	x	
Will change career choice	x	
Will study abroad	x	x
Will change major field	x	
Will socialize with other racial/ethnic group		x
Will participate in student clubs/groups	x	
Will participate in student government	x	
Improve understanding of other countries/cultures		x
High school and College Experience		
Socialized other racial/ethnic group (high school)		x
Participated in learning community	x	x
Cumulative GPA end of 1st year	x	x
Total credits end of 1st year	x	x
Received for high academic performance	x	
Total language credits end of 1st year		x
College: HS end of 1st year	x	
College: Engineering end of 1st year	x	
College: Other end of 1st year	x	
Cohort 2008	x	x
Cohort 2009	x	x
Cohort 2010	x	x

Table 3.A3. List of Majors with Foreign Language Requirement

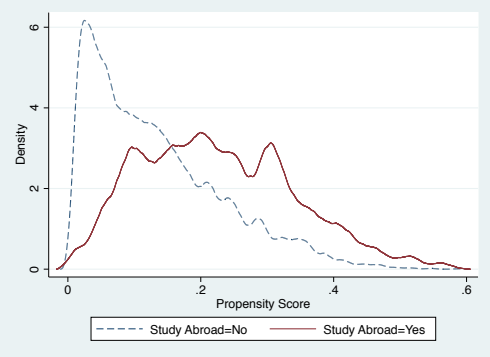
Majors that require taking a sequence of language courses
Ancient Civil & Biblic Studies
Arab, Armenian, Persian, Turk & Islamic Studies
Asian Studies
Classical Language & Literature
Classical Archaeology
French
German
Greek
Hebrew & Jewish Studies
International Studies
Italian
Judaic Studies
Latin American & Caribbean Studies
Latin
Latino Studies
Modern Greek
Near Eastern Civilization
Polish
Romance Language & Literatures
Russian
Russian, East European & Eurasian Studies
Spanish
Middle East & North African Studies

Common Support and Covariate Balance

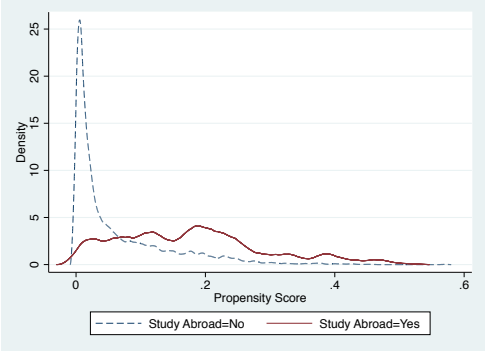
Common Support. Figures 3.A1 to 3.A4 are graphical presentations of the distribution of propensity scores for treated and untreated individuals. The solid lines reflect the propensity to be treated for students who are in the treatment group and dotted lines reflect students in the control group for each of the models presented in Tables 3.A4 – 3.A7. The propensity score graphs indicate that there is sufficient overlap in the density of the treated and control groups' propensity score distribution, which demonstrates that the common support assumption holds.

Figure 3.A1. Propensity Score Distributions: All Students

Degree completion: All Program Type



Degree completion: Long-term Study Abroad



Degree completion: Short-term Study Abroad

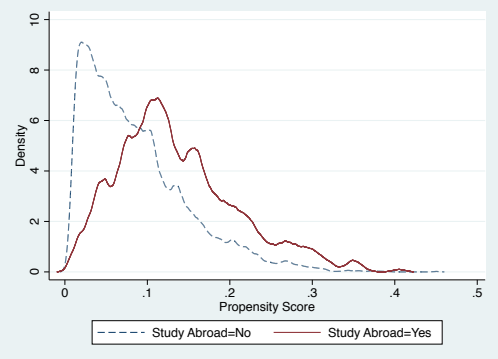
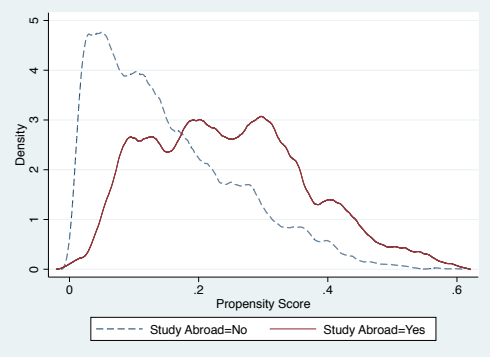
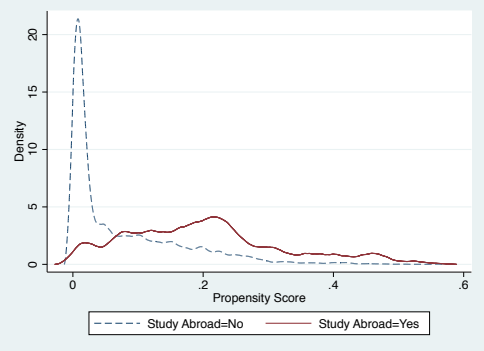


Figure 3.A2. Propensity Score Distributions: HS Students

Degree completion: All Program Type



Degree completion: Long-term Study Abroad



Degree completion: Short-term Study Abroad

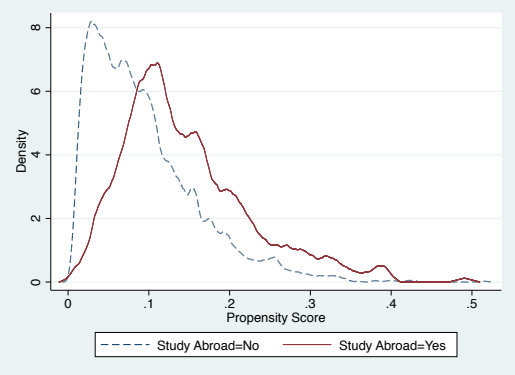
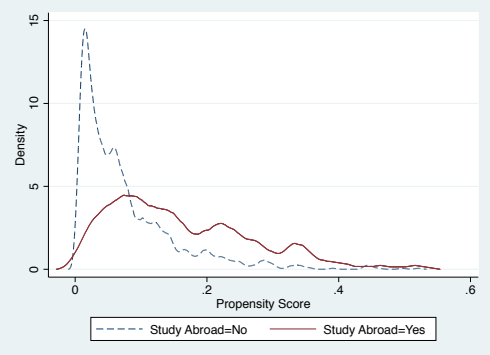


Figure 3.A3. Propensity Score Distributions: Engineering Students

Degree completion: All Program Type



Degree completion: Short-term Study Abroad

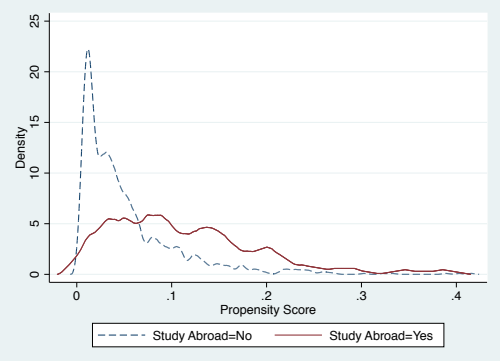
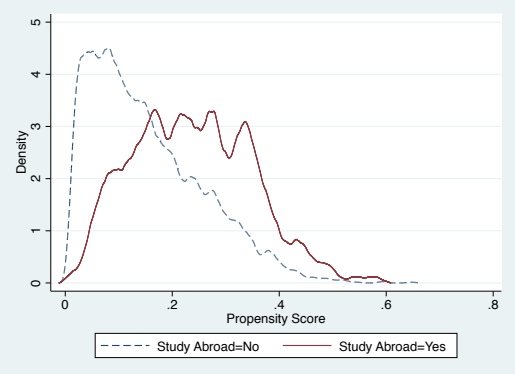
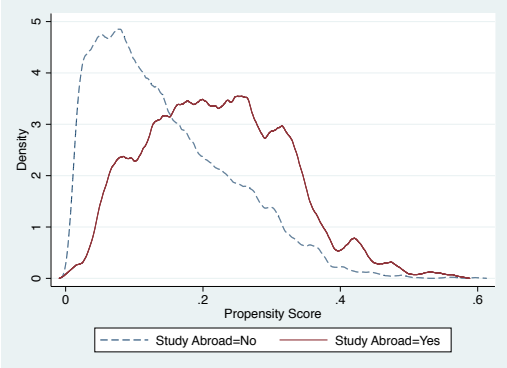


Figure 3.A4. Propensity Score Distributions: Completion of Majors with International Theme (HS)

Completion of *International Studies* Major



Completion of International Related Major



Covariate Balance. For all models estimated in the study, tests for covariate balance indicated that the treated and control groups are observably identical. Tables 7-10 compares variables before and after matching showing if any differences remain after conditioning on the propensity score for select models in the study as illustrations of covariate balance.[9]

Table 3.A4. Distribution of Covariates for Unmatched and Matched Samples by Treatment Status for Degree Outcomes: All Students (N=6,602)

Variable		Treated	Control	% Bias	p>|t|
Male	Pre-match	0.30	0.51	-42.60	0.00
	Post-match	0.31	0.31	-1.20	0.78
Under-represented minority	Pre-match	0.10	0.09	4.70	0.14
	Post-match	0.10	0.11	-1.20	0.81
Low-income	Pre-match	0.12	0.14	-4.60	0.18
	Post-match	0.13	0.13	-1.00	0.83
Medium-income	Pre-match	0.21	0.26	-13.10	0.00
	Post-match	0.21	0.21	0.50	0.91
High-income	Pre-match	0.67	0.60	14.70	0.00
	Post-match	0.66	0.66	0.30	0.95
Parental education (college degree)	Pre-match	0.89	0.87	7.70	0.02
	Post-match	0.88	0.88	1.00	0.83

[9] Results of these tests for all PSM models in the study are available but I do not include all of them due to space limitations.

Low high school GPA	Pre-match	0.01	0.01	-0.70	0.84
	Post-match	0.01	0.01	1.10	0.81
Medium high school GPA	Pre-match	0.09	0.07	7.70	0.01
	Post-match	0.08	0.08	2.10	0.64
High high school GPA	Pre-match	0.90	0.92	-7.20	0.02
	Post-match	0.91	0.92	-2.40	0.60
ACT score	Pre-match	29.21	29.26	-1.60	0.63
	Post-match	29.23	29.24	-0.40	0.93
Will get a job to pay for college expenses	Pre-match	0.76	0.82	-14.40	0.00
	Post-match	0.77	0.76	1.30	0.78
Will work full-time while attending college	Pre-match	0.17	0.19	-4.80	0.15
	Post-match	0.18	0.18	0.10	0.98
Will need extra time to complete	Pre-match	0.32	0.31	2.40	0.46
	Post-match	0.33	0.34	-3.20	0.49
Will transfer to another college	Pre-match	0.08	0.08	0.20	0.95
	Post-match	0.08	0.08	-0.70	0.88
Will change career choice	Pre-match	0.76	0.63	29.20	0.00
	Post-match	0.76	0.75	2.00	0.64
Will study abroad	Pre-match	0.93	0.70	60.40	0.00
	Post-match	0.92	0.92	-0.80	0.80
Will change major field	Pre-match	0.69	0.59	21.70	0.00
	Post-match	0.68	0.68	2.00	0.66
Will participate in student clubs/groups	Pre-match	0.97	0.93	19.30	0.00
	Post-match	0.97	0.97	-0.80	0.82
Will participate in student government	Pre-match	0.40	0.32	17.80	0.00
	Post-match	0.40	0.41	-1.90	0.69
Participated in learning community	Pre-match	0.19	0.12	18.50	0.00
	Post-match	0.19	0.20	-2.70	0.59
Cumulative GPA end of 1st year	Pre-match	3.41	3.29	27.70	0.00
	Post-match	3.40	3.39	2.40	0.58
Total credits end of 1st year	Pre-match	31.12	30.66	12.60	0.00
	Post-match	31.02	31.00	0.80	0.86
Received award for high academic performance	Pre-match	0.06	0.04	5.90	0.06
	Post-match	0.05	0.04	3.50	0.42
Cohort 2008	Pre-match	0.37	0.35	4.60	0.14
	Post-match	0.32	0.31	3.10	0.48
Cohort 2009	Pre-match	0.42	0.29	28.30	0.00
	Post-match	0.44	0.45	-2.20	0.65
Cohort 2010	Pre-match	0.21	0.37	-34.80	0.00
	Post-match	0.23	0.24	-1.00	0.81
College: HS end of 1st year	Pre-match	0.81	0.69	28.70	0.00
	Post-match	0.80	0.79	1.60	0.71
College: Engineering end of 1st year	Pre-match	0.11	0.22	-32.00	0.00
	Post-match	0.12	0.12	-1.30	0.75
College: Other end of 1st year	Pre-match	0.08	0.09	-2.10	0.52
	Post-match	0.08	0.09	-0.70	0.87
Mean Standardized Bias of Observed X's			Pre-match	16.20	
			Post-match	1.50	

Notes. All observations have common support.

Table 3.A5. Distribution of Covariates for Unmatched and Matched Samples by Treatment Status for Degree Outcomes: Long-term Study Abroad and HS Students (n=4,226)

Variable		Treated	Control	% Bias	p>|t|
Male	Pre-match	0.26	0.44	-7.52	0.00
	Post-match	0.27	0.28	-0.19	0.85
Under-represented minority	Pre-match	0.07	0.10	-1.73	0.08
	Post-match	0.07	0.08	-0.25	0.80
Low-income	Pre-match	0.09	0.14	-3.33	0.00
	Post-match	0.09	0.09	-0.03	0.97
Medium-income	Pre-match	0.18	0.26	-3.80	0.00
	Post-match	0.18	0.18	-0.12	0.90
High-income	Pre-match	0.74	0.60	5.75	0.00
	Post-match	0.73	0.73	0.13	0.90
Parental education (college degree)	Pre-match	0.92	0.86	3.96	0.00
	Post-match	0.91	0.91	0.43	0.67
Low high school GPA	Pre-match	0.00	0.01	-0.71	0.48
	Post-match	0.01	0.00	0.42	0.68
Medium high school GPA	Pre-match	0.10	0.06	2.95	0.00
	Post-match	0.08	0.08	-0.21	0.84
High high school GPA	Pre-match	0.90	0.93	-2.59	0.01
	Post-match	0.91	0.91	0.10	0.92
ACT score	Pre-match	29.10	29.08	0.14	0.89
	Post-match	29.17	29.07	0.48	0.63
Will get a job to pay for college expenses	Pre-match	0.68	0.82	-6.45	0.00
	Post-match	0.68	0.68	0.10	0.92
Will work full-time while attending college	Pre-match	0.15	0.20	-2.39	0.02
	Post-match	0.17	0.15	0.41	0.68
Will need extra time to complete	Pre-match	0.33	0.30	1.43	0.15
	Post-match	0.34	0.36	-0.53	0.59
Will transfer to another college	Pre-match	0.08	0.09	-0.81	0.42
	Post-match	0.07	0.06	0.57	0.57
Will change career choice	Pre-match	0.84	0.66	7.35	0.00
	Post-match	0.83	0.84	-0.08	0.94
Will study abroad	Pre-match	0.96	0.74	10.00	0.00
	Post-match	0.95	0.96	-0.32	0.75
Will change major field	Pre-match	0.81	0.65	6.48	0.00
	Post-match	0.80	0.81	-0.29	0.77
Will participate in student clubs/groups	Pre-match	0.97	0.93	3.11	0.00
	Post-match	0.97	0.97	0.16	0.87
Will participate in student government	Pre-match	0.43	0.36	2.82	0.01
	Post-match	0.43	0.43	0.04	0.97
Participated in learning community	Pre-match	0.18	0.14	2.41	0.02
	Post-match	0.18	0.19	-0.17	0.87
Cumulative GPA end of 1st year	Pre-match	3.41	3.30	5.11	0.00
	Post-match	3.40	3.37	0.99	0.32
Total credits end of 1st year	Pre-match	31.15	30.84	1.70	0.09
	Post-match	31.06	30.96	0.40	0.69

Received award for high academic performance	Pre-match	0.04	0.04	-0.29	0.77
	Post-match	0.03	0.02	0.29	0.77
Cohort 2008	Pre-match	0.56	0.33	9.53	0.00
	Post-match	0.51	0.52	-0.17	0.87
Cohort 2009	Pre-match	0.41	0.29	5.45	0.00
	Post-match	0.45	0.44	0.21	0.84
Cohort 2010	Pre-match	0.04	0.38	-15.02	0.00
	Post-match	0.04	0.04	-0.09	0.93
Mean Standardized Bias of Observed X's			Pre-match	23.60	
			Post-match	1.90	

Notes. All observations have common support.

