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Gatton Academy Study Abroad Program Effects on Perceptions of Community Belongingness and Personal Growth and Development

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GATTON ACADEMY STUDY ABROAD PROGRAM EFFECTS ON PERCEPTIONS
OF COMMUNITY BELONGINGNESS AND PERSONAL GROWTH AND
DEVELOPMENT

A Dissertation
Presented to
The Faculty of the Educational Leadership Doctoral Program
Western Kentucky University
Bowling Green, Kentucky

In Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

By
Derick Brandon Strode

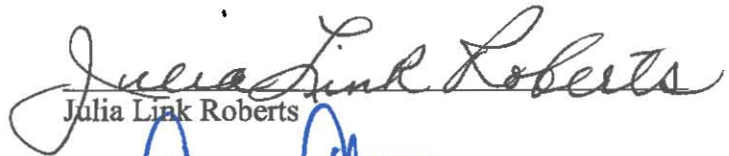
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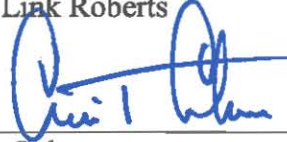
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This dissertation's focus is at the intersection of study abroad, impact assessment, and a population of gifted and talented students at a specialized, residential high school called The Gatton Academy. A summative impact evaluation was conducted to assess effects of Gatton Academy study abroad programs on student participants' perceptions of peer belongingness, mentor belongingness, and personal growth and development, as well as to compare differences among three different program models being employed by the school. The three program models studied included a Non-Credit program, a Faculty-led Field-Study, and a Faculty-led Traditional program. The research was conducted amidst documented calls for increased assessment of study abroad impact and during a time when a national effort was underway to drastically increase the number of American students studying abroad, including during high school. Over 90% of students at The Gatton Academy study abroad before high school graduation. A quasi-experimental, pretest and posttest design was implemented. A 37-item survey instrument was designed, validated, and reliability-tested to measure participants' perceptions on the studied variables. Paired-samples *t*-tests were used to compare responses from pre to posttests for each of the 89 study participants. When considering the entire study population, findings indicated that participating in study abroad did not have a significant effect on perceptual change. Yet, when the program models were considered individually, findings

showed statistically-significant growth for peer belongingness for participants in the Non-Credit program and statistically-significant positive gain for personal growth and development for Faculty-led Field-Study students.

CHAPTER I: STATEMENT OF THE PROBLEM

Introduction

This study's focus is at the intersection of study abroad, impact assessment, and a population of gifted and talented students at a specialized, residential high school. Study abroad is defined in this study as the act of students traveling beyond United States borders to enhance their academic study, global awareness, and personal development. There is a stronger push than ever for students to study abroad, and while there is wide agreement that study abroad benefits the individual participant and has positive ripple effects throughout society, the literature is only starting to catch up with relevant impact assessments to provide this evidence through data. While study abroad has been a traditional college rite of passage for a small percentage of students over the last several decades, the call for more students to study abroad is intensifying and now reaches high school populations too. Several study abroad provider companies now serve the high school market, while a few high schools have instituted their own school-built study abroad programs. As the number of high school students going on study abroad increases, so does the need for impact assessments on this population.

This study performs an impact assessment of the study abroad programs at the Carol Martin Gatton Academy of Mathematics and Science in Kentucky. The Gatton Academy, for short, is a specialized, residential, public high school located on the campus of Western Kentucky University. The school has a selective admissions process and serves gifted and talented 11th and 12th graders with an interest in advanced careers in science, technology, engineering, and mathematics (STEM). The school's study abroad program is robust, serving the majority of students, with over 90% studying abroad

before their high school graduation. The Gatton Academy led study abroad programs for its students to Italy, Costa Rica, and England in 2016. This study's focus rests on the impact of these three programs.

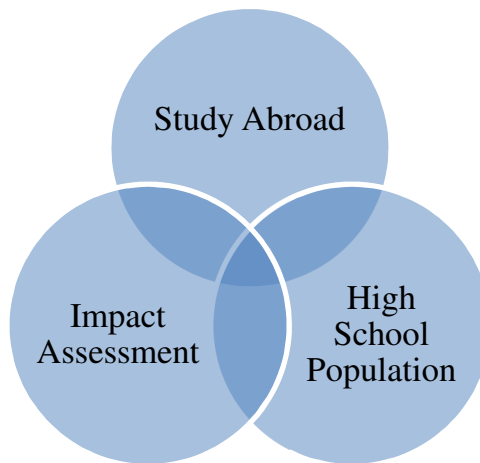


Figure 1. Venn diagram relationship illustrating the three sets examined within this study. At the intersection of the three sets is this study's topic and point of contribution.

There is a repeated call for impact assessments for study abroad programs (Bolen, 2007; Dwyer, 2004; Oppen, Teichler, & Carlson, 1990; Sowa, 2002; Stone & Petrick, 2013; Sutton, Miller, & Rubin, 2007). This study contributes to the knowledge gap by providing data that are generalizable to any study abroad population. However, this study's particular contribution is that it is one of the few ever conducted to measure the impact of study abroad on a high-school aged population. Further, it is the only study of its kind conducted within the gifted and talented population at specialized, residential schools.

Problem Defined

Study Abroad

The call to send American students on study abroad is stronger than ever before. One initiative is led by the American-based Institute of International Education (IIE) and

calls for doubling the number of American students studying abroad by the end of the decade. The IIE's Generation Study Abroad is a five-year initiative launched in 2015 that calls upon educators at all levels to help 600,000 American students study abroad annually by 2020 (Institute of International Education, 2016).

Other similar calls come from the White House. In 2009 President Barack Obama launched 100,000 Strong, a national call for a sharp increase in the number of American students studying abroad in China. Another soon followed. The 100,000 Strong in the Americas initiative was announced in March 2011 by President Obama, calling for 100,000 American students to study abroad throughout the Americas annually by the end of the decade (United States Department of State, 2016). These programs were created principally as economic strategies to strengthen bonds and economic promise with China and Latin American nations.

Historically, study abroad participation by American students is largely a college-level activity, and the number of participants has grown rapidly over the past 20 years. *Open Doors* is an annual report from the Institute of International Education that tracks study abroad participation rates. The latest report shows that study abroad participation by university students has more than tripled over the past two decades (Institute of International Education, 2015a). Over 300,000 American university students now study abroad each year. While this number is higher than ever, it represents only about 10% of America's undergraduate population. The report also makes evident that study abroad growth was drastically slowed by the 2008 economic downturn, and the level of growth seen before the recession has still not been wholly recaptured. In 2006 Goucher College, a private, liberal-arts school in Baltimore, garnered significant attention from the

international education community when the school became the first American college to require study abroad participation of its students (Loveland, 2006).

As study abroad has grown, research within education abroad has become increasingly more available and sophisticated. In a comprehensive literature review, Comp, Gladding, Rhodes, Stephenson, and Vande Berg (2007) found only 340 research-based articles, reports, and books published on study abroad from 1950 to 1979. Yet, from January 2000 to May 2003, there were 315 (p. 99). The acceleration within this field of study is driven both by the increased participation in study abroad by American students, but also because of the identified need to demonstrate the impact of these high-cost programs. Therefore, a particular strand of research has emerged: the impact assessment of study abroad programs.

Study abroad has largely been a collegiate-level rite of passage since the University of Delaware launched the first study abroad program in 1923. However, high school is now being seen as a ripe time to study abroad. The IIE's Generation Study Abroad campaign calls for 1,000 K-12 teachers to take a pledge to assist their students to be prepared to study abroad (Marklein, 2015). Companies and organizations such as the Council on International Educational Exchange (CIEE) High School Study Abroad, International Studies Abroad, Sol Abroad, the School for International Training's Experiment in International Living, and the industry leader, EF Educational Tours, all now have dedicated high school study abroad divisions. These groups market high school study abroad as an angle that will make students most competitive to get into elite colleges. Recently the CIEE even committed \$500,000 in scholarships to assist high school students in studying abroad on their programs (Reuters, 2015).

Meanwhile, the U.S. Department of State has created four youth study abroad programs to promote international leadership, exchange, and critical language study targeted at high school-aged students. These programs are administered by the U.S. Department of State's Bureau of Educational and Cultural Affairs. The Congress-Bundestag Youth Exchange was created in 1983 to assist the exchange of German and American high school students through scholarships. The other three programs, the American Youth Leadership Program, the Kennedy-Lugar Youth Exchange and Study (YES) Abroad program, and the National Security Language Initiative for Youth (NSLI-Y), have all been created since September 2001.