Table 3.A6. Distribution of Covariates for Unmatched and Matched Samples by Treatment Status for Degree Outcomes: Short-term Study Abroad and Engineering Students (n=1,339)

Variable		Treated	Control	% Bias	p>|t|
Male	Pre-match	0.55	0.78	-4.97	0.00
	Post-match	0.54	0.52	0.29	0.78
Under-represented minority	Pre-match	0.04	0.05	-0.66	0.51
	Post-match	0.04	0.03	0.33	0.74
Low-income	Pre-match	0.15	0.10	1.31	0.19
	Post-match	0.14	0.17	-0.62	0.53
Medium-income	Pre-match	0.23	0.27	-0.72	0.47
	Post-match	0.26	0.23	0.33	0.74
High-income	Pre-match	0.62	0.63	-0.17	0.87
	Post-match	0.61	0.59	0.17	0.87
Parental education (college degree)	Pre-match	0.79	0.89	-3.08	0.00
	Post-match	0.78	0.76	0.34	0.73
Low high school GPA	Pre-match	0.00	0.00	.	.
	Post-match	0.00	0.00	.	.
Medium high school GPA	Pre-match	0.02	0.05	-1.09	0.28
	Post-match	0.03	0.02	0.27	0.79
High high school GPA	Pre-match	0.98	0.95	1.09	0.28
	Post-match	0.97	0.98	-0.27	0.79
ACT score	Pre-match	30.55	30.39	0.56	0.58
	Post-match	30.51	30.65	-0.30	0.77
Will get a job to pay for college expenses	Pre-match	0.77	0.84	-1.71	0.09
	Post-match	0.77	0.80	-0.45	0.66
Will work full-time while attending college	Pre-match	0.21	0.16	1.10	0.27
	Post-match	0.20	0.22	-0.20	0.84
Will need extra time to complete	Pre-match	0.40	0.35	0.91	0.36
	Post-match	0.42	0.44	-0.29	0.77
Will transfer to another college	Pre-match	0.04	0.07	-1.12	0.26
	Post-match	0.03	0.02	0.13	0.90
Will change career choice	Pre-match	0.64	0.61	0.59	0.56
	Post-match	0.65	0.64	0.09	0.93
Will study abroad	Pre-match	0.88	0.60	5.13	0.00

	Post-match	0.86	0.83	0.57	0.57
Will change major field	Pre-match	0.58	0.51	1.29	0.20
	Post-match	0.58	0.57	0.17	0.87
Will participate in student clubs/groups	Pre-match	0.98	0.92	1.82	0.07
	Post-match	0.97	0.98	-0.13	0.90
Will participate in student government	Pre-match	0.23	0.20	0.54	0.59
	Post-match	0.24	0.24	0.00	1.00
Participated in learning community	Pre-match	0.13	0.08	1.63	0.10
	Post-match	0.14	0.17	-0.57	0.57
Cumulative GPA end of 1st year	Pre-match	3.29	3.23	1.17	0.24
	Post-match	3.26	3.27	-0.07	0.94
Total credits end of 1st year	Pre-match	30.30	29.62	1.65	0.10
	Post-match	30.11	30.00	0.17	0.87
Received award for high academic performance	Pre-match	0.07	0.04	1.19	0.23
	Post-match	0.05	0.04	0.38	0.70
Cohort 2008	Pre-match	0.27	0.38	-1.93	0.05
	Post-match	0.26	0.27	-0.23	0.82
Cohort 2009	Pre-match	0.36	0.29	1.42	0.16
	Post-match	0.38	0.35	0.38	0.70
Cohort 2010	Pre-match	0.37	0.34	0.62	0.54
	Post-match	0.36	0.38	-0.17	0.87
Mean Standardized Bias of Observed X's		Pre-match		17.00	
		Post-match		4.50	

Notes. All but two treated observations have common support.

Table 3.A7. Distribution of Covariates for Unmatched and Matched Samples by Treatment Status for Completion of International Related Major: HS Students (n=4,424)

Variable		Treated	Control	% Bias	p>|t|
Male	Pre-match	0.29	0.45	-33.70	0.00
	Post-match	0.29	0.31	-3.40	0.52
Under-represented minority	Pre-match	0.11	0.10	5.50	0.14
	Post-match	0.12	0.13	-2.90	0.61
Low-income	Pre-match	0.13	0.14	-4.90	0.21
	Post-match	0.13	0.13	0.00	1.00
Medium-income	Pre-match	0.20	0.26	-14.40	0.00
	Post-match	0.20	0.20	0.90	0.87
High-income	Pre-match	0.67	0.59	16.10	0.00
	Post-match	0.66	0.67	-0.80	0.89
Parental education (college degree)	Pre-match	0.90	0.85	12.40	0.00
	Post-match	0.89	0.88	1.90	0.72
Low high school GPA	Pre-match	0.01	0.01	-1.90	0.62
	Post-match	0.01	0.01	-0.90	0.88
Medium high school GPA	Pre-match	0.09	0.06	10.10	0.00
	Post-match	0.08	0.08	-0.50	0.92
High high school GPA	Pre-match	0.90	0.93	-9.20	0.01

	Post-match	0.91	0.91	0.80	0.89
ACT score	Pre-match	29.08	29.07	0.40	0.92
	Post-match	29.12	29.07	2.00	0.72
Socialized other racial/ethnic group (high school)	Pre-match	0.70	0.71	-2.30	0.55
	Post-match	0.70	0.71	-0.60	0.91
Diversity self-rating (scale)	Pre-match	4.07	4.01	9.80	0.01
	Post-match	4.07	4.06	2.60	0.64
Will study abroad	Pre-match	0.93	0.73	53.60	0.00
	Post-match	0.92	0.92	-0.40	0.92
Will socialize with other racial/ethnic group	Pre-match	0.98	0.98	0.60	0.88
	Post-match	0.98	0.98	1.70	0.77
Improve understanding of other countries/cultures	Pre-match	0.69	0.60	18.90	0.00
	Post-match	0.69	0.68	2.70	0.61
Participated in learning community	Pre-match	0.20	0.14	15.70	0.00
	Post-match	0.21	0.20	0.70	0.91
Cumulative GPA end of 1st year	Pre-match	3.40	3.30	24.20	0.00
	Post-match	3.39	3.39	0.60	0.90
Total credits end of 1st year	Pre-match	31.04	30.81	6.40	0.10
	Post-match	30.95	31.00	-1.40	0.78
Total language credits end of 1st year	Pre-match	5.62	4.72	22.20	0.00
	Post-match	5.50	5.45	1.30	0.81
Cohort 2008	Pre-match	0.40	0.34	13.00	0.00
	Post-match	0.35	0.33	4.00	0.45
Cohort 2009	Pre-match	0.41	0.28	26.50	0.00
	Post-match	0.44	0.46	-4.90	0.39
Cohort 2010	Pre-match	0.19	0.38	-42.40	0.00
	Post-match	0.21	0.21	0.90	0.86
Mean Standardized Bias of Observed X's			Pre-match	15.60	
			Post-match	1.60	

Notes. All but one treated observation have common support.

Chapter 4: Measuring Impact of Study Abroad Program Activities

Introduction

Efforts to internationalize higher education occur both at home and abroad (see Knight, 2004, 2007 for a comprehensive overview). However, in recent years education abroad has received special attention. The growing interest post 9/11/2001 is attributed to calls from organizations such as the American Council on Education for the U.S. government to invest in programming (Salisbury, An & Pascarella, 2013) and the rising emphasis given to the global marketplace that make intercultural competence critically important (Deardorff & Hunter, 2008; Hulstrand, 2008; Lewin, 2009; Lustig, 2005; Schattle, 2009; Stearns, 2009). The overall effect is heightened participation and "over the course of several decades, postsecondary study abroad has evolved from a selective educational endeavor to a national educational priority" (Salisbury et al., 2013, p. 2). At the same time, the rapid proliferation of programs, financial constraints in higher education, and assessment pressures have elicited interest in evaluating the impact of education abroad (Vande Berg et al., 2009).

According to the most recent *Open Doors Report* (2016), 63.1% of U.S. students studying abroad participate in programs where the time in the host country is eight weeks or less, prompting growing attention to short-term education abroad initiatives (Anderson, et al., 2006; Gillespie, 2002; Martinsen, Baker, Dewey, Brown, & Johnson, 2010). Long, Akande, Purdy and Nakando (2010) believe briefer sojourns may be the only realistic option for students with fewer

financial resources and those in highly structured programs of study (Donnelly-Smith, 2009). Tarrant, Rubin and Stoner (2014) conclude that short-term opportunities are "crucial for achieving broad and more egalitarian access to study abroad for U.S. undergraduates" (p. 142).

Although proponents of education abroad claim a preponderance of evidence shows participation leads to important outcomes (Engberg, 2013; Linder & McGaha, 2013; NAFSA, 2003; Vande Berg, Paige, & Lou, 2012), there are skeptics (Twombly, Salisbury, Tumanut, & Klute, 2012; Soria & Troisi, 2014). Scholars note that efforts to understand why particular instructional activities work are hampered by weak conceptual grounding (Salisbury, et al., 2013) and methodological issues that result in inconsistent findings (Anderson et al., 2006; Van de Vijver & Leung, 2009; Salisbury, An, & Pascarella, 2013). Furthermore, there is a shortage of data linking student outcomes to particular education abroad instructional activities that could be used to improve practice (Anderson, et al., 2006; Engberg, 2013; Engberg, Jourian, & Davidson, 2016; Musil, 2006; Paige et al., 2008; Paige & Goode, 2009). In short, international educators want to know what works and why (Anderson et al., 2006; Mills et al., 2010).

Studies of impact vary greatly in approach from those that examine a single study abroad program (e.g., Wessel, 2007), to those that compare the effects of study abroad to international and diversity activities on campus (e.g., Soria & Troisi, 2014), to large scale inquiries that combine institutional and program samples, often treating participation as a dichotomous variable (e.g., Salisbury et al., 2013). Each approach has affordances and limitations. Single program studies offer more detail about instructional activities but are faulted for their lack of generalizability (Salisbury et al., 2013). Large multiple program studies designed to enhance generalizability are criticized for: a lack of consensus regarding desired outcomes (Spitzberg & Changnon, 2009; Fantini, 2009); lack of detailed information about program features (Engberg &

Jourian, 2015; Tarrant et al., 2014; Paige & Goode, 2009); failing to account for factors, aside from program participation, that can affect study outcomes (Salisbury et al., 2013); sampling issues (Tarrant, et al., 2014), especially a lack of randomization due to self-selection into treatment groups (education abroad and on campus) (Sutton, Miller, and Rubin, 2007); assessment of change at only one point in time and immediately following participation (Anderson, et al., 2006; Dwyer, 2004; Engberg, 2013); and overdependence on student-reported data and cross-sectional design (Salisbury et al., 2013; Tarrant et al., 2014). Such problems, along with the lack of consensus on what constitutes "short-term", hamper efforts to abstract effective practices for this particular subset of programs. Time spent in the host country ranges across studies from one to four weeks (Gordon, Heischmidt, Sterrett & McMillan, 2009), to fewer than eight weeks (Donnelly-Smith, 2009), to two weeks to three months (Long et al., 2010).

The purpose of this exploratory study was to examine how qualitative data from multiple short-term faculty led study abroad programs might be used to improve surveys designed to gather data in large-scale studies of the effectiveness of instructional activities. The questions guiding the inquiry are:

(1) What measures of instructional activities derived from (a) short-term study abroad program proposals and (b) student reports of their study abroad engagement predict students' intercultural competence at the program's conclusion?

(2) What are the implications of these findings for developing surveys of study abroad that capture more detailed information about the learning activities faculty intentionally incorporate into study abroad programs?

(3) What are the implications of these findings for developing surveys for refining surveys of students used to assess the effectiveness of instructional activities in study abroad programs?

Literature Review

Instructional activities are structured opportunities to learn created by teachers to facilitate student attainment of particular learning outcomes (Brophy & Alleman, 1991; Lattuca & Stark, 2009; Schubert, 2010). Therefore, efforts to identify practices that are effective across multiple programs must first agree on the desired learning (Porter,, 2002; Rowan, Camburn & Correnti, 2004). In the literature review that follows, we first highlight learning outcomes that education abroad programs aim to accomplish. We next provide an overview of the activities thought to facilitate student attainment of these outcomes and identify strengths and limitations of this body of literature. Finally, we discuss briefly approaches to creating indices of effective teaching practice used in large scale studies that might be applied to developing measures of instructional activities that can be used across the range of study abroad programs.

Learning outcomes. The outcomes of interest in education abroad research are varied and include: global learning (e.g., AACU, 2007), global citizenship (e.g., Lutterman-Aguilar & Gingerich, 2002; Schattle, 2009; Tarrant, et al., 2014), global perspective taking (Braskamp et al., 2013), international competence (Soria & Troisi, 2014), intercultural competence (e.g., Salisbury, An, & Pascarella, 2013; Spitzberg & Changnon, 2009), intercultural sensitivity (Anderson et al., 2006), and intercultural maturity (King & Baxter Magolda, 2005). Furthermore, conceptualizations of the same outcome often differ in terms of both the constitutive attributes and emphasis given to each one (Deardorff, 2006). Consequently, Fantini (2009) concludes that the variation in outcomes within the international education literature limits the capacity to

generalize across studies of program impact.

However, several authors (Deardorff, 2009; Fantini, 2009; Spitzberg & Changnon, 2009) suggest the array of desired study abroad outcomes cluster along three theoretical dimensions: cognitive, intrapersonal and interpersonal. The *cognitive dimension* represents a learner's capacity to construct, interpret, analyze, and evaluate knowledge (Braskamp et al., 2009; Gudykunst, 2003). Arrayed along this dimension are attributes such as acquisition and application of knowledge about a specific or different cultures, international relations, global issues, national histories, language proficiency, as well as one's capacity for ethno-relative thinking (Deardorff, 2006; Mills, Deviney, & Ball, 2010). The *intrapersonal dimension* captures individuals' awareness of their own beliefs, attitudes, needs, and personal identity (Bennett & Bennett, 2004; Deardorff, 2009; Ingraham & Peterson, 2004). For example, attitudes toward and interest in cultural diversity, sense of self as culturally conditioned, awareness of one's responsibilities beyond one's immediate community, tolerance of ambiguity, curiosity, flexibility, openness, comprehension of cultural relativism, and sense of career direction (Anderson, Lawton, Rexeisen, Hubbard, 2006; Braskamp et al., 2009). The *interpersonal dimension* is comprised of interactional dispositions and skills that enable one to adapt to various cultural settings (King & Baxter Magolda, 2005) such as listening, observing, communicating and behaving appropriately, achieving one's goals in unfamiliar cultural situations, working in different cultural contexts and with persons whose perspectives differ from one's own, understanding others' worldviews, and relating to people from other cultures (Deardorff, 2006; Soria & Troisi, 2014; Sutton & Rubin, 2004). Several studies also include an *action* dimension, indicating that students alter personal habits (e.g., civic engagement with community issues,

taking some action to reduce one's ecological impact/footprint) or one's career goals and outcomes (Tarrant, Rubin & Stoner, 2014; Van de Vijver & Leung, 2009).

Linking practice and learning outcomes. Inquiries into the instructional effectiveness of education abroad draw on research in psychology and education that conceptualizes learning as an individual's cognitive construction of knowledge that occurs through interactions within structured environments (Bransford, Brown, & Cocking 2000; Shepard, 2000, Lattuca & Stark, 2009; Richardson, 1997; Vande Berg, Connor-Linton, Paige, 2009). Studies grounded on social-constructivist theories emphasize the situated nature of learning, opportunities to learn, and the importance of individuals' perceptions of their environments. A teacher's role is to create conditions that promote active engagement by challenging students' current understanding and supporting them as they analyze their experiences and incorporate new with their prior understanding. However, researchers acknowledge that individuals differ in how they perceive learning opportunities, their predispositions to engage, the amount of psychological energy they invest in teacher designed activities, and, ultimately, their learning (Astin, 1984; Pintrich, 2003). Consequently, studies of education abroad impact take into account, for example, factors such as students' prior travel and living experiences and their tolerance for ambiguity that can affect their interests and their engagement in instructional activities (e.g. Paige & Goode, 2009; Vander Berge, et al., 2012). Furthermore, campus climate with respect to cultural diversity and international education, signaled by campus demographics, faculty attitudes, and curricular and co-curricular opportunities to learn about and experience cultural difference, can affect participation (Salisbury, Umbach, Paulsen, & Pascarella, 2009; Engberg, 2013, 2016; Salisbury, et al., 2013; Soria & Troisi, 2014).