High School Population

The Gatton Academy is a high school for 11th and 12th grade students from Kentucky. The students share a common interest in advanced careers in STEM fields. All of the students are considered gifted and talented because of the rigorous admission criteria. The school uses a broad range of metrics to evaluate students for selective admission, including but not limited to standardized test performance, grade point average, written essays, a resume of past activities, recommendations from teachers, and an interview. From the school's opening in 2007 until 2016, the school admitted classes of about 60 students per class for a total school population of 120. The school is currently expanding, now admitting classes of about 100 students per class for a total school population of around 200 by fall 2017. An equal gender mix are admitted each year. Selection is designed to represent Kentucky. Admission to the school may be impacted by bias between social stratification and standardized testing (as described in Camara & Schmidt, 1999) though this effect is mitigated in the efforts to admit a diverse

population that represents each county in the state and other diversity factors. ACT composite scores for admitted students in the Class of 2017 ranged from 23 to 35 on the test's 36-point scale, with the average admitted student having a 30.75 (The Gatton Academy, 2015). Every admitted student receives a full scholarship from the Commonwealth of Kentucky that covers tuition, housing, and meals for the last two years of high school.

The Gatton Academy is located on the main campus of Western Kentucky University in Bowling Green, Kentucky. Though the students are in grades 11 and 12, all of their coursework is completed at the college level and classes are taught by university professors. While studying at The Gatton Academy, these high school students interact as college students, enjoying the resources of the university, such as the dining halls, recreation facilities, activities, clubs, and access to faculty-mentored research projects. When they complete high school, graduates have earned a minimum of 60 collegiate credit hours.

Impact Assessment

Impact assessments on study abroad programs are in great need (Bolen, 2007; Dwyer, 2004; Opper, Teichler, & Carlson, 1990; Sowa, 2002; Stone & Petrick, 2013; Sutton, Miller, & Rubin, 2007). Deardorff (2007) points out advantages of impact assessments of study abroad programs, including helping parents understand the impact of what their students learn and how those skills and knowledge transfer to their student's future, improving the program with data beyond anecdotes, having data-driven evidence to advocate for additional resources, and being able to communicate the value of study abroad in statistical terms to reach new audiences. Deardorff argues that the primary

reason for assessment of study abroad is “to increase student learning and development” (p. 221). This distinction is important, because early assessments of study abroad focused predominantly on learning differences. Pioneer researchers took interest in how content was mastered through traditional courses on American campuses versus study abroad delivery, such as with foreign language learning (Carroll, 1967; Milleret, 1991). Like Deardorff, recent studies have acknowledged the impact of study abroad on personal changes and development too. One trend through the 2000s is the concentration on how study abroad affects the intercultural abilities of participants (Anderson, Lawton, Rexeisen, & Hubbard, 2006; Engle & Engle, 2004; Hao, 2012). Calls to assess personal development resulting from study abroad appear in the literature as early as 1990 (Opper, Teichler, and Carlson, 1990; Kauffmann, Martin, Weaver, & Weaver, 1992; Gmelch, 1997). This line of research has intensified in the past 10 years (Meyer-Lee & Evans, 2007; Sutton, Miller, & Rubin, 2007; Coelho, 2010). However, these studies are all limited in that they focus on traditional-aged student populations. This study examines the impact of study abroad on Gatton Academy students’ personal development, contributing directly to this knowledge gap.

Short-term study abroad has become the most common way for university students to study abroad, replacing the traditional model of the exchange year or semester. Donnelly-Smith (2009) defines short-term study abroad programs as “those in which students are engaged for fewer than eight weeks” (p. 12). This definition is applied throughout this study since the three programs examined are all fewer than eight weeks. Chieffo and Griffiths (2004) point out that while there is a gap in assessment literature for study abroad programs’ impact on students in general, this is especially true for short-

term programs due to their more recent prevalence. In addition to seeing program models as short-term versus longer experiences, another classification was created by Kraft, Ballantine, and Garvey (1994). The authors divided programs into total immersion, protective studies, and tour models. Sowa (2002) outlines that the program types are not “mutually exclusive nor in conflict” (p. 64), and any study abroad program can encompass multiple models. The total immersion model “places U.S. students in a foreign university for the duration of at least one semester but typically for a year” (Sowa, 2002, p. 63). The protective studies model “ties students to a U.S. program with resident advisors and instructors” and “provides an overview of a topic or countries” (Kraft, Ballantine, & Garvey, p. 27). The study tour is short and lasts about two weeks (Sowa, 2002, p. 64). The Gatton Academy’s three study abroad programs studied here are classified as a blend of the protective studies model and the tour model, with the Italy program leaning most heavily toward the tour model since it does not involve a classroom component or award academic credit.

To date very little has been done to assess the impact of study abroad on a high school population, though there is some precedent (Armstrong, 1982; Stitsworth, 1988; Enomoto, 1996; Boyd et al., 2001; Iwami, 2001; Hansel & Chen, 2008; Bachner & Zeuschel, 2009; Hao, 2012). To this author’s knowledge, no study has considered the impact of study abroad on a gifted and talented student population or on a population at a specialized, residential high school. Limburg-Weber (1999) outlined study abroad as an option for gifted and talented students, but merely introduced the concept. The impact on any gifted and talented sample was not studied. This article simply served as a call for more gifted and talented students to participate in education abroad.

Purpose of the Study

This study brings together the issues described in the Problem Defined section to perform an impact assessment of study abroad with high school students. Because of recent impact assessments with traditional college-aged populations, there are precedents in the literature for establishing such a study. This study contributes to key research voids by measuring students' perceptions of the impact of short-term study abroad programs and comparing high school study abroad program models used at The Gatton Academy. Therefore, the purpose of this summative impact evaluation is to assess effects of Gatton Academy study abroad programs on student participants' perceptions of peer belongingness, mentor belongingness, and personal growth and development, as well as to compare differences among program models being employed by the school.

Research Questions

Weiss (1998) recommends that the natural starting point for any evaluation is with a program's stated goals (p. 117). The Gatton Academy has five articulated goals for its study abroad program (The Gatton Academy, 2016a). While the stated goals offer an opportunity to evaluate the program from many angles, to try and measure all five goals would be too broad of a scope. This evaluation narrows the focus to the following stated goals:

- Accelerate the personal growth of each student through increased confidence, self-awareness, and the abilities to think and act independently.
- Build upon the sense of belongingness with peers and mentors within the Academy community.

To evaluate whether the Academy is meeting these goals, survey instruments were developed to distribute to student participants. Results among the three program models are compared to determine if differences exist among models. Below are research questions that guide this evaluation:

1. For student participants, do Gatton Academy study abroad experiences enhance their perception of belongingness with fellow peers in the school community?
2. To what extent do differences of student participants' perceived effects on peer belongingness exist among the three program models employed by The Gatton Academy?
3. For student participants, do Gatton Academy study abroad experiences strengthen their perception of mentor/mentee relationships with school staff and faculty?
4. To what extent do differences of student participants' perceived effects on mentor/mentee relationships with school staff and faculty exist among the three program models?
5. For student participants, do Gatton Academy study abroad experiences lead to increased perceptions of personal growth and development?
6. To what extent do differences of student participants' perceived effects on personal growth and development exist among the three program models employed by The Gatton Academy?

Developed hypotheses for each research question are:

1. H₁: Participating in study abroad programs significantly changes Gatton Academy students' perceptions of belongingness with fellow peers in the school community.
2. H₁: Significant differences in students' perceptions of peer belongingness exist

among the three program models employed by The Gatton Academy.

3. H₁: Participating in study abroad programs significantly strengthens Gatton Academy students' perceptions of mentor/mentee relationships with school staff and faculty.
4. H₁: Significant differences in students' perceptions of mentor belongingness exist among the three program models employed by The Gatton Academy.
5. H₁: Participating in Gatton Academy study abroad programs leads to significantly- increased perceptions of personal growth and development.
6. H₁: Significant differences in students' perceptions of personal growth and development exist among the three program models employed by The Gatton Academy.

Definitions of Key Terms

The terms used throughout this study can assume different meanings for various readers. Additionally, some terms used are unique to The Gatton Academy's specific study abroad programs. Therefore, key terms are defined to draw distinctions on this study's use of certain terms and phrases.

Duration: Length of a study abroad program not including pre-departure orientation or post-return activities (Peterson et al., 2007).

Faculty-led Study Abroad: Defined by Peterson et al. (2007) as "a study abroad program directed by a faculty member from the home campus who accompanies the student abroad" (p. 190). This definition is applied to Program B: Faculty-led Field-Study (Costa Rica) and Program C: Faculty-led Traditional (England) examined in this study. Program A: Non-Credit (Italy) does not have an accompanying faculty member.

Field-Study Program: Used here as “a study abroad program type in which field study is a required and pedagogically central component” (Peterson et al., 2007, p. 194). The term is applied to the Program B: Faculty-led Field-Study (Costa Rica) program examined within this study because of the large degree of observations and research in nature and the small-team field work conducted by students on that program.

Mentor/Mentee Belongingness: *Belongingness* is defined as a study participant’s (student’s) perception of their fit within The Gatton Academy school community.

Mentor/Mentee belongingness, therefore, encompasses how participants perceive their fit with the school’s staff and faculty.

Non-Credit: Defined by Peterson et al. (2007) as “coursework or co-curricular activities for which students do not earn academic credit” (p. 168). This definition applies to the Program A: Non-Credit (Italy) program.

Peer Belongingness: *Belongingness* is defined as a study participant’s (student’s) perception of their fit within The Gatton Academy school community. *Peer belongingness*, therefore, encompasses how participants perceive their fit with other students within the school.

Personal growth and development: Defined through the four attributes of confidence, curiosity, independence, and self-awareness.

Pre-Departure Orientation: Defined by Peterson et al. (2007) as the “orientation programming intended to help prepare students for a meaningful and successful educational experience abroad” (p. 188). All pre-test data for this study were collected at pre-departure orientations preceding each of the three study abroad programs.

Program A: Non-Credit: For this study, The Gatton Academy’s Italy program is labeled

as Program A: Non-Credit. The program was first led during the Winter Term of 2008, the school's inaugural academic year. It has been biennial since 2012 and continues to be led during Winter Terms. With a Non-Credit program model, it is most similar to the majority of existing high school study abroad programs. In Kraft, Ballantine, and Garvey's (1994) classification of study abroad types, the Non-Credit model fits best as a study tour. Travel occurs without a faculty member and students are not assessed for learning that takes place on the program. The Non-Credit program is a short-term study abroad, 12 days in length, and the shortest of the programs offered by The Gatton Academy. The program moves regularly from location to location within Italy. The 2016 program, studied here, was based in four principal locations: Venice, Florence, Assisi, and Rome.

Program B: Faculty-led Field-Study: In this study The Gatton Academy's Costa Rica program is labeled as Program B: Faculty-led Field-Study. The program began in 2011 and is profiled by Roberts, Breedlove, and Strode (2016). An annual program has occurred each Winter Term since its inception. In Kraft, Ballantine, and Garvey's (1994) classification of study abroad types, the Faculty-led Field-Study program fits best as a protective studies model, with blended elements of a study tour. The program is a Faculty-led Study Abroad with a field-study program model. The program is a short-term study abroad, spanning 16 days in length. Travel occurs with a WKU Department of Biology faculty member, and students earn collegiate-level credit. Students are immersed at three key research locations in Costa Rica where they directly engage as researchers: The Leatherback Trust's Goldring-Gund Marine Biology Station, Cloudbridge Nature Reserve, and Corcovado National Park. Students conduct field-

based research projects in this course at Cloudbridge Nature Reserve, working in teams through the scientific process.

Program C: Faculty-led Traditional: In this study The Gatton Academy's England program is labeled as Program C: Faculty-led Traditional. The program began in 2011. An annual program since, it occurs each Summer Term as a short-term study abroad spanning 23 days. The Faculty-led Traditional program is the longest of the three programs examined by this study. In Kraft, Ballantine, and Garvey's (1994) classification of study abroad types, the program fits best as a protective studies model. The program is a Faculty-led Study Abroad, traveling with a faculty member from the WKU Department of English. Students focus on English literature and various literary forms and devices, with the operating schedule oscillating between classroom days and fieldtrip days. Every major work of literature studied is reinforced with deliberate and focused site visits. Students are based in two locations in England for the program—eight days in London and 15 days at Harlaxton College in Grantham, Lincolnshire.

Program Model: Refers to the “combination of characteristics that provide a shorthand description of an education abroad program” (Peterson et al., 2007, p. 190). This study examines the differences among impacts on participants of three short-term program models: Program A: Non-Credit (Italy), Program B: Faculty-led Field-Study (Costa Rica), and Program C: Faculty-led Traditional (England).

Short-term study abroad: Donnelly-Smith (2009) defined short-term study abroad programs as “those in which students are engaged for fewer than eight weeks (p. 12).” This definition will be applied in this study.

Summer Term: Used in this study as the timeframe from mid-May to mid-August each

year. This timeframe occurs at Western Kentucky University between the end of the spring semester and the start of the fall semester each year. It is a traditional time for short-term study abroad programs, including Program C: Faculty-led Traditional (England) examined in this study. Program C: Faculty-led Traditional is an annual program at The Gatton Academy that lasts from mid-July to early-August.

Winter Term: The term used as the timeframe for the first three weeks of January each year when an academic mini-term occurs at Western Kentucky University succeeding the university's holiday break, but preceding the start of the spring semester in late January. Students may enroll in one class during Winter Term. It is a popular time for study abroad programs. Program A: Non-Credit (Italy) and Program B: Faculty-led Field-Study (Costa Rica) examined in this study occur annually during Winter Term.

Methods

Study abroad participation has become a central part of The Gatton Academy's school culture. Almost every student at the school now studies abroad. Therefore, a control group within The Gatton Academy could not be applied. Likewise, students could not be randomly assigned to particular study abroad programs. This evaluation therefore followed a quasi-experimental, pretest and posttest design. Survey instruments were created to test student participants' views on peer belongingness, mentor belongingness, and perceptions of their own personal growth and development. The data collected were quantitative and analyzed using statistical methods.

Paired-sample *t*-tests were performed to determine differences in all participants' perceptions of their belongingness with peers, belongingness with mentors, and views of personal growth and development from the pretest to posttest to determine levels of

change (research questions 1, 3, and 5). The aggregate results from each program model were studied through a causal-comparative design to determine if differences in perceptions of peer belongingness, mentor belongingness, and personal growth and development exist among the three study abroad program models (research questions 2, 4, and 6). Paired-samples *t*-tests were used for these procedures also, though the tests were conducted separately by program and then results were compared.

Significance of the Study

Berdan and Berdan (2013) argue that while most globalization efforts occur during students' college years, it is already too late to foster ideal global thinking skills (p. 3). Indeed, most study abroad programs are conducted at the collegiate level. High school study abroad, while growing, is vastly under-studied. Researchers have not yet considered the impact of study abroad on the gifted and talented student population. While Limburg-Weber (1999) recommended study abroad for gifted and talented students, no impact assessments with such a population were found in the literature. The Gatton Academy exists within a subset type of high schools, the specialized, residential high school. Impact assessments showing these schools' efficacy are valued, but no studies have been performed within this population on the impact of study abroad. Few researchers have considered differences of impact between credit and non-credit trips. Reghenzani (1991) is one exception. This study looked at how credit and non-credit travel abroad programs impacted a higher education and adult education sample. However, comparisons between short-term study abroad program models are few. Finally, within the study abroad impact assessment literature, there is an increasing call to examine the impact of study abroad on participants' personal development (Coelho, 2010;

Gmelch, 1997; Kauffmann, Martin, Weaver, & Weaver, 1992; Meyer-Lee & Evans, 2007; Oppen, Teichler, and Carlson, 1990; Sutton, Miller, & Rubin, 2007). This study contributes to that recognized knowledge gap.

There is a general deficit in the study abroad literature for impact assessments. This particular study adds to the literature in six notable ways: (a) the population is high-school aged; (b) the population is comprised of gifted and talented students; (c) the population is comprised of students from a specialized, residential school; (d) the study measures impact of three short-term study abroad programs; (e) the study compares impacts of credit and non-credit trips on this population; and (f) the study measures the impact on students' personal development.