In the international education literature, the terms facilitate and teach are often used interchangeably, suggesting the role of the teacher is to create environments that encourage students to step outside their comfort zones, to create experiences that disrupt balance and scaffold learners' construction of knowledge (Engberg, et al., 2016; Peterson, 2002; Vande Berg, et al., 2009). The mentoring role of international education staff is described in similar terms (Lutterman-Aguilar & Gingerich, 2002; Engberg, 2013; Tarrant et al., 2014). Allport's contact theory (1954) is frequently used to explain why structured interactions with individuals in the host country (e.g., focused conversations and interviews facilitated by program leaders) lead to changes in learners' self-understanding and attitudes toward those who are culturally different (Salisbury et al., 2013; Soria & Troisi, 2014; Vander Berg et al., 2009). A key assumption is that meaningful interactions, emphasizing cooperation and equal status among participants, tend to disrupt stereotypes and facilitate reappraisals of self and outgroup members.

Outcomes of interest in effectiveness studies are often levels of intercultural maturity and stages of intercultural development (e.g., Braskamp et al., 2009; Engberg, 2013; Vande Berg, et al., 2013). A key assumption of the holistic developmental models that ground many of these studies is that individuals progress from less to more complex ways of interpreting or from an ethnocentric to ethno-relative understanding of culture (e.g., Bennett, 2009; Bennett & Bennett, 2004; Deardorff, 2006, 2009; Spitzberg & Changnon, 2009). King and Baxter-Magolda's (2005) model of intercultural maturity assumes change occurs over time and simultaneously along interdependent cognitive, interpersonal and intrapersonal dimensions. As they encounter environments that challenge their worldviews, individuals construct a more cognitively complex understanding of and responses to cultural difference that can be described as levels. A similar set of assumptions grounds Bennett's Developmental Model of Intercultural Sensitivity (DMIS)

(Bennett, 1986). DMIS portrays development as a series of stages that move from more ethnocentric to ethno-relative world views; from denial and defense (strong beliefs that only one's own culture is legitimate, relevant, superior), to minimization (belief that people are alike across cultures), and acceptance, adaptation and integration (beliefs that other cultures are also legitimate, one should behave in accord with cultural expectations, one can have overlapping cultural identities). Tarrant et al., (2014) and Vande Berg et al. (2009) use the Intercultural Development Index (IDI), based on Bennett's DMIS, to assess students' progress from ethnocentric toward ethno-relative world views. The Global Perspectives Inventory (GPI) employed by Braskamp, et al., (2009) and Engberg et al., (2015) in their studies builds on King and Baxter Magolda's model and communication theories and assesses individuals' progress toward more complex ways of understanding the world and their place in it and their ways of interacting with others.

Instructional activities thought to facilitate intercultural learning. Projects have been initiated with a goal of identifying instructional activities that successfully facilitate intercultural learning in the host country, pre-departure, and re-entry. See, for example, the Georgetown Consortium Project (Vande Berg, Connor-Linton, & Paige, 2009), the Georgia Learning Outcomes of Students Studying Abroad (Sutton & Rubin, 2004), and the instructional guides for international educators produced by the Center for Advanced Research on Language Acquisition at the University of Minnesota (Mikk, Cohen, & Paige, 2009) and NAFSA (Spencer & Tuma, 2007). Reflective pieces by international educators (e.g., Engle and Engle, 2004) also highlight select program features inside and outside formal classrooms in the host country that shape student learning. The program characteristics highlighted in these publications include: instructional activities such as structured dialog and group projects with students and faculty

from the host country (Engberg, 2013), experiential learning (Montrose, 2002; Peterson, 2002), service and field work (Annette, 2002; Jones, Rowan-Kenyon, Ireland, & Niehaus, 2012; Moony & Edwards, 2001), structured excursions and opportunities to interact with diverse members of the host country (Lee, 2012; Vande Berg, et al., 2009), journaling and reflection (Jessup-Anger, 2008; Mills, et al., 2010); living arrangements and length of stay in the host country (Dwyer, 2004; Engle and Engle, 2003; Knight & Schmidt-Rinehart, 2010;Sutton & Rubin, 2004; Vande Berg et al., 2009); language learning and use (Knight & Schmidt-Rinehart, 2010; Smith & Moreno-Lopez, 2012; Vande Berg, et al., 2012); and availability of on-site intercultural mentors for students (Vande Berg et al., 2009).

In addition to these in-country features, key pre-departure and re-entry components appear to enhance student learning (Engberg, 2013, 2015; Mills, et al., 2010; Paige & Goode, 2009; Paige & Vande Berg, 2012; Twombly, et al., 2012). Pre-departure instructional activities include campus-wide events that provide students with opportunities to learn about global issues and about different nations, to interact with diverse others and explore cultural diversity (Salisbury et al., 2013), to learn and practice foreign languages (Engle & Engle, 2004), to engage in community service (Engberg, 2013), and learn about the self as a cultural being (Paige & Goode, 2009). Targeted orientation sessions that may enhance knowledge as well as language learning and communication skills specific to a program's host country (Paige & Goode, 2009; Rexeisen & Al-Khatib, 2009) are also important. Opportunities to share and reflect on experiences upon return help students with re-entry to their home campus and the broader community (Bennett, 2008; Rexeisen & Al Kjatib, 2009). Research focused specifically on short-term study abroad is limited and resembles the larger body of work in terms of the outcomes as well as pre-departure, in- country, and re-entry features of interest (Gillespie, 2002;

Martinsen, Baker, Dewey, Brown, & Johnson, 2010; Mills et al., 2010; Tarrant et al., 2014).

Attention in this body of work is given to how students perceive and respond to their learning environments, a focus consistent with research suggesting how students engage with and experience the activities determines what they learn (Anderson, Reder, & Simon, 1996; Erickson & Pinnegar, 2010). It is also consistent with inquiries into high impact instruction on college and university campuses (Kuh et al., 2005). However, researchers interested in assessing the impact of instruction in K-12 and postsecondary educational settings have come to distinguish among the experienced, intended, and enacted curricula (Brophy & Alleman, 1991; Lattuca & Stark, 2009; Porter, 2002; Rowan, Camburn, & Coretti, 2004). The intended curriculum is assumed to be a blueprint or plan created by a teacher that specifies the knowledge, skills, and dispositions students are expected to learn (goals, outcomes) and the structured opportunities to learn (instructional activities) that they will provide to facilitate student attainment of these outcomes (Brophy & Alleman, 1991; Lattuca & Stark, 2009; Schubert, 2010). The enacted curriculum is comprised of the information a teacher actually incorporates and the activities she or he actually employs to facilitate student learning. The experienced curriculum is how the student interprets and responds to the learning environment constructed by the teacher. Several writers argue an optimal assessment of instructional impact would gather data on all three types and examine the alignment among them (Porter, Youngs, & Odden, 2001; Porter, 2002; Shawer, 2010). The argument is that to accurately portray what works, researchers must gather information about the instructional activities intentionally planned and actually implemented by teachers and how students engage and experience the learning environments created by these teachers. Alignment among these curricula is assumed to optimize student learning as it implies students and teachers agree on what is to be learned and what tasks are to

be performed to accomplish these outcomes.

Few, if any, studies of short-term study abroad instructional practices consider all three curricular constructs. A small number of investigations of single programs touch on both the enacted and the experienced curriculum, although typically with scant information about the enacted curriculum (see for example, Anderson, & Lawton, 2011; Czerwionka, Artamonova, & Barbosa, 2015) or with detailed information about the enacted but less robust student outcome data (e.g., Wessel, 2007). We found no empirical inquiry that considered the impact of activities planned by faculty (the intended curriculum).

A large portion of the published studies seek to enhance the generalizability of findings by relying on survey data about the experienced curriculum and gathering data from students in multiple programs. For example, Soria and Troisi (2014) utilize the Student Experience in the Research University (SERU), and Engberg et al. (2016) utilize the Global Perspectives Inventory (GPI). The SERU items selected to represent instructional activities capture very general features of instruction. For example, in the Soria and Troisi study (2014), the items asked students to indicate their involvement (yes, doing it now or have done, no) in curricular activities such as participation in "travel abroad for a service-learning, volunteer or work experience; any university study abroad, including summer study abroad; study abroad program affiliated with another college or university" and "worked with a faculty member on a project with an international/global theme" (p. 269).

The new Global Perspectives Inventory (2016) includes a more detailed list of items representing a variety of study abroad experience. The survey includes some yes or no questions such as "Did you stay with a host family while studying abroad?" or "Did you complete an internship or service learning project while studying abroad?" Students are also asked to choose

from five response categories (never, rarely, sometimes, often, very often) as regards how often they participated in activities in the host country. Some examples of the specific items are: “How often did you speak the host country’s language in the non-language courses?”, “How often did you interact with individuals from the host country outside of the classroom?”, “How often did you feel immersed in the culture of the host country?”, “How often did your class assignments require you to gather information from your surrounding community?” The survey instrument also captures how the student experienced the study abroad program by asking the extent to which participants agreed or disagreed (strongly disagree, disagree, neutral, agree, strongly agree) with statements such as “The onsite staff abroad took a genuine interest in my development as a person,” “My study abroad experience changed my life,” or “My pre-departure orientation was very useful in preparing me to fit into the host culture.”

In sum, inquiries into what are impactful instructional activities within the context of study abroad have, to date, focused primarily on what students believe are important information and skills to be learned and what they say they do (experienced curriculum). While student perceptions are key to understanding variations in learning behaviors and outcomes (e g., Erickson & Pinnegar, 2010; Erickson, & Shultz, 1992; Herman, Klein, & Abedi, 2000), concerns linger regarding the adequacy with which opportunities to learn are captured by current student self-reported surveys (Anderson et al., 2006; Mills et al., 2010). For example, the experienced curriculum may not always reflect opportunities to learn that are intentionally incorporated by program developers. Faculty may include activities intended to move students outside their comfort zones but if they are able to and a large number of students choose to not participate, these opportunities may not be identified in student self-reports.

Creating indices effectiveness research. As is the case in studies of multiple education abroad programs occurring on several campuses, investigators conducting system-wide inquiries into the effectiveness of K-12 instruction must find ways to gather data on activities and create indices that can be applied across numerous classrooms (Porter, 2002; Rowan, Camburn & Correnti, 2004). Because teachers make decisions about what will be taught and how it will be sequenced, paced and evaluated, investigators often begin the work of creating useful measures by examining the intended and enacted curricula (McDonnell, 1995; Porter, 2002; Rowan, Camburn, & Coretti, 2004; Shawer, 2010). Methodological tools include content analyses of instructional materials, surveys comprised of researcher derived items about teaching practices, and teacher logs that record what is taught, the emphasis given to topics, and how topics are taught (Rowan et al., 2004).

In a series of articles and papers, Porter argues that it is critical to gather data on the intended and enacted curricula used to enhance students' learning.[1] Essentially, he contends that instructional activities are elements of the learning environment over which faculty have control (2004) and that assessment tools can be constructed to gather uniform data on content coverage, learning outcomes, and pedagogical practices used by individual teachers across multiple classrooms to achieve common outcomes. To create indices he and other researchers (e.g., Rowan, Camburn, and Correnti, 2004) have analyzed textbooks, teacher surveys and teacher logs (teachers' periodic reports of content coverage and instructional activities used in their classes) and developed detailed measures that capture differences in instructional activities, the content covered, and cognitive demands on students (Porter and Smithson, 2001).

Although researchers have called for gathering more refined information about education abroad instructional activities (Engberg, 2013) across programs, within the published study

[1] www.andyporter.org/sites/andyporter.org/files/papers/CurriculumAssessment.pdf

abroad literature, we have not found studies comparable to those by K-12 researchers that aim to create detailed measures of instructional activities. Rather, studies tend to rely on surveys with items that capture very general characteristics of instructional activities such as "interacting with individuals from the host country outside of the classroom" (GPI, 2016). Such items fail to account for important variations in the nature of these interactions that can lead to different learning outcomes; for example, whether the interactions were structured by a faculty member such as debates, debriefings, involved problem solving in the context of collaborative research projects, or were spontaneous chats with student peers, etc. Without such measures, advances in our understanding of "what works" will continue to be hampered.

Methods

To accomplish our study goals, we utilized a multiple methods approach (Creswell, 2003; McMillan & Schumacher, 2006). We first conducted content analyses of faculty generated study abroad proposals and created coding categories for instructional activities faculty planned to incorporate in their programs (intended curricula). We created variables for the coded proposal data and used these variables to predict students' learning outcomes. We then completed factor analyses of student pre- and post- participation survey data. The pre- and post-participation survey items, grounded on holistic theories of student development (e.g., Bennett, 1993; Kegan, 1994; King & Baxter Magolda, 2005) and constructivist theories of learning, include student-activity variables similar to those used in extant research (e.g., Engberg et al., 2016). The experienced curriculum variables were regressed against the learning outcomes. Suggestions for improving survey items representing instructional activities in large-scale studies of multiple programs were generated by comparing the results of the two regression analyses.

Data Sources

We chose to study short-term programs (3-4 weeks overseas) that were selected on a competitive basis to be part of an international and global education initiative at a large research university in the mid-west. The initiative emphasizes the interconnections among traditional academic learning and field-based study and the guidelines encourage faculty to incorporate several best practices (e.g., experiential learning, journaling, mentoring) advocated by international educators. Faculty proposals and supplementary documents describe the program theme, goals for student learning, activities to be incorporated, and implementation plans (the intended curriculum).

All students in these programs were required to participate in pre- and post-departure activities for academic credit the semester before and after the out-of-country experiences. The pre-departure component aimed to provide all students with opportunities to improve intercultural interactions and competence. More specifically, students attended a three-day orientation and a one-day convocation before departure. These sessions were designed to explore differences between academic tourists and intercultural learners and prepare for experiences abroad through attending lectures, discussing concepts related to intercultural learning and intercultural challenges students may encounter, participating in role-play exercises, and attending campus cultural events. Students were also introduced to the use of journals as a reflective tool for self-awareness and documenting learning.

The re-entry course included debriefing sessions that provide students with opportunities to understand the re-entry process, review journal reflections, and revisit key concepts of intercultural learning introduced during pre-departure sessions. For instance, students examined personal values and beliefs within the contexts of their study abroad experience by reflecting on

journal entries. Students also engaged in small group discussions to think of creative ways to stay connected to host cultures. At the final symposium, students showcased their field site experiences abroad to the wider university community.

While these core activities were common across programs, other components were designed only for participants in a particular program and may emphasize different learning. These components included, but were not limited to, preparing for a particular experience in the host country by learning specific skills or academic content required by a project, learning about the field site's history, politics, or culture through reading assignments, building team rapport, increasing one's understanding of critical intercultural interactions or competencies, or debriefing exercises upon completion of programs. For instance, programs with experiences that required special skills and involved collaboration with locals on service delivery (e.g., design of prosthetics) incorporated in pre-departure activities skill building and discussions about how cultural norms and beliefs shape conceptions of disability. Programs emphasizing literature, arts and humanities often focused attention on language, a literary figure's work, or an historic event in preparation for field-based experiences that involved interviews and apprenticeships with locals.

The home institution administers pre- and post-participation surveys comprised of identical Likert-scaled items measuring aspects of intercultural learning and curricular and co-curricular activities to all program participants at the pre-departure convocation event and post-departure symposium. These items were used to construct variables representing student self-reported intercultural learning and the experienced curriculum, the extent to which participants said they engaged in select activities in the host country.

Measures

The data set offers several advantages that address concerns about prior inquiries into study abroad instructional practice. We are able to minimize campus level effects by examining different programs offered by the same institution. The program time spent out of country is the same (3-4 weeks) and the number of students in each program is about the same (10 to 15 students). All programs are faculty led. Several common measures of both the intended and experienced instructional activities and learning are available for all programs. We have detailed information on the programs in which our sample of students participated and we are able to match students to programs.

Faculty-reported instructional practice (Intended Curriculum). We completed content analyses of the 53 proposals selected for funding between 2007 and 2011.The faculty generated program proposals were coded in two stages. First, a team of five researchers (including the two authors) constructed a preliminary coding scheme for instructional activities through open and axial coding of a subset of 26 proposals. To enhance reliability, pairs of researchers independently coded the same material, compared results, resolved coding issues, and revised the codes. Then, the two authors used the preliminary codes with all 53 proposals. Where differences appeared, codes were revised and as Merriam (2009) suggests, the preliminary codes of instructional activities were refined to enhance the descriptive and interpretive validity.

The final codes distinguished between activities faculty designed for students participating in *their particular program* prior to departure and in *the host countries*. Within these two broad categories of activities, codes were developed to distinguish differences among instructional activities. For example, with respect to pre-departure preparation, our codes

differentiated activities designed to enhance students' knowledge about the host culture; those intended to heighten their awareness of their own values and beliefs; those intended to prepare them to conduct a particular project in the host culture; and those designed to prepare participants to work as a team. With regard to instructional activities in the host country, experiences faculty designed to facilitate student learning through the provision of service were coded to distinguish key differences in terms of the types of services planned. For example, one type of service required that students have special expertise (e.g., system design) and another did not (e.g., joining ongoing local construction efforts). Coding of pedagogical techniques used to immerse students in the host culture distinguished among groups with whom students interacted (i.e., homestays, interactions with local professionals, interactions with students and faculty, and interactions with local community). Appendix Table 4.A1 provides a summary of variables and their definitions.

We identified four types of activity within the pre-departure category: learning about the host couture, reflection, learning about the project theme, and team building. Instructional activities coded as learning about host culture included faculty pre-departure lectures that introduced students to different aspects of the host culture. Reflection captured activities designed to enhance learning about one's self as a cultural being, such as journaling or group debriefing during pre-departure sessions. Learning about the project theme included program features (lectures, readings, or in some cases regular courses) focused on academic content students needed to engage in projects that faculty arranged for them when abroad (e.g., preschool instruction, geology, system design). Team building exercises were designed to improve communication skills among student participants in small group settings and to better understand what teamwork would entail when implementing a particular project in the host country.

The coding category for activities faculty planned for students when they were abroad distinguished between two kinds of cultural knowledge faculty wanted students to construct in country (objective and subjective cultural learning) as well as the specific activities to be implemented to facilitate students' construction of this knowledge: language instruction, homestays, reflection, interactions with members of the host community, service projects, research, crafts apprenticeships, and visits local facilities or organizations. Cultural knowledge that involved *learning about* the history, politics, economy, and culture of a host country (e.g., cultural practices, historical and sociopolitical situations) was coded as objective cultural learning. For example, a program that organized a series of lectures on the history of astronomy and visits to local observatories to provide students with an understanding of how the host culture shapes the study of astronomy was assumed to include objective cultural learning. Cultural knowledge that involved developing an understanding of *the impact of cultural context and acknowledging one's own values and beliefs* was coded as subjective cultural learning. By way of illustration, a program in which learning was designed to prompt student understanding about how an artist's cultural products (e.g., short stories, puppetry) reflect the cultural or political contexts of her or his country was coded as prioritizing subjective cultural learning. So too were programs in which students were required to compare and contrast practices or public policies in the U.S. and the host country through a series of lectures and discussions; and programs that organized a series of dialogues with local students and faculty about global oppression and injustice and students were guided through reflection on how their own education and socialization may have shaped their perceptions and beliefs on the issues. These codes of objective and subject cultural learning reflect types of intercultural knowledge (e.g., products and

practices, societal norms, individual interactions, cross cultural understanding) proposed in prior literature (e.g., Chieffo & Griffiths, 2004; Czerwionka et al., 2015; Fantini & Tirmizi, 2006).

With respect to the coding of specific instructional activities, daily language instruction faculty planned to incorporate to introduce participants to basic conversation skills and to the host culture was coded as language instruction. Homestays included forms of accommodation whereby students reside in the home of a local person or family. However, it is worth noting that the duration and nature of these stays varied (e.g., spending one to three days with a local family to spending the entire three to four weeks with craftsmen to observe and learn their work). Reflection activities emerged as a component of most programs with virtually all faculty indicating they required students to journal. Since all faculty encouraged students to keep records of their experiences, we distinguished programs that scheduled required reflection exercises such as individual or group debriefing in addition to personal journaling to create a code named 'moderate or extensive reflection.' The terms moderate and extensive were used to distinguish between journaling with less (moderate) and more scaffolding (extensive) by faculty.

Proposed opportunities to interact with the locals were coded to differentiate among interactions to better capture the nature of these experiences. For instance, interactions with local professionals refers to instances where program leaders intended for participants to meet with people in particular fields such as writers, artists, social workers or educators. Opportunities for program participants to engage in structured dialog or group projects with students and faculty at a local university were coded as interactions with students and faculty. Interactions with local community refers to faculty plans to provide students with unique opportunities to be part of the lives of the local people; such interactions could take place by engaging in the daily life (e.g.,

preparation of meals, helping children of host families with their homework, feeding animals), through learning rituals, or attending social events such as cultural ceremonies or celebrations.

Experiential activities included a variety of faculty-designed opportunities for hands on learning. From faculty proposals, we abstracted two distinct codes for experiential learning activities that involved service: (1) joining ongoing humanitarian aid projects, and (2) implementing a project. In the former, students became involved in recurrent activities designed and led by local organizations to meet specific community needs. Faculty who incorporated this type of service into their programs intended for students to learn host cultural practices and to understand local responses to an issue or problem common to many countries. For example, in a program on lasting legacies of war and conflict in Vietnam, students worked at the Mine Advisory Group to assist its initiatives, visited local communities and interviewed families about known locations of unexploded ordnance to gain first-hand knowledge of how Vietnamese are experiencing the aftermaths of war. In most cases, this type of service did not require specialized expertise to participate and was often one of many activities that faculty organized for the program. This form of service could be episodic and take place as a one-time, full-day experience or an extended engagement in service that required a couple of hours every day during the entire program duration.

Activities coded as service learning: implementing a project, emphasized the design and implementation of particular intervention programs or projects. These projects emerged from and depended on professional collaborations between faculty members in the home institution and individuals in the host country. As a result, this type of service tended to focus on solving very specific real-world problems and often required disciplinary expertise in fields such as engineering, health, or nursing. For example, in one program, students engaged in a feasibility

study of community based rehabilitation that culminated in developing presentations that could be used to educate and increase awareness of disability in the host country. To carry out the project, students were introduced to theories of medical rehabilitation early that were used to ground surveys and interviews with people with disabilities during the field-based experience.

Research was coded as a form of experiential learning activity whereby students participated in inquiries or field-based subject matter learning. These pursuits frequently involved guided inquiry with on-site faculty or local experts. Consequently, faculty often prioritized specific disciplinary content, and the international experience served as a unique site for learning particular skills, observing unique phenomena, and such (e.g., studying the geology of mid-ocean ridges exposed only at a particular field site).

Faculty organized opportunities to learn how to produce cultural artifacts in the host community as means to enhance students' understanding of the cultural embeddedness of particular skills were coded as craftsmanship. For instance, a program on puppet pageant art was organized around apprenticeships with artists who taught students both the craft of creating tools (puppets) and conveying knowledge about a historical event or phenomenon (performing a show).

Finally, a number of faculty organized visits to service organizations or facilities (e.g., schools, hospitals, nuclear facilities, NGOs) to observe local practices such as schooling or health care. Opportunities to interact with practitioners working in these organizations or facilities were also provided in order for the students to learn local perspectives and rationales for arranging services in ways that may be different from practices in the U.S. These observation experiences were coded visits.

Many of the instructional activity coding categories that emerged are consistent with practices identified in prior studies. However, the level of specificity of the variables representing distinct activities created for this study is greater than that found in most survey inquiries that gather data on practices used across a variety of programs. For example, in large sample studies, service learning is frequently included as an instructional practice variable that is proxied with a dichotomous variable indicating it was or was not an activity that was offered or participated in. We could clearly see from the faculty proposals that the nature of intended service learning experiences varied and activities were often selected to achieve different instructional goals. Similarly, whereas researchers often include pre-departure activities as a variable (e.g., Braskamp et al., 2013; Paige & Goode, 2009; Rexeisen & Al-Khatib, 2009), the measure is often a very general indicator of activities encompassing engagement in campus-wide diversity-related initiatives, conversations with international students, or learning a foreign language that are not directly related to a particular overseas program.

To summarize, our content analysis of faculty generated proposals highlighted both the need for more refined indicators of instructional activities and some possible refinements. The next step in the study involved using the new variables that emerged from the qualitative analysis and those traditionally found in instructional impact studies to see if and how the more detailed measures might add to our understanding of "what works". To accomplish this goal, we next conducted factor analyses of the student surveys administered when they returned home to create measures of self-reported learning and the experienced curriculum.

Student-reported learning outcomes and activities (Experienced Curriculum). The pre- and post-surveys created by the home institution were designed to gauge the extent to which participants develop abilities to engage in critical self-reflection and to navigate intercultural

settings while acting in culturally sensitive and informed ways. These instruments were administered to all student participants. The items in the two surveys were identical except the pre-version included items asking about prior college experiences while the post-version included items regarding the extent to which participants engaged in select activities in the host country (see Appendix 4A and 4B for pre- and post-survey instruments).

Consistent with prior inquiries, we used survey items assessing cognitive, interpersonal and intrapersonal dimensions to create measures of intercultural learning. A series of exploratory principle component factor analyses and varimax rotation of responses of students (N=684) who participated in all 53 programs included in the content analysis was conducted.[2] The *cognitive measures* used in this study are two scaled variables indicating (1) students' knowledge of the host country (Knowledge about Host Culture), and (2) their tendency to consider multiple interpretations of an issue (Perspective Taking). The *interpersonal measure* is a scaled variable representing comfort negotiating new or unfamiliar situations (Negotiating Interactions). The *intrapersonal measures* are a scaled variable indicating students' tendency to be self-reflective about their own culture (Cultural Self-Awareness) and a single item measure indicating awareness that one's judgments about others are based on one's own values (Cultural Judgment). We use these five measures, derived from the post-participation survey, as intercultural learning outcomes. The same measures, namely, knowledge about host culture, perspective taking, negotiating interactions, cultural self-awareness, and cultural judgment, were also derived from the pre-participation survey and included in the models to control for baseline differences.

Given our current interest in the intended curriculum, or learning opportunities intentionally proposed by faculty, we selected only survey items that explicitly stated that an

[2] Data from surveys completed before and after returning from abroad were analyzed separately and the results showed the factor structures for these scales were the same.

activity was supervised or organized by a faculty member. For instance, we include post-participation survey items that asked students about the academic components of their program (i.e., research related activities, reading materials related to host culture, reflected through journaling) and activities that strongly implied faculty guidance (e.g., faculty directed practicum, service learning, or overnight stays with host families). We did not include items such as tried new foods or traveled separate from the group because for these activities, it was less clear whether the activities were organized by faculty.

Table 4.1 provides an overview of instructional activity measures derived from faculty proposals and student post-participation surveys. In comparing the two sets of measures, it is clear that the instructional activity variables derived from content analysis of faculty proposals are more fine-grained in that they capture differences in activities subsumed within general measures found in the surveys. For example, student reports of their participation in service learning activities is captured by a single variable that does not specify the nature of the service experience. Two measures pertaining to service derived from faculty proposals are more specific and capture the emphasis of the experience (i.e., joining ongoing humanitarian aid projects, implementing a project). It also becomes evident that some activities are not captured at all in the student surveys, such as the nature of program specific pre-departure activities in which students engage. Consequently, only a few overlapping measures; homestays, research, reflection activities, and service learning are represented in both faculty proposals and student survey data.

Table 4.1. Measures of Instructional Practice derived from Faculty and Student Reports

Faculty Reported: Intended Curriculum	**Student Reported: Experienced Curriculum**
Pre-departure activities Learning about host culture Learning about project theme Team building activities Reflection activities	*n.a. (Program specific pre-departure activities not asked in student surveys)*

In-country activities	
Language instruction	
Homestay	Overnight stays with host families
Reflection activities (journaling, debriefing, etc.)	Reflected through journaling
Objective cultural learning	Reading materials related to host culture
Subjective cultural learning	Attended cultural event
Interactions with local professionals	Discussions about global issues with faculty
Interactions with local students and faculty	Intellectual discussions with faculty
Interactions with local community	Developed mentor/mentee relationship
Experiential learning - Service: Joining ongoing humanitarian aid projects	Service learning activities
Experiential learning - Service: Implementing a project	Faculty directed practicum
Experiential learning - Research	Research related activities
Experiential learning - Craftsmanship	
Experiential learning -Visiting services, facilities, etc.	

Analyses

To examine the relationship between instructional activities and students' learning outcomes, we first conducted a series of separate Ordinary Least Squares (OLS) regression analyses using a full sample of programs (N=53) and students enrolled in these programs (N=684). Components of the intended curriculum, derived from faculty proposals, and features of the experienced curriculum, based on student-reported activities, were used to predict cognitive, interpersonal, and intrapersonal outcomes. Consistent with previous research, controls were included for pre-participation variables that other researchers (e.g., Engberg, et al., 2016; Salisbury et al., 2013) find influence participation outcomes (e.g., pre-scores on outcome measures, background characteristics, prior college experiences, perceptions of college climate, and prior international experience). We then returned to faculty program proposals to understand the results of the regression analyses. We use the insights gained to suggest how measures of practice used to assess impact of instruction in large scale multiple program studies might be refined.

Limitations

There are limitations to the current study. First, our study relies on students' self-reported responses to measure aspects of intercultural learning. Apart from the fact that students do not all respond the same way to the same activity, they may report what they believe other people expect to see, or report what reflects positively on their own knowledge or perceptions, which are inherent limitations of all self-reported surveys (Paulhus, 1991). Second, the types of programs represented in the study (e.g., short-term, faculty designed and led) and the student participants are not representative of all study abroad programs and students who study abroad. Therefore, the findings cannot be generalized across all students and education abroad opportunities. Third, although the time spent in the host country was similar (3-4 weeks), programs varied in terms of time spent in specific program-related pre-departure activities. In other words, the intensity of preparation for the field-based experiences varied and this is not adequately captured in the data; such variations likely have influenced the student reports of pre- and post-intercultural learning. Fourth, as stated earlier, we recognize that an optimal assessment of instructional practice would include examination of the intended (planned activities), enacted (activities that were implemented), and experienced (activities experienced by learners) curricula (e.g., Porter, 2002; Rowan et al., 2004). This study only focuses on the intended and experienced curricula due to lack of data on the enacted curricula. Given that programs may not always go as planned, particularly in international contexts where instructors are likely to have less control over unforeseen circumstances, to identify effective practices that promote student learning precisely it is important to know if the instructional activities were delivered as faculty had initially planned. Finally, our study is based on student reports of intercultural learning immediately following their return home. Given changes resulting from the education abroad

experience take time and may not be evident immediately upon the conclusion of the overseas experience (Byram, Nichols, & Stevens, 2001), it is likely that our results do not fully capture the student learning that occurs. Despite these limitations, we believe our study is an important step toward creating measures of practice that can be scaled up and improve research on effective education abroad instructional activities.

Results

Descriptive statistics for the programs and participant samples are first reported followed by results of the OLS regressions where features of the faculty intended and student experienced curricula are regressed on each outcome measure. In the discussion section that follows, we use information about individual programs to develop preliminary explanations for regression results. For instance, when we observed the negative effects of team building prior to departure on knowledge about the host culture, we revisited faculty proposals that included this pre-departure component to see if there were common design elements that would help us better understand the results and what the implications would be for designing better surveys of instructional practice.

Sample Description

Descriptive statistics for all programs (N=53) are summarized in Table 4.2. Program participants are predominantly female (77%), white (54%), from middle- or high-income families (66%) and are majoring in humanities and sciences (74%). With the exception of parental income, the characteristics of students in the sample are generally consistent with findings from other studies of education abroad programs that identify those who are more inclined to study abroad. We have a higher percentage of low-income students in our sample

because this short-term program initiative made efforts to actively recruit a wider range of participants; those include for instance, students from low socioeconomic status, students of color, or non-humanities/social science majors. Student reports of their prior experiences on campus indicate that they have engaged in intercultural activities (e.g., 65% took a class on multicultural or diversity issues) and often interact with people from different cultural backgrounds. Fourteen percent of the sample reported to have studied abroad in the past.