Chapter Summary

The significant growth of study abroad over past decades is being accelerated by bold calls from institutions including the White House and the United States Department of State. Among these calls is the Institute of International Education's Generation Study Abroad campaign which endeavors to lead a five-year movement to double the number of students studying abroad by 2020. Historically, study abroad has largely been considered a college-age rite of passage. Now, high school students are increasingly being included in the call to study abroad. To this end, several organizations from governmental to non-profit to for-profit are now routinely sending high school students on organized study abroad programs. The Generation Study Abroad campaign even notes specific inclusion for high school-aged participants in its bold 2020 goal.

An increasing strand of study for researchers is the measurement of the impact of study abroad programs on participants. These impact assessments have intensified in

quantity and scope in the last two decades as more students than ever study abroad. In particular, the study abroad field has seen more impact assessments aimed at measuring the effect of programs on students' personal development and on measuring the impact of short-term programs. Still, these are under-studied areas because of the newness of these strands of study, and calls within the literature abound seeking more data-driven evidence to demonstrate the worth of study abroad. The impact of study abroad on high-school aged participants is a particularly little-studied research frontier.

The study introduced in this chapter is focused on a gifted and talented population of high school-aged students at The Gatton Academy of Mathematics and Science in Kentucky. The school is a specialized, residential academy where a robust study abroad program has taken root. Ninety percent of the school's students study abroad before high school graduation. An impact assessment was conducted in 2016 to measure effects of the Gatton Academy study abroad programs on student participants' perceptions of peer belongingness, mentor belongingness, and personal growth and development. Results were also used to examine the three program models being employed by the school to compare differences. This study contributes to key knowledge gaps. It is an addition to the growing fields of impact assessment on short-term study abroad programs, assessments that measure the impact on students' personal development, and assessments that evaluate the impact on high-school aged students. It compares programs models, including credit and non-credit programs. This study is the first known to measure the impact of study abroad on a gifted and talented population and on students at a specialized, residential high school.

This study can be generalized to aid educators in designing short-term study abroad programs that best develop students' sense of community belongingness and personal growth and development. Further, with high school study abroad being an emerging trend, this research sheds light on what impact various program models have on participants. At its core, it contributes new findings on how study abroad impacts a population of gifted and talented learners at a specialized, residential high school. Chapter II includes a targeted, partial review of the literature that takes a closer look at specialized, residential high schools, the history and emerging trends of study abroad, and how other researchers have measured the impact of study abroad on program participants.

CHAPTER II: REVIEW OF THE LITERATURE

Introduction

Chapter I provided a broad overview of the major recent advances with study abroad and particularly the late-breaking calls for younger populations to go abroad. While organized study abroad efforts have been occurring for decades in American higher education, any active calls for secondary students to participate are new. Whereas study abroad best practices in higher education are united by the international organization called NAFSA: the Association of International Educators, no organization yet exists for professional guidance at the secondary level. The history of study abroad, the evolution of program design, opinions on program models, and best designs are all available in the literature for higher education professionals. Impact assessments of collegiate-level study abroad are becoming more common too in the literature, though there is still a demand. Impact assessments within study abroad to-date have largely centered on measuring students' intercultural skills and intercultural interaction abilities. Yet, study abroad with populations at the secondary school level is virtually unstudied. The purpose of this study is to assess the impact of study abroad participation on a specialized population of secondary students' perceptions of peer belongingness, mentor belongingness, and personal growth and development at the Carol Martin Gatton Academy of Mathematics and Science in Kentucky. The study also compares differences among program models employed with this secondary school population.

A targeted, partial review of the literature was needed to place this study within the canon of other authors' contributions. This review of the literature is organized into four principal sections. First, the specialized population at The Gatton Academy that is

examined in this study is put into context through a review of literature on specialized STEM academies. Next, the literature on study abroad as a practice in American education is examined. This section starts with an overview of the history of study abroad in America. The section then examines varying models of study abroad, including credit-bearing, non-credit, semester, year, and short-term study abroad models. The third section reviews a sampling of the various impact assessment strategies that have been performed on study abroad to-date. Finally, the present study is framed in Abraham Maslow's (1943; 1954) theory on the hierarchy of needs and a later-adapted version of the theory particularly for travelers.

Specialized STEM Academies

At a 2005 gathering of the National Academy of Sciences and the National Academy of Engineering, the United States' global standing as a leader in science, technology, engineering, and mathematics (STEM) was discussed. Fears and tensions were evident, as "concern that a weakening of science and technology in the United States would inevitably degrade its social and economic conditions and in particular erode the ability of its citizens to compete for high-quality jobs" (Committee on Prospering in the Global Economy of the 21st Century, 2007, p. ix). Such statements of obvious discontent arise in part because of staggering international STEM-degree production. In the United States today, only 31.4% of bachelor's degrees are in science and engineering fields (National Science Foundation, 2016). Meanwhile, over the last 30 years 66% of bachelor's degrees in Japan have been in STEM fields, 59% in China, and 46% in Korea (National Research Council, 2005). Of degrees conferred in Kentucky, only 25.8% have been STEM degrees, a statistic that puts the Commonwealth at 43rd in

the nation (National Science Foundation, 2016). The United States is being outperformed by the world in STEM-degree production. Within the United States, some states such as Kentucky are even farther behind.

One measure to address the concern and to reinforce America's economic future has been the investment in and creation of specialized, STEM academies. The idea is not necessarily new. For over a century the United States has had specialized secondary schools in science to promote the development of young talent. New York City led this early idea with the creation of Stuyvesant High School in 1904, the nation's first specialized STEM school (Subotnik, Tai, & Almarode, *n.d.*; Thomas & Williams, 2010). The city later created Brooklyn Technical School and the Bronx High School of Sciences in 1922 and 1938, respectively. Thomas and Williams (2010) outline a history of specialized STEM schools and point to the Sputnik launch as a historical event that precipitated a surge of new attention toward STEM education in the U.S.A. (p. 18). Since the 1980s states and local governments have been funding specialized STEM schools with greater intensity, as local governance has accepted greater responsibility for providing the educational opportunities to its citizens to both keep our nation apace and their local economies strong and competitive. Therefore, recent decades have seen a surge in such specialized schools.

Subotnik, Tai, Rickoff, and Almarode (2010) call these specialized schools the "crown jewels." Among the schools are members of the National Consortium of Secondary STEM Schools (NCSSS). Thomas and Williams (2010) document the history of the NCSSS, which was founded in 1988 under the then-longer name National Consortium of Specialized Secondary Schools of Mathematics, Science, and Technology

(NCSSSMST). While the organization had modest initial goals of establishing “a forum for schools to exchange information and program ideas and to evolve alliances between them” (Thomas & Williams, 2010, p. 19), the group of schools now has a far more ambitious mission, including the phrase “to inform STEM policy, and to advocate transformation in education” (National Consortium of Secondary STEM Schools, 2016). Indeed, the organization recently collaborated with Congress in defining the *STEM focused specialty school* in the Every Student Succeeds Act (ESSA) of 2015. The ESSA legislation calls for “supporting the creation and enhancement of STEM-focused specialty schools” (Every Student Succeeds Act, 2015). As of the time of this writing, there are 99 NCSSS member high schools and secondary academies. Members represent a sample of the best schools in their districts, states, and even schools that top national rankings. These schools are characterized by selective admissions processes (Feldhusen & Jarwan, 1995), rigorous coursework, particularly-advanced curricular offerings in STEM subjects, access to mentored research projects, and encouragement throughout the school culture to pursue vigorous STEM exploration and achievement. Students at these schools find a peer network of other students who have high ability, motivation, and curiosity, attributes that collectively lead to thriving academic communities of similarly-motivated students.

Such schools require special investment, and Ambrose (2010) outlines three reasons why STEM education is worth the added cost. Ambrose indicates that STEM academies draw top-achieving students from their areas, students who have both gifts and aptitude that deserve a special investment to maximize their interest. Second, Ambrose points to the economic imperative for our nation to cultivate the talent that can help our

nation retain prominence in a technology-fueled world. Third, he believes students who come from such academies will become the future scientists and policy makers who will lead our world in the next generation. He discusses the need to produce a future cadre of scientist-decision-makers who are well-prepared to think critically about the production of new technologies' effects on human ethics, economies, and social environments before the technologies are developed. Ambrose sees such schools as a long-term strategy.