The mean pre- and post-test scores show that overall, students score higher in the post-test for all intercultural outcome measures than in the pre-test; the gains are particularly evident in knowledge about the host culture with the difference between the average pre- and post-test scores being more than one point. Nonetheless, given that pre-test scores are high for some outcome measures (e.g., perspective taking, cultural self-awareness), we anticipate there may be a potential ceiling effect in which a substantial number of participants obtain near-maximum scores in the post-test, reducing variability in the outcome variables.

Table 4.2. Descriptive Statistics

	N	Mean	S.D.
Intercultural outcome			
Knowledge about host culture: pre	679	2.25	0.75
Knowledge about host culture: post	676	3.39	0.63
Perspective taking: pre	684	4.23	0.71
Perspective taking: post	684	4.22	0.69
Negotiating interactions: pre	683	3.64	0.77
Negotiating interactions post	680	3.79	0.74
Cultural self-awareness: pre	677	4.07	0.53
Cultural self-awareness: post	678	4.22	0.49
Cultural judgment: pre	683	2.51	1.04
Cultural judgment: post	680	2.58	1.00
Student background			
Male	682	0.23	0.42
Non-White	670	0.46	0.50
Income less than $60,000	647	0.34	0.47
Non-citizen	680	0.08	0.26
College: Non-Humanities and Sciences	683	0.26	0.44

Prior college experiences			
Prior cultural experiences	681	3.26	0.65
Studied abroad	684	0.14	0.35
Lived outside USA	684	0.22	0.42
Perceptions of college climate	682	3.57	0.58
Took diversity class	684	0.65	0.48
Involved in volunteering	684	0.95	0.21
Structured dialogues	683	0.60	0.49
Intellectual discussions with other cultural group	684	0.52	0.50
Discussion on intergroup relations	683	0.38	0.49
Faculty intended pre-departure activities (0=No; 1=Yes)			
Learning about host culture	684	0.57	0.50
Learning about project theme	684	0.54	0.50
Team building activities	684	0.13	0.34
Reflection activities	684	0.08	0.27
Faculty intended in-country activities (0=No; 1=Yes)			
Language instruction	684	0.36	0.48
Homestay	684	0.57	0.50
Reflection activities (journaling, debriefing, etc.)	684	0.40	0.49
Objective cultural learning	684	0.36	0.48
Subjective cultural learning	684	0.27	0.45
Interactions with local professionals	684	0.54	0.50
Interactions with local students and faculty	684	0.43	0.50
Interactions with local community	684	0.69	0.46
Service: Joining humanitarian aid projects	684	0.22	0.42
Service: Implementing a project	684	0.30	0.46
Research	684	0.19	0.39
Craftsmanship	684	0.13	0.34
Visiting services, facilities, etc.	684	0.37	0.48
Student engagement in in-country activities (0=None to some; 1=Quite a bit to A great deal)			
Faculty directed practicum	663	0.61	0.49
Service learning activities	679	0.62	0.48
Overnight stays with host families	678	0.49	0.50
Attended cultural event (play, festival, etc.)	682	0.78	0.41
Reading materials related to host culture(s)	680	0.48	0.50
Reflected through journaling	682	0.80	0.40
Research related activities	679	0.36	0.48
Intellectual discussions with faculty	679	0.67	0.47
Discussions about global issues with faculty	679	0.63	0.48
Developed mentor/mentee relationship	677	0.49	0.50

In their program materials, more than half the faculty report they planned to incorporate pre-departure coursework, in-country homestays, and structured interactions with local professionals and community members. About a third of the programs included service learning. While the primary language of instruction in most programs is English, 36% of the programs intended to provide students with opportunities to learn the host language (see Table 4.2).

Descriptive statistics for student reported engagement in the in-country portion of the program show that students said they quite often attended cultural events such as local festivals or rituals (78%) and reflected through journaling (80%). Over 60% of the students in the sample report they frequently participated in a faculty directed practicum and service learning activities, and engaged in formal discussions with faculty about global issues.

Predictors of Outcomes in the Intended and Experienced Curricula

Separate regressions were run using the full sample of faculty proposals and student survey data. Table 4.3 presents features of the Intended Curriculum (IC), and Table 4.4 presents features of the Experienced Curriculum (EC) that are associated with the cognitive, interpersonal and intrapersonal outcomes. Overall, the R-square values in our results are modest. For the IC, the R-square was highest for Negotiating Interactions (R^2 =31.1) and lowest for Cultural Judgment (R^2=17.5) and for the EC, the R-square was again highest for Negotiating Interactions (R^2=32.0) and lowest for Cultural Judgments (R^2= 16.5). These results are comparable to those found in large sample studies (e.g., Engberg et al., 2015).

Table 4.3. OLS Regression Results: Intended Curriculum [a]

	Column 1: Knowledge	**Column 2: Perspective**	**Column 3: Negotiate Interactions**	**Column 4: Cultural Judgment**	**Column 5: Cultural Awareness**
Pre-survey					
Pre-test score	0.248***	0.374***	0.465***	0.248***	0.347***
	(0.04)	(0.05)	(0.04)	(0.04)	(0.04)
Student characteristics					

Male	0.05	0.031	0.022	-0.196*	-0.105*
	(0.05)	(0.06)	(0.05)	(0.09)	(0.05)
Non-White	-0.236***	-0.072	-0.160**	0.099	-0.045
	(0.06)	(0.06)	(0.05)	(0.09)	(0.04)
Income less than $60,000	-0.073	-0.005	0.023	0.211*	0.043
	(0.05)	(0.05)	(0.05)	(0.09)	(0.04)
Non-citizen	-0.102	0.076	-0.112	0.370*	-0.167*
	(0.09)	(0.10)	(0.13)	(0.14)	(0.08)
College: Humanities and Sciences	0.003	-0.068	0.039	0.213*	0.008
	(0.06)	(0.06)	(0.06)	(0.10)	(0.04)
Prior experiences					
Prior cultural experiences	0.08	-0.041	0.031	0.025	-0.014
	(0.06)	(0.04)	(0.05)	(0.07)	(0.04)
Perceptions of college climate	0.000	0.098	0.028	-0.033	0.045
	(0.05)	(0.05)	(0.04)	(0.07)	(0.03)
Took diversity class	-0.07	0.082	-0.065	0.001	0.034
	(0.06)	(0.05)	(0.06)	(0.08)	(0.04)
Involved in volunteering	-0.165	0.048	0.169	-0.028	-0.091
	(0.11)	(0.15)	(0.12)	(0.21)	(0.09)
Structured dialogues	0.108	-0.07	-0.005	0.015	0.054
	(0.06)	(0.06)	(0.06)	(0.09)	(0.04)
Studied abroad	0.046	-0.112	-0.099	0.003	0.045
	(0.07)	(0.09)	(0.07)	(0.12)	(0.05)
Lived outside USA	0.029	0.048	0.052	0.053	0.056
	(0.08)	(0.09)	(0.09)	(0.10)	(0.05)
Intellectual discussions with other cultural group	0.001	0.008	0.069	-0.159	0.032
	(0.06)	(0.05)	(0.06)	(0.09)	(0.04)
Discussion on intergroup relations	0.084	0.047	0.022	0.177	0.054
	(0.06)	(0.06)	(0.06)	(0.09)	(0.04)
Faculty intended pre-departure activities					
Learning about host culture	0.144*	0.039	0.103*	-0.157	0.045
	(0.06)	(0.04)	(0.04)	(0.08)	(0.05)
Learning about project theme	-0.221**	-0.057	-0.102	0.236**	-0.038
	(0.07)	(0.05)	(0.06)	(0.08)	(0.04)
Team building activities	-0.209*	-0.079	-0.013	-0.001	-0.134*
	(0.09)	(0.07)	(0.07)	(0.11)	(0.06)
Reflection activities	-0.087	0.016	-0.088	-0.042	-0.052
	(0.08)	(0.06)	(0.08)	(0.14)	(0.11)
Faculty intended in-country activities					
Language instruction	-0.003	0.007	-0.076	0.199*	0.015
	(0.07)	(0.06)	(0.07)	(0.09)	(0.05)
Homestay	0.086	0.056	0.05	-0.024	0.015
	(0.06)	(0.04)	(0.05)	(0.07)	(0.04)
Reflection activities	-0.104	0.055	0.06	0.126	-0.011
	(0.06)	(0.05)	(0.05)	(0.07)	(0.04)
Objective cultural learning	0.071	-0.087	0.012	-0.083	-0.058
	(0.06)	(0.06)	(0.05)	(0.07)	(0.05)
Subjective cultural learning	-0.07	-0.103	-0.022	-0.111	0.024
	(0.07)	(0.06)	(0.07)	(0.08)	(0.05)

Interactions: local professionals	0.11	-0.072	-0.06	0.07	0.039
	(0.08)	(0.06)	(0.06)	(0.09)	(0.05)
Interactions: local students/faculty	0.037	-0.069	0.006	0.201*	0.005
	(0.06)	(0.04)	(0.05)	(0.08)	(0.04)
Interactions: local community	0.089	0.047	-0.073	-0.106	-0.012
	(0.07)	(0.05)	(0.04)	(0.07)	(0.04)
Service: Joining humanitarian aid	0.194*	0.152*	0.161*	0.022	0.023
	(0.09)	(0.07)	(0.08)	(0.09)	(0.06)
Service: Implementing a project	0.373***	0.118	0.185*	-0.098	0.000
	(0.08)	(0.07)	(0.07)	(0.11)	(0.05)
Research	0.117	-0.068	0.042	-0.079	0.051
	(0.08)	(0.06)	(0.06)	(0.12)	(0.06)
Craftsmanship	-0.041	-0.149	-0.061	0.183	-0.116
	(0.11)	(0.08)	(0.11)	(0.13)	(0.08)
Visiting services, facilities, etc.	-0.037	0.052	0.07	0.033	0.006
	(0.09)	(0.07)	(0.06)	(0.09)	(0.05)
Constant	2.570***	2.381***	1.735***	1.736***	2.714***
	(0.30)	(0.34)	(0.27)	(0.39)	(0.25)
R-square	0.236	0.212	0.311	0.175	0.216
N	613	626	622	624	617

Notes. Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
[a] Clustered robust errors used to account for correlation of observations within programs

Table 4.4. OLS Regression Results: Experienced Curriculum [a]

	Column 1: Knowledge	**Column 2: Perspective**	**Column 3: Negotiate Interaction**	**Column 4: Cultural Judgment**	**Column 5: Cultural Awareness**
Pre-survey					
Pre-test score	0.197***	0.357***	0.441***	0.239***	0.357***
	(0.04)	(0.05)	(0.04)	(0.04)	(0.04)
Student characteristics					
Male	-0.015	0.037	0.003	-0.206*	-0.130**
	(0.05)	(0.06)	(0.05)	(0.10)	(0.04)
Non-White	-0.208***	-0.051	-0.156**	0.116	-0.038
	(0.06)	(0.06)	(0.05)	(0.09)	(0.04)
Income less than $60,000	-0.115*	-0.019	0.043	0.220*	0.043
	(0.05)	(0.05)	(0.05)	(0.09)	(0.04)
Non-citizen	-0.024	0.07	-0.13	0.322*	-0.203*
	(0.09)	(0.10)	(0.13)	(0.15)	(0.08)
College: Humanities and Science	-0.024	-0.076	0.035	0.224*	0.006
	(0.06)	(0.05)	(0.06)	(0.10)	(0.04)
Prior experiences					
Prior cultural experiences	0.064	-0.062	0.009	-0.016	-0.021
	(0.05)	(0.04)	(0.05)	(0.07)	(0.04)
Perceptions of college climate	-0.023	0.068	0.007	-0.028	0.023
	(0.05)	(0.05)	(0.04)	(0.08)	(0.04)
Took diversity class	-0.064	0.065	-0.089	0.011	0.038
	(0.05)	(0.05)	(0.05)	(0.08)	(0.04)
Involved in volunteering	-0.159	0.094	0.121	-0.092	-0.039

	(0.13)	(0.14)	(0.12)	(0.21)	(0.08)
Structured dialogues	0.061	-0.089	0.013	0.026	0.047
	(0.06)	(0.06)	(0.06)	(0.08)	(0.04)
Studied abroad	0.027	-0.1	-0.05	0.041	0.066
	(0.06)	(0.09)	(0.08)	(0.13)	(0.05)
Lived outside USA	0.025	0.047	0.063	0.035	0.09†
	(0.07)	(0.09)	(0.09)	(0.11)	(0.05)
Intellectual discussions with other cultural group	-0.041	0.005	0.084	-0.082	0.027
	(0.06)	(0.05)	(0.06)	(0.09)	(0.04)
Discussion on intergroup relations	0.094	0.041	0.02	0.088	0.063
	(0.06)	(0.06)	(0.07)	(0.09)	(0.05)
Student reported in-country activities					
Faculty directed practicum	0.190***	0.047	0.076	0.135	0.055
	(0.05)	(0.06)	(0.06)	(0.08)	(0.03)
Service learning activities	0.111*	0.154**	0.124*	0.061	-0.051
	(0.05)	(0.05)	(0.05)	(0.08)	(0.04)
Overnight stays with host families	0.103	0.027	-0.025	-0.177*	0.028
	(0.06)	(0.05)	(0.05)	(0.08)	(0.04)
Attended cultural event	0.200**	-0.005	0.061	0.134	0.084
	(0.06)	(0.06)	(0.07)	(0.09)	(0.06)
Reading materials about host culture	0.144**	0.151**	0.02	-0.123	0.029
	(0.05)	(0.06)	(0.05)	(0.09)	(0.04)
Reflected through journaling	0.004	0.111	0.04	0.023	0.126**
	(0.06)	(0.06)	(0.06)	(0.08)	(0.04)
Research related activities	0.004	0.089*	0.057	0.223*	0.011
	(0.05)	(0.04)	(0.06)	(0.09)	(0.04)
Intellectual discussions with faculty	0.046	0.018	0.162	0.096	0.05
	(0.07)	(0.07)	(0.09)	(0.11)	(0.06)
Discuss global issues with faculty	0.154*	-0.009	0.028	-0.045	0.03
	(0.08)	(0.06)	(0.08)	(0.12)	(0.04)
Developed mentor relationship	0.043	0.046	-0.016	-0.021	-0.027
	(0.05)	(0.06)	(0.06)	(0.08)	(0.04)
Constant	2.497***	2.254***	1.711***	1.829***	2.478***
	(0.29)	(0.32)	(0.23)	(0.39)	(0.22)
R-square	0.298	0.239	0.32	0.165	0.243
N	583	594	591	593	588

Notes. Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
[a] Clustered robust errors used to account for correlation of observations within programs

Knowledge about host culture. Knowledge about host culture represents students' self-reported understanding of their host country immediately upon their return to the U.S. (i.e., the country's history, political system and events, health practices, economic system, religious practices, educational system, general social customs).

A number of *pre-departure* activities that are part of the IC are significant but not all effects are positive (Table 4.3, column 1). For instance, students in programs where faculty intentionally planned to incorporate opportunities to learn about the host culture pre-departure show greater self-reported knowledge at the conclusion of the in-country portion of the program ($b=0.144$, $p<0.05$). Conversely, students in programs where they had to develop project-related expertise reported less knowledge of their host culture; self-reported knowledge of host culture reported in the post surveys are 0.221 points lower for students in programs that emphasized project-related expertise than those who participated in programs without such emphasis ($p<0.01$). Similar results appear for students in programs where faculty proposed team building (e.g., lectures on team work and team leadership, working as a group to present on a topic) during the pre-departure phase.

Among field-based activities, planned opportunities to engage in ongoing humanitarian aid projects and service learning that involved implementing a project are positively associated with the knowledge outcome ($b=0.194$, $p<0.05$; $b=0.373$, $p<0.001$; see Table 4.3, column 1). Humanitarian aid projects are locally organized and ongoing such as building construction or medical outreach. Service learning activities organized around implementing a project are ones that were, in many cases, planned in the U.S. in conjunction with individuals in the host country and implemented was a key instructional activity.

We observe from the EC analysis (Table 4.4, column 1), higher scores on knowledge about host culture are associated with greater participation in several program activities: faculty directed practicum, service learning, attending cultural events, reading about the host culture, and discussions about global issues with faculty. These findings are consistent with those based on the analysis of the intended curriculum and underscore the importance of authentic learning

experiences. However, program features, not revealed by the faculty proposal data, emerge. For example, from the students' perspective, discussions of global issues with faculty members appear to enhance their knowledge of the host culture ($b=0.154$, $p<0.05$).

Perspective taking. The regressions of the IC and EC data underscore the importance of joining ongoing humanitarian aid projects to students' understanding about the contextualized nature of knowledge (Table 4.3, column 2; Table 4.4, column 2). The importance of reading about the host culture within the EC suggests that students find it particularly impactful when they are living in the country they are studying ($b=0.151$, $p<0.01$). Further, the act of gathering data for a research project seems to bring to students' attention alternative perspectives on issues (Table 4.4, column 2).

Negotiating interactions. Table 4.3, column 3 and Table 4.4 column 3 summarize program features that significantly predict students' comfort with making new acquaintances and communicating (Negotiating Interactions). Once again, the power of structured interactions with members of the host country are underscored in both the IC and EC analyses. However, the IC results suggest familiarizing students with customs and working on interaction skills they will need in the host country pre-departure can be critical. More specifically, the levels of comfort in new intercultural situations gauged in the post surveys are 0.103 points higher for students in programs where faculty intentionally planned to incorporate learning about the host culture pre-departure, compared to students in programs without such pre-departure component, *ceteris paribus* ($b=0.103$, $p<0.05$; Table 4.3, column 3).

Cultural judgment. Several instructional activities predict the extent to which participants agree that their opinions about another culture's customs are primarily based on how aligned they are with their own values. We see, for instance, that when faculty say they would emphasize

learning about the academic content of the project prior to departure and organize field-based language instruction and opportunities to interact with local students and faculty, participants acknowledge that their views of another culture are based on how customs of that culture fit with their own values ($b=0.223$, $p<0.05$; Table 4.3, column 4). We observe a similar effect among students who said they were more highly engaged in research related activities. In contrast, when students report to have frequently engaged in overnight stays, they seem less inclined to judge another culture in relation to their own values ($b=-0.177$, $p<0.05$; Table 4.4, column 4).

Cultural self-awareness. This outcome represents students' acknowledged tendencies to be self-reflective about themselves as culturally conditioned and about their sensitivity to cultural difference. As Table 4.3, column 5 shows, within the IC, provision of team building activities prior to departure seems to have a negative effect on cultural self-awareness at program conclusion. On the other hand, higher participation in journaling (EC), appears to enhance tendencies among students to be self-reflective about their own culture ($b=0.126$, $p<0.01$; Table 4.4, column 5).

Post-analyses of Faculty Program Proposals

To offer more robust explanations for why the findings for the intended and experienced curricula may differ and what the implications are for designing survey items, we returned to the faculty reports that detail aspects of the intended curriculum and examined survey data for the participants in each program. We first identified programs that included a particular activity (e.g., pre-departure team-building) that regression results indicated were significantly associated with outcomes. We then reread the detailed information about activities the program designer planned to better understand their positive or negative effects on outcomes. We looked for differences among the specific instructional activities (e.g., project-based service, humanitarian

service) within general instructional activity categories (e.g., service learning) to explain why general indicator items used in most surveys (e.g., "to what extent did you engage in service learning activities") may result in mixed findings in multiple program studies. In the following discussion, we review key findings, bringing in examples from actual study abroad programs that illustrate why certain results may appear.

Pre-departure activities. Consistent with prior findings (Paige & Goode, 2009; Rexeisen & Al-Khatib, 2009), our results show that pre-departure sessions intended to provide information about the host culture (e.g., history, politics, language) were associated with self-reported knowledge and tolerance for ambiguity at the conclusion of students' out of country stay. For instance, a program focused on the lasting legacies of war and conflict included pre-travel workshops that introduced students to the history, politics, and culture of the host country. Readings, lectures, group work or discussions about the host culture comprised these pre-departure sessions, which appear to be effective in providing a baseline understanding of cultural contexts and helping students with interpersonal interactions in unfamiliar settings.

In contrast, students who faculty said would primarily be involved in teambuilding activities prior to departure achieved lower scores on intercultural learning outcomes, particularly in knowledge of host culture and cultural self-awareness. To illustrate, a program focused on medical rehabilitation in a developing country planned to devote substantial time pre-departure to student team building, stating "a basic framework of teamwork and team leadership will be established." Faculty planned to organize time to establish effective relationships, to learn to communicate among members and how, when abroad, to engage in group problem solving within small project.

Furthermore, faculty intentions to emphasize learning about disciplinary aspects of projects prior to departure seemed to diminish knowledge about the host culture. What is more, such learning appears to be associated with an inclination to judge other cultures according to how they align with one's own values. Again, we think we are seeing a negative effect because of the relatively stronger emphasis on learning about project-related disciplinary content. In programs that included students with majors that were more and less relevant to field-based project to be undertaken, faculty commonly incorporated substantive content and activities specific to the project topic to ensure everyone achieved baseline knowledge. For example, in one program, faculty aimed to expose students to field-based observations and research of geological and environmental processes in Iceland. As such, the pre-departure sessions were organized around lectures on geology and its ramification to the global earth system. In another program, students were required to take an intensive visualization course that introduced them to basic two-dimensional design, color theory, and three-dimensional design concepts in preparation for their work with artists in Italy and participation in a modern pageant performance. While these sessions may effectively enhance students' disciplinary expertise, they may diminish time spent sensitizing learners to the cultural contexts within which projects are situated, to consider others' customs and practices in relation to a particular in-country project.

These collective findings underscore the fact that study abroad programs can have multiple goals, some of which are primary and some of which are secondary. For example, finding, gaining knowledge about the host culture may not necessarily be the primary goal of a study abroad experience; rather, learning the disciplinary content may be the main objective and study abroad used as a tool to facilitate such learning. In such program contexts, students' learning about the host culture may be less extensive compared to programs strongly oriented

toward gaining knowledge about the host culture. Few surveys of practice found in inquiries into effective practice across multiple programs have variables explicitly asking about program goals.

In-country activities. Consistent with other studies (e.g., Annette, 2002; Jones & Steinberg, 2011), planned service learning experiences in the host country, both implementing a project and joining ongoing humanitarian aid projects, promoted intercultural competence. IC service learning that involved implementing a project that drew on participants' special expertise (e.g., systems design, teaching, evaluating) had the largest positive effect on participants' knowledge of host culture. A good example is a program in which students learned about disparities in health and cancer screening in a developing country and proposed strategies to narrow gaps in care. Participants engaged in seminars with professionals in the host country who worked in a variety of health programs, screening activities, interacted with members of disadvantage communities, and conducted health histories and community assessments. Such extensive focus on learning about a topic within the host cultural context helps to explain why we see a strong effect of service learning of implementing a project on cognitive outcomes.

Planned opportunities to join ongoing humanitarian aid projects appear to enhance knowledge about the host country as well as one's capacity to negotiate interactions in unfamiliar cultural contexts. Humanitarian aid projects in this study were locally organized and ongoing and generally did not require the development of special expertise pre-departure – students could develop necessary knowledge and skills on site. For instance, students spent time working with non-governmental organizations (NGO) in ongoing construction projects or joined established programs to advance the education attainments of women in the host country. These field-based learning opportunities offered students of diverse disciplinary backgrounds authentic experiences

with members of host communities which seem to be effective means to promote intercultural interactions.

The findings with regard to language learning and use align well with prior single program studies (Martinsen et al., 2010). Language learning and learners' views about another culture appear to interact. Student participants in programs where faculty said they would incorporate language classes and regular contact with local academics tended to believe they judge other cultures in relation to their own values. On the one hand, such results may indicate that these activities do not help individuals progress from an ethnocentric to ethno-relative understanding of culture. On the other hand, the results suggest activities may promote a growing awareness of their own thought processes among students. Our reading of faculty proposals suggests the latter may be the more accurate interpretation. The goal of language instruction in these programs was to not only improve basic communication skills but also to learn how linguistic expressions reflect culturally imbedded perceptions, attitudes, and practices. For example, students in one program read and then discussed literary works with authors in their home communities to deepen their understanding of the manner in which the writing incorporates unique features of cultural context. In another program, students learned the language and myths of an indigenous people and incorporated their understanding into programming for youth. This learning and the dissonance it created may have surfaced self-understanding about the impact of their own values on their perceptions of other cultures.

Our results indicate that students' self-reports of higher levels of engagement in homestays, journaling, and research during their field-based experience were associated with intrapersonal outcomes. From the students' perspectives, engaging frequently in journaling and reflection seemed to promote an awareness of personal beliefs about culture and social identity

(Cultural Self-awareness) whereas opportunities to reflect that were intentionally incorporated within the curriculum plans by faculty seem to nurture proclivities to recognize different perspectives on issues (Perspective Taking). A close examination of the survey item used to gather student data ("I reflected upon my field experience through journaling") shows it does not specify a learning goal. On the other hand, the faculty data suggest reflection was structured to foster perspective taking.

Finally, it is important to note that the goal of this exploratory analysis was not to say one type of service or type of reflection was better than another. Rather, it is to highlight the importance of gathering detailed information about activities and suggest what better measures might need to be taken into account.

Discussion

The expansion in the number and types of study abroad programs has generated calls to closely examine the impact of different program types, especially short-term sojourns (Gillespie, 2002; IIE, 2006; Hoffa & DePaul, 2010; Salisbury et al., 2013), and instructional activities (e.g., Engberg et al., 2016). As we have stated earlier, the need for research focused on short-term opportunities is particularly acute given that over 60% of U.S. students studying abroad participated in programs that were 8 weeks or less (IIE, 2016). Nevertheless, as such opportunities can encompass a range of experiences, current research has been limited in accounting for practices associated with intercultural learning.

In this study, we address the need for empirical evidence about effective instruction by comparing the results of inquiries based on faculty planned activities and students' self-reports of their activities. Our goals in this exploratory study were to identify if and how the different

indices of instructional practice are associated with students' intercultural learning and to provide implications for creating surveys of faculty and students used in multiple program inquiries into the instructional effectiveness of education abroad. Consequently, we focus our discussion around these general goals.

Affordances and Limitations of Current Indices of Instructional Practice

Some readers may look at the similarities in the findings for the IC and the EC and conclude that it does not matter which measures of instructional practice are used – they are about equally good in predicting the study outcomes. We would respond that if the goal is to identify specific activities that are effective, there is much more that can and should be done and our study is an important first step toward the implementation of large scale studies that will inform international educators about what program components work and why.

It is important to note that our efforts to compare and contrast the findings for the IC and EC were limited due mainly to problems associated with determining the correspondence between the activities included in the faculty proposal and student survey data sets. Program components captured by the student survey are broad categories of experiences while the instructional activities variables derived from our coding of faculty proposals are more nuanced and it is difficult to ascertain where a match occurs. For example, should participated in service learning (student survey) be treated as equivalent to joining ongoing humanitarian aid or implementing a project in the faculty data? What is more, items in the student survey do not adequately distinguish among features of the faculty intended curriculum and self-generated opportunities to learn. To take the example of one item from the survey used in this study, it is unclear whether asking the extent to which participants 'learned a new skill' is referring to activities faculty structured or those that students created for themselves.

What is more, while pre-departure activities are known to be an effective component of education abroad programs, measures that capture the nature of those activities are rare. In most studies, pre-departure activities seem to be uniform experiences open to all students on a campus that provide basic information about the host culture or indicate interest in diversity experiences. Our findings underscore the importance of pre-departure activities designed for specific programs that take various forms and promote different kinds of learning. This may be particularly important for short-term programs that are similar to those examined in this study, where intensive learning about the host culture and/or the subject matter of a project occurs prior to departure. In addition, pre-departure components can span from a few days to a full semester, especially given short-term experiences such as those that build on a regular semester-long course offered at the home institution. This indicates the importance of collecting information about the amount of time devoted to pre-departure activities specific to the students' study abroad program in order to accurately gauge the effects of instructional activities that occur prior to departure.

As regards activities in the host country, it is generally accepted that experiential learning fosters intercultural competence (e.g., Lutterman-Aguilar & Gingerich, 2002; McLaughlin & Johnson, 2006; Peterson, 2002). We see from our results that experiential learning includes multiple and diverse practices (e.g., service learning, research, craftsmanship). As already noted, current surveys ask if participants have engaged in service learning but as we show, service learning can take various forms and these differences matter. In a similar vein, student surveys often include a single item that asks about the extent to which they interacted with individuals in the host country – e.g., GPI asks "How often did you interact with individuals from the host country outside of the classroom?".

The results of the present study suggest it is important to specify with whom students interact as well as when these interactions begin. For example, the impact of interactions with local academics and students in a host university appeared to differ from the impact of interactions with host country professionals. In addition, our inspection of proposals suggests that in some programs, participants' interactions with individuals in the host country that begin before they arrive may help them negotiate interactions upon arrival. Many of the most commonly discussed best practices in the education abroad literature (e.g., homestays or reflection activities) take multiple forms in terms of how they are structured and duration (e.g., overnight stays could span from one day to a month). While current surveys capture students' assessments of the intensity of their own engagement in select activities, data on the structure of these activities is very limited. Regrettably, while we had more detailed data on the nature of activities faculty proposed, we did not have information about the amount of time given to them (faculty were not asked about distribution of time to proposed activities in the request for proposals).

Implications for Creating New Indices of Instructional Practice

Our study underscores the importance of collecting data not only from students but also from faculty or international educators who design and implement education abroad programs. In this study, we used program proposals developed by faculty to understand their intentions with respect to the desired learning outcomes, content, and instructional activities. We believe our findings can be "scaled up" and a questionnaire can be constructed to better assess the impact of instructional activities in study abroad programs. Porter's work (2002) offers useful ideas about ways to better assess practice. He underscores the importance of developing a uniform language that can be used to describe and assess a large and diverse number of instructional practices

across a variety of settings. In particular, he emphasizes the importance of capturing details about different dimensions of instructional activities: topics and time devoted to each topic, learning goals and relative emphasis given to each one, and specific instructional activities implemented to achieve each learning goal. To illustrate, designers of study abroad programs could be asked to indicate: content covered (e.g., disciplinary aspects, linguistic skills), time allocated to the different content (e.g., percentage of total program given to each type), goals for student learning (e.g., improved communication skills, cross-cultural sensitivity), relative emphasis given to (e.g., percent of total program given to each goal) and specific instructional activities used to facilitate student attainment of each goal (e.g., faculty supervised research, interactions with students from host country). Such information about program activities pre-departure, in the host country, and upon re-entry could be used to holistically capture the details of the education abroad experience. Hence, an important first step would be to create pools of items for each category used to describe the activity (e.g., learning outcomes to be achieved, program content, relative emphasis to outcomes).

Other researchers (e.g., Bennett, 1986; Deardorff, 2006; King & Baxter Magolda, 2005) have done extensive work to identify the range of desired learning outcomes. Our exploratory study illustrates one approach to developing pools of items that capture critical dimensions of instructional practice, utilize a common language to describe activities, and can be customized to fit a particular study abroad initiative on an individual campus or applied to assessments of activities across a range of programs and initiatives and a variety of campuses. Similar pools of items can be constructed for both faculty and students and alignment of faculty intentions and students' experiences can be used to triangulate data, thereby heightening confidence in our understanding of what practices are associated with learning outcomes, or "what works."