Others beyond academe agree. This section began with a quote of fear and apprehension about the United States' weakening standing as a global science and technology leader from the Committee on Prospering in the Global Economy of the 21st Century (2007) — a group of researchers and policy leaders who wrote *Rising Above the Gathering Storm*. Atkinson, Hugo, Lundgren, Shapiro, and Thomas (2007) criticize the publication for its lack of specific instruction on how to create new, specialized STEM academies. In their position paper, they call for the National Science Foundation to provide the catalyst funding and the organizing mechanism to make existing specialized STEM academies bigger and to create new academies. They look at the NCSSS membership of around 100 schools with 47,000 students enrolled, calling for Congress and the then-Bush administration to set a goal of enrolling 250,000 students at such schools instead. The mechanism they propose would be a \$180 million per year investment over five years to go to the National Science Foundation to award for the expansion and creation of such schools. Local districts, states, or companies would have to match two-to-one each dollar of funding. The idea, now nine years old, did not come to fruition.

Rising Above the Gathering Storm did, however, provide informing work that resulted in the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act—or simply the America COMPETES Act—of 2007. The federal legislation is captured by Thomas and Williams (2010) as addressing a new national investment in research, new K-graduate school STEM education initiatives, and a national infrastructure for innovation. The legislation states an intention to assist “states in establishing or expanding statewide specialty schools in math and science that students from across the state would be eligible to attend” (H. R. 2272: America COMPETES Act, 2007). This language calls for emphasis on a very particular niche of high schools, the statewide, residential STEM Academy.

State, Residential STEM Academies

A particular niche of high schools has developed over the last 36 years. The state-funded, specialized, residential academy for science, technology, engineering, and mathematics (STEM) was first implemented in North Carolina in 1980 when that state established the North Carolina School of Science and Mathematics. There are now 16 state-funded, residential STEM academies in 15 states, predominantly in the south and Midwest (see Table 1). These schools have been created to address the national imperative to provide high-quality education and training in the STEM fields to promote economic strength. With the justification that talented young students can be well-equipped with specialized knowledge and leadership capabilities within STEM fields and such educational training can lead to strengthened state economies, states have been willing to invest to partially or fully fund such schools. The 16 schools are now located in Alabama, Arkansas, Georgia, Illinois, Indiana, Kansas, Kentucky (two), Louisiana,

Maine, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, and Texas. It is noted that some states also have state-supported, residential academies for the arts, humanities, and leadership. There are certainly fewer of the arts, humanities, and leadership-focused schools, and they are not included in this review of the literature directly since their formative model is unlike the Carol Martin Gatton Academy of Mathematics and Science's model and student population.

In the seminal *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future* (Committee on Prospering in the Global Economy of the 21st Century, 2007), state-funded academies were singled out with praise. This report was a response to national legislators who requested recommendations “to enhance the science and technology enterprise so that the United States can successfully compete, prosper, and be secure in the global community of the 21st century” (p. 252). The authors recommended the expansion of statewide, specialty high schools as a particular call to action. The report called such schools “an effective way to increase student achievement in science and mathematics” (p. 131).

Jones (2009) profiled these schools' accelerative models. These schools all feature state funding to at least partially, if not fully, fund the schools. Jones notes that they are open to resident students from every corner of their state through selective admissions processes. They offer residential education for students so that no matter how far away they must move away from their homes to attend the school, they are looked after by professionally-trained staffs. They provide challenging curricula with emphases on STEM courses, the encouragement and channels for students to conduct mentored research projects, and access to apply for the nation's most noted scholarship

competitions for scientific achievement. Jones lists examples including the Siemens Competition in Math, Science, and Technology where students compete for \$100,000 top prizes for scientific research discovery. Additionally, some of these schools, such as The Gatton Academy and the Texas Academy of Mathematics and Science have funding available to sponsor full-summer research projects (Jones, 2009; Roberts, 2013). All of these schools offer students academic support beyond the classroom, residential support to assist students around-the-clock, and counseling access to help students traverse everything from the college search process to social and emotional issues ranging from homesickness to self-harm. Jones notes that while these schools were initially met with skeptics who questioned whether students would be ready for the social and emotional adjustments to rigorous, advanced coursework, these schools have now developed enough historical evidence to provide some proof that students can adapt to the accelerative models with ease, despite their ages (p. 472). Such schools are now accustomed to touring delegations of educational leaders who come to see the successful models in action (p. 497).

Jones (2009) organized these schools into two categories: the early-college-entrance academies and the independent, residential high schools. Roberts (2013) similarly classified these schools as those “on college campuses” and the “free-standing high schools” (p. 193). For this review, Jones’ classifications will be used. The Gatton Academy is one of six schools that fall into the early-college-entrance academy category. Others include the Georgia Academy of Arts, Mathematics, Engineering and Sciences (GAMES); the Kansas Academy of Mathematics and Science; the Craft Academy for Excellence in Science and Mathematics (Kentucky); the Missouri Academy of Science,

Mathematics, and Computing; and the Texas Academy of Mathematics and Science. Such schools are characterized by full immersion within a university structure. While these schools feature residential, student support, and administrative staff of their own, they do not have a faculty that is uniquely theirs. Students at these academies take college-only courses that are taught by the university faculty. This model is noted for its financial benefits since existing university resources can be shared (Jones, 2009, p. 478).

Jones (2009) lists the benefits of the early-college-entrance academy model. First, students benefit from instruction from a highly-credentialed faculty while the school pays tuition for students rather than full salary and benefits for faculty. Other examples of financial benefits are shared classroom spaces, recreational facilities, dining halls and staff, facilities maintenance, and expensive laboratory equipment that are all shared with the university. Furthermore, the model also provides the early college entrance academies robust academic and social communities for students to participate within. Students accumulate college credit leading to an Associate's degree by high school graduation at GAMES and the Missouri school. At The Gatton Academy, the Kansas school, the Craft Academy, and the Texas school, students are dual-enrolled as high school students while earning college credits. Students at each of these schools earn at least 60 collegiate credit hours before graduating.

Jones (2009) continues on to describe the other ten, state, residential STEM academies that make up the independent residential high schools category. These schools are hallmarked by all having their own faculty who teach their students in the classroom. Within this category, three schools are located on college campuses so that certain facilities may be shared, though these schools all teach their students separate from the

university courses (p. 480). These three schools are the Indiana Academy for Science, Mathematics, and Humanities; Louisiana School for Math, Science, and the Arts; and the Mississippi School for Mathematics and Science. The other seven independent residential high schools all operate on their own independent campus facilities. These schools are the Alabama School of Mathematics and Science; Arkansas School for Mathematics, Science, and the Arts; the Illinois Mathematics and Science Academy; the Maine School of Science and Mathematics; the North Carolina School of Science and Mathematics; the Oklahoma School of Science and Mathematics; and the South Carolina Governor's School for Science and Mathematics.

Table 1

State, Residential STEM Academies in 2016

School	State	Established	Grades	Website
Alabama School of Mathematics and Science	AL	1989	10-12	http://www.asms.net
Arkansas School for Mathematics, Science, and the Arts	AR	1991	11-12	http://www.asmsa.org/
Georgia Academy of Art, Mathematics, Engineering, and Sciences	GA	1997	11-12	http://www.mga.edu/georgia-academy/
Illinois Mathematics and Science Academy	IL	1986	10-12	http://www.imsa.edu
Indiana Academy for Science, Mathematics, and Humanities	IN	1988	11-12	http://www.bsu.edu/academy
Kansas Academy of Mathematics and Science	KA	2006	11-12	https://www.fhsu.edu/kams/

Table 1. *State, Residential STEM Academies in 2016* (continued)

School	State	Established	Grades	Website
Carol Martin Gatton Academy of Mathematics and Science in Kentucky	KY	2007	11-12	http://www.wku.edu/academy
Craft Academy for Excellence in Science and Mathematics	KY	2015	11-12	http://www.moreheadstate.edu/craft-academy/
Louisiana School for Math, Science, and the Arts	LA	1982	10-12	http://www.lsmsa.edu
Maine School of Science and Mathematics	ME	1993	9-12	http://www.mssm.org
Missouri Academy of Science, Mathematics, and Computing	MO	2000	11-12	http://www.nwmissouri.edu/masmc
Mississippi School for Mathematics and Science	MS	1987	11-12	http://www.themsms.org/
North Carolina School of Science and Mathematics	NC	1980	11-12	http://www.ncssm.edu
Oklahoma School of Science and Mathematics	OK	1990	11-12	http://www.ossm.edu
South Carolina Governor's School for Science and Mathematics	SC	1988	11-12	http://www.scgssm.org
Texas Academy of Mathematics and Science	TX	1987	11-12	http://www.tams.unt.edu