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Appendices

Table 4.A1. Variable Definitions

Variables	Definitions
Student background:	
Gender	0=Female; 1=Male
Race	0=White; 1=Non-white
Income	0=More than $60,000; 1=Less than $60,000
Citizenship	0=Citizen; 1=Non-citizen
College	0=Humanities and Sciences; 1=Non-Humanities and Sciences
Prior college experiences: *Student-reported activities*	
Perceptions of college climate (Cronbach's Alpha=0.73)	Scaled variable representing students' self-reported perceptions of college climate pre-participation. Specific items include: (11) My college is a diverse campus (factor score=0.56[5]) (12) On campus there are many opportunities to interact with people from different cultural backgrounds (factor score=0.64[5]) (13) Administrators are concerned about providing intercultural experiences on campus (factor score=0.76[5]) (14) Faculty are concerned about providing intercultural experiences on campus (factor score=0.75[5]) (15) Students have a good understanding of traditions and values of other cultures (factor score=0.57[5]) (16) There are many opportunities for faculty and students to discuss issues related to diversity (factor score=0.55[5]) (17) Since coming to college, I have learned a great deal about other cultures (factor score=0.51[5])
Prior cultural experiences during college (Cronbach's Alpha=0.79)	Scaled variable representing students' self-reported engagement in cultural activities during college pre-participation. Specific items include: (1) Participated in activities sponsored by cultural groups other than my own (factor score=0.57[5]) (2) Studied with someone from a different cultural background (factor score=0.58[5]) (3) Socialized with students from a different cultural background (factor score=0.62[5]) (4) Viewed foreign films (factor score=0.68[5]) (5) Ate at variety of ethnic restaurants (factor score=0.61[5]) (6) Attended religious services other than my own (factor score=0.49[5]) (7) Listened to musical artists from another country (factor score=0.70[5]) (8) Watched/listened to world news (factor score=0.55[5]) (9) Attended a lecture/symposium on a cross-cultural issue (factor score=0.66[5])
Took diversity class[4]	Participants are asked whether or not they took a class on multicultural/diversity issues

Involved in volunteering[4]	Participants are asked whether or not they have been involved in volunteer work
Structured dialogues[4]	Participants are asked whether or not they have participated in structured dialogues with students from different backgrounds and beliefs from their own
Studied abroad[4]	Participants are asked whether or not they have studied abroad
Lived outside of the U.S.[4]	Participants are asked whether or not they have lived outside of U.S.A.
Intellectual discussions[4]	Participants are asked to what extent they have had intellectual discussions with people from another cultural group
Intergroup relations[4]	Participants are asked to what extent they have had discussions regarding intergroup relations with people from another cultural group
Program Activities: *Faculty-reported intended activities*	
Pre-departure activities: Learning about host culture[4]	Faculty proposal states that the program offers pre-departure activities focused on learning about the host culture through lectures, presentations, etc.
Pre-departure activities: Learning about project theme[4]	Faculty proposal states that the program offers pre-departure activities focused on learning about the specific project theme through lectures, visits, observations, etc.
Pre-departure activities: Team building[4]	Faculty proposal states that the program offers pre-departure activities focused on team-building
Pre-departure activities: Reflection activities[4]	Faculty proposal states that the program offers pre-departure activities focused on reflection (journaling, debriefing)
In-country activities: Objective cultural learning[4]	Faculty proposals structure activities to facilitate student learning about the country and its culture (e.g., discussions of literary works with authors, attend lectures on history, political system)
In-country activities: Subjective cultural learning[4]	Faculty structure opportunities for students to identify and acknowledge their own cultural values and beliefs and consider differences with host country (e.g., students are required to compare and contrast practices or public policies in the U.S. and the host country)
In-country activities: Language instruction[4]	Faculty proposal includes language instruction in host country
In-country activities: Homestay[4]	Faculty proposal states provision of homestays
In-country activities: Moderate or extensive reflecting activities[4]	Faculty proposals includes moderate (self designed journaling) or extensive (faculty structured journaling, group debriefing, etc.) reflection activities
In-country activities: Interactions with local professionals[4]	Faculty proposal includes structured interactions with local professionals (e.g., health professionals, social workers, teachers, literary figures, craftsmen)

In-country activities: Interactions with students and faculty[4]	Faculty proposal includes structured interactions with students and faculty from both home and host country
In-country activities: Interactions with local community[4]	Faculty proposal includes structured interactions with local community (e.g., join local celebrations, gathering information about social events, recreation activities)
In-country activities: Service joining ongoing humanitarian aid[4]	Faculty proposal includes service learning activities focused on humanitarian aid projects that are locally organized and ongoing and may not require special expertise (e.g., participating in an ongoing building project, helping workers who are clearing mine fields)
In-country activities: Service implementing a project[4]	Faculty proposal states provision of service learning activities that draw on participants' special expertise (e.g., systems design, teaching, evaluating)
In-country activities: Research[4]	Faculty proposal states provision of activities related to research (e.g., literature review, data collection entry and analyses on site, interviews, survey)
In-country activities: Craftsmanship[4]	Faculty proposal states provision of activities pertaining to craftsmanship (e.g., apprenticeships with arts, music, dance personnel)
In-country activities: Visiting services, facilities, etc.[4]	Faculty proposal includes guided visits to and observations of service programs, facilities, practitioners (e.g., visit nuclear facility but don't work there)
Program Activities: *Student-engaged in-country activities*	
In-country activities: Faculty directed practicum[4]	Participants are asked to what extent they have participated in faculty directed practicum
In-country activities: Service learning activities[4]	Participants are asked to what extent they have engaged in service learning activities
In-country activities: Overnight stays with host families[4]	Participants are asked to what extent they have participated in overnight stays with host families
In-country activities: Attended cultural event[4]	Participants are asked to what extent they have attended a cultural event (play, festival, dance, museum, etc.)
In-country activities: Reading materials related to host culture[4]	Participants are asked to what extent they agree or disagree with "Reading materials related specifically to the host culture(s)"
In-country activities: Reflected through journaling[4]	Participants are asked to what extent they agree or disagree with "I reflected upon my field experiences through journaling."
In-country activities: Research related activities[4]	Participants are asked to what extent they agree or disagree with "I participated in research related activities (data collection, interpretation or analysis)."

In-country activities: Intellectual discussions with faculty[4]	Participants are asked to what extent they have had intellectual discussions with faculty
In-country activities: Discussions about global issues with faculty[4]	Participants are asked to what extent they have had meaningful and honest discussions about global issues with faculty
In-country activities: Developed mentor/mentee relationship[4]	Participants are asked to what extent they have developed a mentor/mentee relationship with faculty
Student Outcomes: *Intercultural learning*	
Knowledge about host country (Cronbach's Alpha pre=0.88; post=0.82)	Scaled variable representing students' self-reported knowledge of the host country pre- and post-participation. Specific items include: (1) History (factor score=0.75[5]; 0.74[6]) (2) Political system and events (factor score=0.82[5]; 0.75[6]) (3) Health practices and concerns (factor score=0.73[5]; 0.69[6]) (4) Economic system (factor score=0.80[5]; 0.69[6]) (5) Religious practices (factor score=0.69[5]; 0.63[6]) (6) Educational system/practices (factor score=0.80[5]; 0.66[6]) (7) General social customs (factor score=0.75[5]; 0.71[6])
Perspective taking (Cronbach's Alpha pre=0.79; post=0.72)	Scaled variable representing students' self-reported recognition of the contextualized nature of knowledge and their valorization of personal values pre- and post-participation. Specific items include: (1) I try to look at everybody's side of a disagreement before I make a decision (factor score=0.92[5]; 0.88[6]) (2) There are several sides to every issue and I try to look at them all (factor score=0.92[5]; 0.88[6])
Negotiating interactions (Cronbach's Alpha pre=0.75; post=0.76)	Scaled variable representing students' self-reported pre- and post-participation comfort negotiating new or unfamiliar situations and a need to make oneself understood. Specific items include: (1) Meeting strangers and introducing myself (factor score=0.81[5]; 0.81[6]) (2) Going to a small social gathering (less than 15 people) (factor score=0.85[5]; 0.86[6]) (3) Being able to make myself understood when it is important (factor score=0.78[5]; 0.79[6])
Cultural judgment	A single-item measure asking participants to what extent they agree or disagree with "My opinions about another culture's customs are primarily based on how aligned they are with my own values."

Cultural self-awareness (Cronbach's Alpha pre=0.61; post=0.71)	Scaled variable representing students' self-reported pre- and post-participation tendencies to be self-reflective about their own culture. Specific items include: (1) I am aware of myself as a 'cultural conditioned' being (factor score=0.65[5]; 0.66[6]) (2) I am aware I am an individual with personal preferences and habits (factor score=0.59[5]; 0.66[6]) (3) I am aware of how people within my own culture respond to my social identity (race, class, gender, age, ability, etc.) (factor score=0.66[5]; 0.78[6]) (4) I am aware of how people outside my own culture response to my social identity (race, class, gender, age, ability, etc.) (factor score=0.66[5]; 0.70[6]) (5) I consider myself to be interculturally sensitive (factor score=0.58[5]; 0.62[6])

[1] scale ranging from 1 "not at all" to 5 "a great deal"
[2] scale ranging from 1 "strongly disagree" to 5 "strongly agree"
[3] scale ranging from 1 "extremely tense" to 5 "very relaxed"
[4] dichotomous measure 0 "No" 1 "Yes" or 0 "None to some" 1 "Quite a bit to A great deal"
[5] factor score for pre-test results
[6] factor score for post-test results

Appendix 4A. Pre-survey Instrument

I. COLLEGIATE EXPERIENCES / BACKGROUND

1. Which city, state, and country do you consider to be your hometown?

2. How many years have/did you live there?

3. Indicate how frequently you engaged in any of the following during college: (Circle one number for each item.)

	Never	*Seldom*	*Average*	*Often*	*Very Often*
a. Participated in activities sponsored by cultural groups other than my own	1	2	3	4	5
b. Studied with someone from a different cultural background	1	2	3	4	5
c. Socialized with students from a different cultural background	1	2	3	4	5
d. Viewed foreign films	1	2	3	4	5
e. Ate at a variety of ethnic restaurants	1	2	3	4	5
f. Attended religious services other than my own	1	2	3	4	5
g. Listened to musical artists from another country	1	2	3	4	5
h. Watched/listened to world news	1	2	3	4	5
i. Attended a lecture/symposium on a cross-cultural issue	1	2	3	4	5

4. Circle the number next to all the statements that apply to you.

a. I am the first in my family to go to college.	1
b. I took a class on multicultural/diversity issues.	2
c. I have been involved in volunteer work.	3
d. I have participated in structured dialogues with students from different backgrounds and beliefs from my own.	4
e. I have studied abroad.	5
f. I have a family member who studied abroad.	6
g. I have lived outside of the U.S.A.	7
h. I conducted research with a faculty member.	8

II. Preferences For Thinking And Interacting

5. We would like to know your thoughts in a variety of situations. For each item, indicate how well it describes you. (Circle one number for each item.)

	Not at all like me	*A little bit like me*	*Somewhat like me*	*Quite a bit like me*	*Very much like me*
a. I think very little about the different ways that people influence each other.	1	2	3	4	5
b. I am interested in understanding how my own thinking works when I make judgments about people.	1	2	3	4	5
c. I don't usually analyze people's behavior.	1	2	3	4	5
d. I really enjoy analyzing the reasons or causes for people's behavior.	1	2	3	4	5
e. I think a lot about the influence that society has on other people.	1	2	3	4	5
f. I prefer simple rather than complex explanations for people's behavior.	1	2	3	4	5
g. I believe it is important to analyze and understand our own thinking processes.	1	2	3	4	5
h. I tend to take people's behavior at face value and not worry about the inner causes for their behavior.	1	2	3	4	5
i. I think a lot about the influence that society has on my behavior.	1	2	3	4	5

6. People often have differences in perspectives. Indicate how much you agree or disagree with each statement. (Circle one number for each item.)

	Strongly Disagree	*Disagree Somewhat*	*Neutral*	*Agree Somewhat*	*Strongly Agree*
a. I try to look at everybody's side of a disagreement before I make a decision.	1	2	3	4	5
b. There are several sides to every issue and I try to look at them all.	1	2	3	4	5
c. I sometimes find it difficult to see the "other person's" point of view.	1	2	3	4	5
d. I am afraid of conflicts when discussing social issues.	1	2	3	4	5
e. When I'm upset at someone, I usually try to "put myself in their shoes" for a while.	1	2	3	4	5
f. Everyone is entitled to their own	1	2	3	4	5

opinion; it's not my place to comment.

III. Intercultural Relations

7. How knowledgeable are you of the cultural practices of the peoples from your intended education abroad site? Specifically in regards to their: (Circle one number for each item.)

	No Knowledge	*A little bit of knowledge*	*Some knowledge*	*Quite a bit of knowledge*	*A great deal of knowledge*
a. History	1	2	3	4	5
b. Political system and events	1	2	3	4	5
c. Health practices and concerns	1	2	3	4	5
d. Economic system	1	2	3	4	5
e. Religious practices	1	2	3	4	5
f. Educational system/ practices	1	2	3	4	5
g. General social customs	1	2	3	4	5

8. The following set of questions concerns situations you could find yourself in when interacting with people from another culture. Please indicate how you would react to these situations. In each situation you would be the only student from your institution present. Other people would be from the host culture. (Circle one number for each item.)

	Extremely Tense	*Tense*	*Somewhat Relaxed*	*Relaxed*	*Very Relaxed*
a. Meeting strangers and introducing myself	1	2	3	4	5
b. People staring at me and talking about me among themselves	1	2	3	4	5
c. Being laughed at for a minor mistake I have made	1	2	3	4	5
d. Being taken advantage of (i.e. by a merchant or taxi driver)	1	2	3	4	5
e. Unintentionally offending a member of the other group by making a small social error	1	2	3	4	5
f. People refusing to talk to me because they dislike my group	1	2	3	4	5
g. Going to a small social gathering (less than 15 people)	1	2	3	4	5
h. Being able to make myself understood when it is important	1	2	3	4	5

9. Indicate how much you agree or disagree with each statement. (Circle one number for each item.)

	Strongly Disagree	*Disagree Somewhat*	*Neutral*	*Agree Somewhat*	*Strongly Agree*
a. Overall, I think the United States serves as a model that other countries should follow.	1	2	3	4	5
b. I will treat people of a different culture as I want to be treated.	1	2	3	4	5
c. I will follow another's social customs, even if they are in conflict with my own values.	1	2	3	4	5
d. I make judgments about other peoples' customs based on a historical & political context.	1	2	3	4	5
e. Essentially, people from all over the world have distinct differences.	1	2	3	4	5
f. American values should be infused in other cultures.	1	2	3	4	5
g. I think that what generally happens to people in other countries will affect what happens in my life.	1	2	3	4	5
h. I believe there are just as many similarities as there are differences between my culture and others'.	1	2	3	4	5
i. I believe I am a citizen of the world.	1	2	3	4	5
j. Essentially, people from all over the world are more alike than different.	1	2	3	4	5
k. I often think about what I have in common with other people in the world.	1	2	3	4	5
l. The U.S. should not be involved in the politics of other countries.	1	2	3	4	5
m. My opinions about another's cultural customs are primarily based on how aligned they are with my own values.	1	2	3	4	5
n. I take pride in being a (name of home institution) student.	1	2	3	4	5

10. To what extent have you done the following with people from another cultural group? (Circle one number for each item.)

	Not at all	*A little bit*	*Some*	*Quite a bit*	*A great deal*
a. Had intellectual discussions	1	2	3	4	5
b. Had meaningful and honest discussions about global issues	1	2	3	4	5
c. Had guarded, cautious interactions	1	2	3	4	5
d. Shared personal feelings and problems	1	2	3	4	5
e. Had tense, somewhat hostile interactions	1	2	3	4	5

f. Had discussions regarding intergroup relations	1	2	3	4	5
g. Developed an on-going friendship	1	2	3	4	5

11. Indicate how much you agree or disagree with each statement. (Circle one number for each item.)

	Strongly Disagree	*Disagree Somewhat*	*Neutral*	*Agree Somewhat*	*Strongly Agree*
a. The best way to learn about another culture is to spend time in it.	1	2	3	4	5
b. I am aware of myself as a 'culturally conditioned' being.	1	2	3	4	5
c. I am aware I am an individual with personal preferences and habits.	1	2	3	4	5
d. I am aware of how people within my own culture respond to my social identity (race, class, gender, age, ability, etc.).	1	2	3	4	5
e. I am aware of how people outside my own culture respond to my social identity (race, class, gender, age, ability, etc.).	1	2	3	4	5
f. I consider myself to be interculturally sensitive.	1	2	3	4	5
g. All college students upon graduation should be able to interact with people from diverse cultures.	1	2	3	4	5

IV. EXPERIENCES AT THE HOME INSTITUTION

12. The following statements have to do with your experiences at your home institution. Indicate how much you agree or disagree with each statement. (Circle one number for each item.)