Olszewski-Kubilius (2010) reviewed various options for gifted students to accelerate learning and compared advantages and disadvantages of each. Options considered were STEM schools, early-college-entrance programs, dual-enrollment programs, International Baccalaureate and Advanced Placement programs, summer programs, distance education programs, contests and competitions, internships and mentorships, and service-learning programs. While Olszewski-Kubilius did not directly compare the early-college-entrance academies with the independent, residential high schools, advantages and disadvantages were considered. Common disadvantages are that both STEM schools and early-college-entrance programs may offer fewer extracurricular options than larger, traditional high schools, both types of schools can reveal a lack of maturity and emotional readiness, even for high-ability learners, and that both types of schools can place students into social situations with older students that they may not be “mature enough to handle” (p. 63). Common advantages are that they give students access to coursework that appropriately challenges them, puts students into a peer group that will intellectually stimulate them, and advanced experiences can lead students to earlier career knowledge (p. 62).

Olszewski-Kubilius (2009) connects the experiences at STEM secondary schools to a talent development model created by Subotnik and Jarvin (2005). The model shows that students with high abilities can transition from ability into competency into expertise and finally into scholarly productivity through appropriate nurturing. For example, students with high abilities in science can be nurtured by caring teachers or parents to take on the challenge of a more difficult problem. While this may start in the classroom building a stronger foundation on a given topic, it might also include a summer program

focused on a particular topic that can start giving the student a glimpse of what it means to be a scientist in the field. Through this process a student's abilities are taken to the competency level. Continuing with this example and the model's framework, a student might next be inspired to work one-on-one with a mentor to conduct an original investigation on the scientific topic. Through the independent inquiry and the close guidance of a mentor, the student transcends to the expert level. The final stage is the students' induction into scholarly productivity as students work through academic structures to share back their new findings with the scientific community. Examples include a conference presentation or a publication in a peer-reviewed, scholarly journal. Olszewski-Kubilius argues that the specialized, STEM academies are structured to take students through these stages (p. 68).

Booth, Sethna, Stanley, and Colgate (1999) advocate for the early-college-entrance academy model for advanced students. The authors argue that such schools offer "a relief from boredom through experience with true academic challenge" (p. 195). Acknowledging Shimer College in Chicago for welcoming early-college enrollees alongside their undergraduates since 1853, the authors attribute Elizabeth Blodgett Hall for founding the first all-early-college program, Simon's Rock. This school is different from the state, residential STEM academies because it does not receive public funding and because it is not classified as a secondary school. It is similar to the state, residential STEM academies because of the population of students it draws. Today the school is known as Bard College at Simon's Rock the Early College. It is a four-year college for high-school aged students who are ready to accelerate their learning. Therefore, no high school diploma is required. The school markets with the following message:

If you're on the verge of 11th or 12th grade and certain you don't want more of the same, Simon's Rock can show you what education is like when everyone shares your love of learning. We're the only residential college experience designed for thoughtful, exceptionally motivated students who are ready to start college early. (Bard College at Simon's Rock the Early College, 2016)

Booth, Sethna, Stanley, and Colgate (1999) compare eight early-college-entrance academies to profile the type of school they advocate to create. Four are private institutions and four receive state funding. While this review of the literature focuses on publically-supported, residential STEM academies, it is noteworthy that similar private institutions exist as well. Examples that the authors include are the Mary Baldwin College Program for the Exceptionally Gifted, The Clarkson School, and the Residential Honors Program at the University of Southern California.

Booth, Sethna, Stanley, and Colgate (1999) put forth a strong position that age should not dictate readiness for educational challenge. Their interests as scholars and advocates in gifted education are less economically motivated than other calls cited in this review of the literature (Ambrose, 2010; Atkinson, Hugo, Lundgren, Shapiro, & Thomas, 2007; Committee on Prospering in the Global Economy of the 21st Century, 2007; H. R. 2272: America COMPETES Act, 2007; Thomas & Williams, 2010). Rather, these authors differ by advocating for accelerated learning for gifted students because such educational models defy these students' chances of stagnation. Booth, Sethna, Stanley, and Colgate articulately advocate that challenging these ready, gifted learners with what they are already prepared to take on will accelerate them even more. They summon a movement to welcome qualified students, despite their ages, to participate in

collegiate-level learning and ultimately for each state to have its own early-college-entrance program for its brightest students.

Stanley (1991) was one of the earliest authors to compare the early-college-entrance academies and the independent, residential high schools, making a compelling critique in favor of the early-college-entrance academy model. Looking at the Texas Academy of Mathematics and Science as a particular example, he praises the model because it requires highly-challenging courses for all students and because it draws students of high caliber who succeed in the challenging curriculum as an entire population. Stanley praises the model because its schools allow students to “mature socially and emotionally” (p. 472), while getting ahead on the social dimensions of collegiate life. The financial models of the schools are noted as being less expensive than the independent, residential high schools while also giving the school access to a highly-credentialed university faculty that are employed by the University of North Texas where the Texas Academy of Mathematics and Science is located. Stanley also notes that the college credit earned during 11th and 12th grades by students can accelerate students’ progress in college. The critique concludes with a bold call for the nation to create a “centrally located, *national* academy of mathematics and science” to draw the “nation’s ablest youth” (p. 473).

Pfeiffer, Overstreet, and Park (2010) studied the state, residential, STEM academies as background research to a proposed one-year, residential Governor’s program in Florida with partnership from the Kennedy Space Center and NASA. The authors developed a 91-item survey and conducted a study with 16 state, residential STEM academies’ principals and directors about the academic programs and

philosophies. The authors found that the schools offer robust and creative STEM curricula, with an average of 34 science course offerings per school and over 21 math courses per school (p. 28). In addition to broad choices within the STEM disciplines, students at these schools also have many course offerings. The authors found that six of these schools even intentionally merge STEM and humanities courses to fuse their curricula. Some course examples that were listed include the History of Science and the Art of Science (p. 27). Despite these schools' unusually-deep offerings in STEM areas, the authors were surprised to learn that this set of schools defied the national trend of offering Advanced Placement (AP) courses. The AP program reports that 14,000 public schools of the approximate 21,000 public high schools in the US (67%) offer their courses and exams (CollegeBoard, 2014). Yet, the authors found that only 37.5% of the state, residential, STEM academies offer AP courses (p. 29). While the authors invite further research on the reasons why this set of high schools chooses to teach fewer AP courses, they believe the difference is attributable to the rigid curriculum of AP courses limiting creative teaching and the lack of curricular choice to involve beyond class research engagement.

Pfeiffer, Overstreet, and Park (2010) revealed a commonality amongst all of these schools: every school valued experiential learning. Each of the 16 schools studied offered its students the opportunity to learn through experiences beyond the classroom by conducting original, mentored research projects. The authors found that this set of schools' average student researcher spends 6.19 hours above-and-beyond class working on independent research projects with a range of two to eight hours per week (p. 27). Meanwhile, nearly 70% of these schools offered their students what they deemed

“advanced” research opportunities. There was also nurturing and support in place at 68.75% of these schools to connect research opportunities to outside competitions, such as the Siemens Competition, the then-named Intel Science Talent Search, the American Junior Academy of Sciences competition, and the International Science and Engineering Fair (p. 27). These findings indicate the rich value that these selective schools place on experiential learning beyond the traditional classroom.

The Gatton Academy

This study focuses on a population of students at one of these state, residential STEM academies, the Carol Martin Gatton Academy of Mathematics and Science in Kentucky. From here on, the school title will be shortened to *The Gatton Academy*. The school is now only nine years old. The review of the literature in this section includes published works regarding the foundation of the school, the school model, its performance in its first nine years, and studies that have examined students’ perceptions of the school community.

The Gatton Academy is located in Bowling Green, Kentucky and is on the campus of Western Kentucky University (WKU). The school was established in 2007 to assist high-ability Kentucky students who have advanced career interests in STEM fields to complete high school requirements while enrolling in an early college program. Students complete 11th and 12th grades while enrolling full-time as students at WKU. They are also co-enrolled as high school students at the sending Kentucky high school in the city that they hail from.

The Gatton Academy was established both as an economic strategy for Kentucky and to benefit the acceleration of some of Kentucky’s most gifted students. Roberts

(2013) states that the school's mission statement was created to speak "to both educational and economic benefits for the Commonwealth of Kentucky. It is more convincing to decision makers to have economic goals as well as educational benefits for a residential high school with a STEM focus" (p. 193).

This study's stated purpose ties directly into the school's mission statement in multiple ways. The mission statement of The Gatton Academy includes the following language:

The Gatton Academy also seeks to provide its students with the companionship of peers; to encourage students to develop the creativity, curiosity, reasoning ability, and self-discipline that lead to independent thought and action; and to aid students in developing integrity that will enable them to benefit society. (The Gatton Academy, 2016b)

This study seeks to assess the impact of study abroad participation at the school on students' perceptions of peer belongingness, mentor belongingness, and personal growth and development. For the sake of this study personal growth and development is defined through four attributes: confidence, self-awareness, curiosity, and independence. Measuring students' perceptions on this collection of attributes before and immediately after study abroad participation at The Gatton Academy will assist in revealing how the school's study abroad program contributes to the overall mission.

Despite other southern states establishing state residential STEM academies decades earlier, The Gatton Academy took ten years of advocacy work for state approval (Roberts, 2010; Roberts, 2013). Roberts (2010) outlines the arduous and dedicated commitment and resolve it took to convince state legislators to fund the school. It is an

investment in Kentucky education that now nine years later appears to be worth the state's committed resources. Each year since 2009 the school has been named to the *Washington Post's* list of top-performing schools with elite students. On the most recent list, The Gatton Academy was one of only 26 schools in the nation that appeared (Mathews, 2016). In 2012 The Gatton Academy was one of only three schools in the nation to be named an Intel School of Distinction finalist in science. The Gatton Academy has been ranked three times as the nation's number one public secondary school. The first two honors were in 2012 and 2013 from *Newsweek's* "America's Best High Schools" ranking of the 2,000 best high schools in America (*Newsweek*, 2013; Streib & Yarett, 2012). *Newsweek's* ranking system was then acquired in 2014 by *The Daily Beast* before being halted. That year, 700 public high schools were ranked and The Gatton Academy was ranked number one overall and number one as America's Most Rigorous High School (*The Daily Beast*, 2014). No rankings have occurred from this agency since 2014. The then-governor of Kentucky Steve Beshear visited the high school in September 2012 to celebrate the school's first number one ranking. He commented on the school's success in challenging students, making the statement, "too often we don't challenge our young people enough. The work here shows what happens when you make things more difficult, and you throw challenges at students and give them the tools to overcome those challenges. They soar. They soar" (Simpson, 2013, p. 13).

Study abroad has been a component of The Gatton Academy's offerings since the school's founding. In a case study focusing on The Gatton Academy's school model, Roberts (2013) states that graduates of specialized STEM schools need "international perspective" (p. 197). Roberts, Breedlove, and Strode (2016) charted the school's history

of study abroad, noting that one program per year was offered from the school's 2007 founding until 2011 as a non-credit-bearing opportunity. The authors report that two new study abroad programs were introduced in 2011 in addition to continuation of the non-credit-bearing program following WKU's Faculty-led Study Abroad model. These new programs introduced credit-bearing study abroad at the school. The authors report that 92% of the students now study abroad while at the school.

Gott (2012) and Gatten (2014) previously studied The Gatton Academy population and how students perceive the school community. Gott used a between-group differences approach to examine a population of Gatton Academy students, a comparison group of traditional high school students, and a matched-samples group of traditional high school students. Variables under consideration were students' "academic achievement, college readiness, and perception of their high school experience" (p. 83). Gott found that students at The Gatton Academy showed statistically-significant evidence of future success, labeled as Probability of Success, and with their satisfaction in curriculum challenge as measured through items such as *My courses are challenging* and *My classes are meaningful to me*. However, findings were surprisingly opposite on measures labeled as Social Comfort (p. 82). This approach is relevant to the study conducted here that seeks to measure the impact of study abroad on Gatton Academy students' perception of community belongingness and feelings of personal growth and development. Gott found that both the traditional student population and the matched-samples comparison group of traditional high school students showed a statistically-significant greater sense of belonging to their community as measured through items such as *I have good relationships with my peers* and *I have good relationships with my teachers* (p. 82). This

study will contribute to Gott's preliminary findings by determining if study abroad participation makes a difference within Gatton Academy students' sense of belonging to the community.

Gatten (2014) conducted a qualitative study focused on the characteristics of students' transition from traditional high schools to The Gatton Academy. Gatten's approach used open-ended survey questionnaires that were distributed to students, parents, and staff members. Collecting 10 student responses, two parent responses, and six staff responses, Gatten used the NVivo software product to analyze the data through deductive analyses. Themes were found in responses following Vincent Tinto's Model of Institutional Departure. Among the findings, two of the 10 students felt that there was competition and discomfort among their peers (p. 44). Only two of the 10 student respondents reported having a personal relationship with a Gatton Academy staff member (p. 45). That number increased to four out of 10 students stating they had a personal relationship when the staff *and* faculty were included (p. 46). Gatten's study adds context to Gott's 2012 study on The Gatton Academy community, showing that students have mixed views of their sense of peer belonging at the school and in their perceptions of having meaningful relationships with the school's faculty and staff. The current study will add a new dimension to Gatten's previous work to measure the impact of the school's study abroad program on students' perceptions of belongingness at The Gatton Academy.

Impact of Specialized STEM Academies

Specialized STEM academies require significant, special investment by local and state governments beyond the cost of traditional secondary schools. Therefore, providing

evidence of the schools' efficacy is important to support continued investment. The impacts of specialized STEM high schools are starting to be measured. To date most assessments have been conducted to determine the difference these schools are making in students' future choices to continue studying STEM fields and to the economic impact of their home states. Several of the impact studies are reviewed in this section. Thomas and Williams (2010) are among authors who call for more and varied impact assessments for this niche body of secondary schools.

As the oldest of the specialized, residential, state academies, the North Carolina School of Science and Mathematics (NCSSM) has conducted several impact studies. As NCSSM is state funded, an important metric the school has considered is the impact the school has on the state economy. In particular, what is the school's return on investment for the state? Dash (2012) outlined the results from myriad studies that used alumni surveys, a tuition waiver analysis, a school economic and social impact survey, a graduate survey, and an input-output economic study on the school as data sources. Immediately out of secondary school, over three times as many NCSSM alumni studied in STEM degree programs than the national average. Half had at least a Master's degree earned, and a quarter had a terminal degree. Findings indicate that 60% of the school's graduates remained in North Carolina to live and have professional careers and 34.6% of the alumni reported annual incomes over \$100,000. Among the school's alumni were 104 former students who owned their own company (p. 26). The input-output study revealed that the school would have a \$15.7 million direct impact on the state economy in 2009 alone with an additional \$5.8 million indirect impact (p. 28). A challenge for schools such as NCSSM and a shortcoming of the studies described by Dash is that the

state-funded, residential STEM academies all have admissions processes that are selective, but not randomized. Therefore, no clear control group is present in these studies as a comparison group. This leaves the question hanging, would these particular students have gone on to these same eventualities even without the intervention of the academy itself?

Others have attempted to breach this hurdle by finding comparable populations to include in their studies, and their findings indicate that the specialized STEM schools make a difference in the number of students choosing to go into the STEM fields. Thomas (2000) conducted broad research that included specialized, residential and non-residential STEM high schools in a longitudinal study of students' future choices. Using data from the National Center for Educational Statistics as a control, Thomas found that 51% of students who attended specialized, STEM high schools went on to major in the sciences compared to only 23% of the national average.

A yet-unpublished National Science Foundation-funded research study examined alumni from various types of specialized STEM high schools to measure the impact of such schools (Subotnik, Tai, & Almarode, *n.d.*). The study was conducted over the course of three years and surveyed 5,000 graduates of specialized STEM high schools, using a set of pre-identified talented students from the Midwest as a control group (Subotnik, Tai, Rickoff, & Almarode, 2010). Among other measured variables, the authors pursued the effect of feelings of belongingness in students' secondary school setting on their choices to complete a STEM-related field of study later in college. A positive association was determined, with $p < 0.0001$, finding that alumni feel the sense of belongingness with their secondary school's STEM-focused community influenced

their choice to continue STEM study in college (p. 13). When these results were considered by gender, the connection for males was particularly significant (p. 15). This leads to the question of how community belongingness can be nurtured among specialized STEM schools.