	Strongly Disagree	*Disagree Somewhat*	*Neutral*	*Agree Somewhat*	*Strongly Agree*
a. My university is a diverse campus.	1	2	3	4	5
b. My hometown is more diverse than my university.	1	2	3	4	5
c. On campus there are many opportunities to interact with people from different cultural backgrounds.	1	2	3	4	5
d. Administrators are concerned about providing intercultural experiences on campus.	1	2	3	4	5
e. Faculty are concerned about providing intercultural experiences on campus.	1	2	3	4	5
f. Students have a good understanding of	1	2	3	4	5

traditions and values of other cultures.					
g. Most students know little about my culture.	1	2	3	4	5
h. There are many opportunities for faculty and students to discuss issues related to diversity.	1	2	3	4	5
i. Since coming to this university, I have learned a great deal about other cultures.	1	2	3	4	5
j. I feel pressure to interact only with people of my cultural background.	1	2	3	4	5

V. Demographic Information

13. What is your gender? (please print)

13a. What is your age? (please print)

14. How do you identify yourself racially/ethnically? (please print)

15. What is your current class standing, as of this semester? (Circle one.)

First Year	1
Sophomore	2
Junior	3
Senior	4
Other, (please print) _____	

16. What is your current grade point average? (please print)

17. What is your best estimate of your total family income last year? Consider income from all sources before taxes. (Circle one number.)

Less than $10,000	1
$10,000-29,999	2
$30,000-59,999	3
$60,000-99,999	4
$100,000-149,999	5
$150,000-199,999	6
$200,000 or more	7

18. Which of the following most accurately describes your generation and citizenship status? (Circle one number.)

At least one of my grandparents, my parents and I are U.S. born	1
At least one of my parents and I are U.S. born	2
I am U.S. born, my parents are not	3
Foreign born - naturalized U.S. citizen	4
Foreign born - resident alien or permanent resident	5
Naturalized citizen - non U.S	6
Student visa	7

19. The following questions are related to your experience with the English language. (Circle all that apply.)

a. I have conversational skills in a language other than English.	1
b. English is my first language.	2
c. English was the first language of my primary caregivers.	3
d. At least one of my primary caregiver's first language was not English.	4
e. I am fluent in a language other than English	5

VI. Short Answer Questions

20. Why did you decide to participate in this program? (Please print.)

21. What do you expect to learn from the experience? (Please print.)

Appendix 4B. Post-survey Instrument

1. We would like to know your thoughts in a variety of situations. For each item, indicate how well it describes you. (Circle one number for each item.)

		Not at all like me	*A little bit like me*	*Somew hat like me*	*Quite a bit like me*	*Very much like me*
a.	I think very little about the different ways that people influence each other.	1	2	3	4	5
b.	I am interested in understanding how my own thinking works when I make judgments about people.	1	2	3	4	5
c.	I don't usually analyze people's behavior.	1	2	3	4	5
d.	I really enjoy analyzing the reasons or causes for people's behavior.	1	2	3	4	5
e.	I think a lot about the influence that society has on other people.	1	2	3	4	5
f.	I prefer simple rather than complex explanations for people's behavior.	1	2	3	4	5
g.	I believe it is important to analyze and understand our own thinking processes.	1	2	3	4	5
h.	I tend to take people's behavior at face value and not worry about the inner causes for their behavior.	1	2	3	4	5
i.	I think a lot about the influence that society has on my behavior.	1	2	3	4	5

2. People often have differences in perspectives. Indicate how much you agree or disagree with each statement. (Circle one number for each item.)

		Strongly Disagree	*Disagree Somewhat*	*Neutral*	*Agree Somewhat*	*Strongly Agree*
a.	I try to look at everybody's side of a disagreement before I make a decision.	1	2	3	4	5
b.	There are several sides to every issue and I try to look at them all.	1	2	3	4	5
c.	I sometimes find it difficult to see the "other person's" point of view.	1	2	3	4	5
d.	I am afraid of conflicts when discussing social issues.	1	2	3	4	5
e.	When I'm upset at someone, I usually try to "put myself in their shoes" for a while.	1	2	3	4	5
f.	Everyone is entitled to their own opinion; it's not my place to comment.	1	2	3	4	5

3. How knowledgeable are you of the cultural practices of the peoples from your field site? Specifically in regards to their: (Circle one number for each item.)

	No knowledge	*A little bit of knowledge*	*Some knowledge*	*Quite a bit of knowledge*	*A great deal of knowledge*
a. History	1	2	3	4	5
b. Political system and events	1	2	3	4	5
c. Health practices and concerns	1	2	3	4	5
d. Economic system	1	2	3	4	5
e. Religious practices	1	2	3	4	5
f. Educational system/ practices	1	2	3	4	5
g. General social customs	1	2	3	4	5

4. The following set of questions concerns situations you could find yourself in when interacting with people from another culture. Please indicate how you would react to these situations. In each situation you would be the only student from your institution present. Other people would be from the host culture. (Circle one number for each item.)

	Extremely Tense	*Tense*	*Somewhat Relaxed*	*Relaxed*	*Very Relaxed*
a. Meeting strangers and introducing myself	1	2	3	4	5
b. People staring at me and talking about me among themselves	1	2	3	4	5
c. Being laughed at for a minor mistake I have made	1	2	3	4	5
d. Being taken advantage of (i.e. by a merchant or taxi driver)	1	2	3	4	5
e. Unintentionally offending a member of the other group by making a small social error	1	2	3	4	5
f. People refusing to talk to me because they dislike my group	1	2	3	4	5
g. Going to a small social gathering (less than 15 people)	1	2	3	4	5
h. Being able to make myself understood when it is important	1	2	3	4	5

5. Indicate how much you agree or disagree with each statement. (Circle one number for each item.)

		Strongly Disagree	*Disagree Somewhat*	*Neutral*	*Agree Somewhat*	*Strongly Agree*
a.	Overall, I think the United States serves as a model that other countries should follow.	1	2	3	4	5
b.	I will treat people of a different culture as I want to be treated.	1	2	3	4	5
c.	I will follow another's social customs, even if they are in conflict with my own values.	1	2	3	4	5
d.	I make judgments about other peoples' customs based on a historical & political context.	1	2	3	4	5
e.	Essentially, people from all over the world have distinct differences.	1	2	3	4	5
f.	American values should be infused in other cultures.	1	2	3	4	5
g.	I think that what generally happens to people in other countries will affect what happens in my life.	1	2	3	4	5
h.	I believe there are just as many similarities as there are differences between my culture and others'.	1	2	3	4	5
i.	I believe I am a citizen of the world.	1	2	3	4	5
j.	Essentially, people from all over the world are more alike than different.	1	2	3	4	5
k.	I often think about what I have in common with other people in the world.	1	2	3	4	5
l.	The U.S. should not be involved in the politics of other countries.	1	2	3	4	5
m.	My opinions about another's cultural customs are primarily based on how aligned they are with my own values.	1	2	3	4	5
n.	I take pride in being a (name of home institution) student.	1	2	3	4	5

6. To what extent have you done the following with local peoples from your field site? (Circle one number for each item.)

	Not at all	*A little bit*	*Some*	*Quite a bit*	*A great deal*
a. Had intellectual discussions	1	2	3	4	5
b. Had meaningful and honest discussions about global issues	1	2	3	4	5
c. Had guarded, cautious interactions	1	2	3	4	5
d. Shared personal feelings and problems	1	2	3	4	5
e. Had tense, somewhat hostile interactions	1	2	3	4	5
f. Had discussions regarding intergroup relations	1	2	3	4	5
g. Developed an on-going friendship	1	2	3	4	5

7. Indicate how much you agree or disagree with each statement. (Circle one number for each item.)

	Strongly Disagree	*Disagree Somewhat*	*Neutral*	*Agree Somewhat*	*Strongly Agree*
a. The best way to learn about another culture is to spend time in it.	1	2	3	4	5
b. I am aware of myself as a 'culturally conditioned' being.	1	2	3	4	5
c. I am aware I am an individual with personal preferences and habits.	1	2	3	4	5
d. I am aware of how people within my own culture respond to my social identity (race, class, gender, age, ability, etc.).	1	2	3	4	5
e. I am aware of how people outside my own culture respond to my social identity (race, class, gender, age, ability, etc.).	1	2	3	4	5
f. I consider myself to be interculturally sensitive.	1	2	3	4	5
g. All college students upon graduation should be able to interact with people from diverse cultures.	1	2	3	4	5

8. To what extent have you participated in the following in during your field experience? (Circle one number for each item.)

		Not at all	*A little bit*	*Some*	*Quite a bit*	*A great deal*
a.	Faculty directed practicum	1	2	3	4	5
b.	Tried new foods	1	2	3	4	5
c.	Learned a new skill	1	2	3	4	5
d.	Service learning activities	1	2	3	4	5
e.	Overnight stays with host families	1	2	3	4	5
f.	Traveled separate from program	1	2	3	4	5
g.	Attended cultural event (play, festival, dance, museum, etc.)	1	2	3	4	5
h.	Religious/spiritual activities	1	2	3	4	5
i.	Recreation activities	1	2	3	4	5
j.	Used local media (newspaper, radio, magazine, TV news, etc.)	1	2	3	4	5
k.	Was involved in the daily lives of the local peoples	1	2	3	4	5
l.	Preferred to say with program group members	1	2	3	4	5
m.	Took on a leadership role within the program group	1	2	3	4	5

n. How much did you pay for field site transportation (airfare, flight insurance)?

o. How much personal spending money did you use during the project dates?

9. Will you receive independent study credit for participating in this program? (Circle one.)

a. No b. Yes

10. Indicate how much you agree or disagree with each statement regarding the academic components of this program. (Circle one number for each item.)

	Strongly Disagree	*Disagree Somewhat*	*Neutral*	*Agree Somewhat*	*Strongly Agree*
a. My field experience was primarily theoretically-oriented.	1	2	3	4	5
b. My field experience was primarily service-oriented.	1	2	3	4	5
c. I participated in research related activities (data collection, interpretation or analysis).	1	2	3	4	5
d. Reading materials related specifically to the host culture(s).	1	2	3	4	5
e. I learned from program members.	1	2	3	4	5
f. I reflected upon my field experiences through journaling.	1	2	3	4	5

11. To what extent have you done the following with students from the program? (Circle one number for each item.)

	Not at all	*A little bit*	*Some*	*Quite a bit*	*A great deal*
a. Had intellectual discussions.	1	2	3	4	5
b. Had meaningful and honest discussions about global issues.	1	2	3	4	5
c. Had guarded, cautious interactions.	1	2	3	4	5
d. Shared personal feelings and problems.	1	2	3	4	5
e. Had tense, somewhat hostile interactions.	1	2	3	4	5
f. Developed an on-going friendship.	1	2	3	4	5

12. To what extent have you done the following with faculty during the program? (Circle one number for each item.)

	Not at all	*A little bit*	*Some*	*Quite a bit*	*A great deal*
a. Had intellectual discussions.	1	2	3	4	5
b. Had meaningful and honest discussions about global issues.	1	2	3	4	5
c. Had guarded, cautious interactions.	1	2	3	4	5
d. Shared personal feelings and problems.	1	2	3	4	5
e. Had tense, somewhat hostile interactions.	1	2	3	4	5
f. Developed a mentor/mentee relationship.	1	2	3	4	5

13. What do you think you learned about yourself by participating in this program? (Please print.)

14. How has this program influenced your future academic or career plans? (Please print.)

15. What did you learn that surprised you? (Please print.)

16. Is there anything else you would like to share about your experience? (Please print.)

Chapter 5: Concluding Remarks

My dissertation suggests multiple implications for research and practice. Conceptually, the three studies highlight the need for theory driven research to improve understanding of study abroad. One of the salient limitations of prior study abroad research is the lack of studies that are conceptually grounded. I discuss in Paper 1 how widely researched conceptual frameworks developed in other fields of study, such as the Theory of Reasoned Action (TRA), can be used to refine our understanding of students' complex decision making processes. Within the higher education literature, the large body of research on college choice provides additional theoretically and empirically grounded approaches for examining the range of factors that affect student decisions to engage with study abroad opportunities (e.g., Hossler et al., 1989; Paulsen & St. John, 2002; Perna, 2006).

Methodologically, the studies in my dissertation suggest implications for continuously monitoring participation and assessing the impact of study abroad. Looking forward, my dissertation can serve as a basis for developing a protocol for gauging the effects of different types of study abroad programs on undergraduate students. For instance, I demonstrated how information relevant to study abroad can be gathered through student surveys and records, and linked to develop a database relevant to study abroad assessment. Using surveys (e.g., CIRP, Open Doors) and institutional data across three cohorts of undergraduate students, I created a longitudinal data set that provided a unique opportunity to examine the characteristics and experiences both prior to and during the first year of college of study abroad participants in

comparison to their non-participating peers (Paper 1). I used the dataset to examine the effect of study abroad participation on important academic outcomes such as 4-year degree completion and interests in international affairs (Paper 2). In addition, Paper 2 demonstrates the use of a more robust methodology that controls for confounding variables and selection bias when exploring the independent effect of study abroad on outcomes. The use of such a statistical technique alleviates some of the measurement issues found in prior research and suggests ways in which future research can employ similar statistical methods to accurately gauge program impact.

My dissertation also indicates where the gaps in current research are and informs future efforts to collect data and conduct analyses that can effectively address these gaps. Findings from Paper 1 indicated the need for more research on how intent as an integral part of students' decision making is formulated and changes over time. Undergraduate surveys that are widely employed make assumptions about the stability of intentions that are not supported by my study findings. While Paper 2 focused on certain aspects of program impact, namely academic performance and interest, the results suggest other sorts of data ought to be systematically gathered from participants in order to holistically understand the impact of study abroad programs, such as intercultural competence, second language proficiency, co-curricular experiences pre- and post- study abroad participation, and long-term career goals and outcomes. Findings from Paper 3 indicated the need for more inquiries that better capture and account for the impact of different instructional practices in study abroad. These results suggest why current surveys used to collect data on instructional activities used across programs and campuses may yield conflicting findings and point to refinements in survey instruments that are necessary if researchers are to understand "what works".

What is more, since engaging in study abroad is an extended process, collecting data over-time is essential which requires careful planning especially during the research design phase. Some information such as student background characteristics that do not change over time can be collected once at the beginning of a student's academic career. However, aspects that are likely to change over time (e.g., intent to study abroad, curricular and co-curricular experiences) need to be collected at multiple time points. Additionally, changes resulting from the education abroad experience may not be evident immediately upon the conclusion of the overseas experience (Byram, Nichols, & Stevens, 2001). In other words, it is likely that the student learning that occurs may extend even beyond college graduation. Hence, the time frame of research studies needs to encompass a systematic collection of information pertaining to, for instance, students' educational attainment or career trajectories (e.g., employer, location) that spans multiple years. A few research studies have undertaken such efforts and laid the ground in designing such projects (e.g., Carlson et al., 1990; Paige et al., 2009); however, a limitation of these investigations is lack of a non-participant control group that share key characteristics with the study abroad participants. Hence, it would be ideal to conduct a research initiative similar to Paper 2 (i.e., quasi-experimental statistical approach to estimate the causal effect of study abroad participation) that captures post-graduation data at multiple time points to accurately gauge program effects on long-term outcomes such as career trajectories.

Practically, findings of my dissertation provide support for the contention that participation does not necessarily lengthen time to degree. This has been a common assertion among international educators and study abroad researchers based on prior findings (Hamir, 2011; Posey, 2003; Sutton & Rubin, 2010). However, due to methodological and analytical weaknesses, the evidentiary basis of extant empirical research had been limited. My results based

on a more rigorous statistical methodology, show that even when study abroad participants and non-participants who are very similar in terms of their background characteristics and first year academic experiences are compared, study abroad participants show higher probability of graduating in four years than non-participants. Hence, results lend support to prior research findings by showing that for the sample of this study, study abroad participation did not delay graduation. What is more, even in fields where participation is thought to be difficult due to requirements of the major, actions can be taken that make it possible. For instance, findings suggest that institutional climates with norms that value study abroad, availability of programs that accommodate academic requirements of different study fields, and resources to support students to plan and participate in study abroad (e.g., financial aid, information sessions) are key in efforts to recruit more students from diverse backgrounds to partake in overseas experiences.

Together, my dissertation demonstrates how study abroad assessment initiatives could inform useful knowledge about whom our students engaging in study abroad are, where they go, what they study, and what they gain from the experience. Such information aids study abroad units to design programs that maximize student participation and learning. Moreover, such an understanding can help study abroad advisors to support students in making better choices in terms of their academic and career trajectories when they prepare to go overseas. Since study abroad programs are elective and often financially self-supported, they have always been highly accountable to students and parents, as well as to university administrators and faculty. Therefore, research initiatives such as my dissertation can be valuable to study abroad administrators in their efforts for continuous quality improvement and can serve as a basis in solidifying institutional support for implementing long-term assessment initiatives that can systematically

inform study abroad program effects, best practices that enhance outcomes, and targeted efforts to diversify participants.

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