There is still a significant knowledge gap understanding how such specialized STEM academies impact the students who attend them. Some initial studies have been conducted to measure these schools' effects (Blaisdell & Tichenor, 2002; Thomas, 2000; Thomas & Love, 2002; Subotnik, Tai, & Almarode, *n.d.*), but the call for more impact assessments exists in the literature. Thomas and Williams (2010) pose the question, "What evidence exists [. . .] to suggest that the specialized schools offer significant benefits to society or to the students themselves?" (pp. 20-21). This dissertation takes a different direction that has not yet been formally studied at any specialized STEM academy. By measuring the impact of study abroad on students at a residential, state STEM academy, this study contributes to a gap in the assessment literature on the impact of specialized STEM academies. This study also contributes to a much broader gap within the literature on study abroad.

Study Abroad History and Trends in the USA

A clear understanding of the roots, history, evolution, and recent trends within study abroad in American higher education is important to an evaluator of contemporary study abroad programs. This section relies heavily upon William Hoffa's (2007) seminal *A History of US Study Abroad: Beginnings to 1965* to examine the historical origins of study abroad through the early-American centuries. Primary source documents from early-American higher education are also analyzed as a window in to draw conclusions

about the state of internationalization and study abroad at key moments in time. The section then turns to recent trends over the last 30 years as study abroad in American higher education has blossomed. Using primary source documents from the Institute of International Education's annual *Open Doors* reports, trends and growth within study abroad are analyzed. Secondary sources are used to support this analysis. The section closes with an overview of the history and trends within high school study abroad, with a focus on the state, residential STEM academies. This section uses a selected, partial review of the literature to briefly examine study abroad from its farthest-reaching international, historical roots to its contemporary and evolving practice in the United States.

International, Historical Origins of Study Abroad

Hoffa's (2007) comprehensive history of study abroad starts in an unlikely time and place. Hoffa argues the first individuals to *study* abroad trace back to as early as 600 B.C.—some 2100 years before the American continents were found by European explorers. These “wandering scholars” (pp. 1-2) were in ancient India and Greece and traveled away from their civilizations because of their belief that other distant lands contained wisdom that could be useful for advancing their own sense of knowledge and worldliness. As early as 450 A.D., the University of Nalanda in India was regularly receiving visiting scholars from as far away as China, and the University of Jundishapur (Persia) welcomed Greek, Jewish, Christian, Hindu, and Persian scholars to exchange ideas and knowledge (p. 3). These early scholars from some 2500 years ago, Hoffa argues, were the world's first study abroad students.

Greek and Roman societies valued learning from other cultures too. Hoffa (2007) writes that “Greeks of the classical period were perhaps more open to other people’s knowledge than most other people of this or earlier times,” citing Greek thinkers such as Plato, Pythagoras, and Euclid, who “traveled to foreign lands to learn what they could not learn at home” (p. 4). The number of scholarly visitors to Rome had to be regulated by the Emperor Valentinian in 370 A.D. He wrote the following words as part of a decree—a predecessor to the immigration control that manages student visas and exchanges from nation to nation today:

All who come to Rome to study must appear at once before the public registrar, and present their passports from the Justices of the peace who have given them leave to travel; that thus entry may be made of their birthplace, rank, and character. They must also on their first appearance name the faculty in which they wish to study. (as cited in Hoffa, 2007)

Valentinian’s decree continued on from here with language that sets the strict parameters for what an international scholar was allowed to do while in Rome, language that is reminiscent for any contemporary international-student-visa holder in today’s higher education system.

Hoffa (2007) argues that we can see the resemblance of study abroad in every era of history dating back to 600 B.C. Later examples can be seen metaphorically in the literature that emerged during the Renaissance. As one case in point, the wandering scholar’s search for sacred knowledge can be easily imagined through the literary establishment of the quest for the Holy Grail (p. 8). The exploits of the young British gentry who went on a Grand Tour with requisite stops in Rome, Venice, and Florence

around the turn of the eighteenth century (p. 15) represent another era of early study abroad. Going abroad had been a male-dominated venture in all previous periods. But, by the 1800s, the women of Britain's upper classes joined in and went abroad too. Hoffa points out that "the demographics of contemporary international education, which generally still favors students from wealth and educated families and affluent nations" (p. 18) still ripple today.

Early United States History of Study Abroad

Thelin (2004) documents the roots of American higher education starting in the colonial era with Harvard College's establishment in 1636. In the earliest years of American higher education, symbols of Britain's Oxbridge tradition held strong. College education was rare among early Americans, and it belonged to the social elite in America's colonial history. Distinctions of American higher education from its British roots did eventually emerge as the nation's independence grew near. Thelin describes the College of Rhode Islands' *radical* move in 1769 to list names from its commencement ceremony alphabetically rather than by social rank (p. 23). Study abroad in this early period of American higher education was not a known concept by title, though a few young, wealthy students traveled to Europe for one year of enrollment in a German or English university or for a Grand Tour experience.

The 19th century saw a rapid emergence of a uniquely-American tradition of higher education. As examples, student societies and clubs, expected residence on campus for social purposes, and the broad, liberal curriculum of American higher education started to take root. Even the college presidency was a new role that belonged only to the American university (Thelin, 2004, p. 11). Hoffa (2007) calls the eventual

American system “liberal and pedagogically unique,” stating that without this fundamental set of characteristics—based on a broad-based, holistic education—U.S. study abroad may not have developed (p. 21). A symbolic example of the new thinking was Thomas Jefferson’s vision and plans for the 1819 founding of the University of Virginia. Thelin writes, “Jefferson had envisioned a combination of living and learning that would combine the study of foreign languages with immersion in the cultures of other nations, including their cuisine” (p. 51). Though Jefferson’s vision never reached fruition in his lifetime, the traces of study abroad within the American higher education system are evident through his words.

According to Hoffa (2007), some wealthy young Americans were going abroad in the century-or-so after the Revolutionary War. These were individual acts propelled by these travelers’ families and social situations. It should be noted that their travel was independent from the values espoused of the American higher education system of the time. Most followed in the footsteps of the British gentry and the practice of the Grand Tour. American men set out to the Old World to visit key cities, which usually featured stops at pre-arranged estates of family acquaintances. During this century like the one before it, it was rare but not unheard of that an American occasionally directly enrolled for a year of study at a German or English university (p. 32). Notable Americans who went abroad in their young years during this period include John Quincy Adams and Henry Wadsworth Longfellow (p. 25). Around 1890 American women travelers, few-and-far-between as they were then, began traveling abroad independently for study too (p. 36). Many of these pioneering American women were from the all-women’s colleges that now known as the Seven Sisters.

A primary source study of an 1881 Harvard College student publication demonstrates that the college's curriculum was grounded in the classics in the late-19th century and every student's coursework was dominated by international dimensions. *The Daily Echo* was a newspaper and the college's most popular publication at the time. A contemporary scholar labeled *The Daily Echo* "a necessity of daily life" (Nelson, 1881, p. 404). The newspaper's student-editors printed a special-edition, 166-page pamphlet called *An Account of the Elective Courses Given at Harvard College* in 1881. It is a strikingly-detailed editorial of 118 courses offered at Harvard College at the time. The pamphlet is written from the perspective of upperclassmen providing advice to younger students on course selection. The details in it transcend any contemporary course catalog and take on, markedly, the advice only sage upperclassmen might pass on to their juniors. This document reveals that an American tradition was still forming and had not made its way deeply into the curriculum itself. Students' course options were dominated by the study of international people, histories, languages, and creations. The 118 courses fall into 19 subject areas. Among them, courses in the Classics, Greek, Spanish, French, Italian, German, Hebrew, Roman Law, and Sanskrit all are described through course descriptions that focus solely on lands abroad. Other subject areas' courses are mostly dominated by lessons beyond the United States too. Classes within English, Fine Arts, History, and Music dealt mostly with European or Middle Eastern works and events. This primary document reveals that the phenomenon of study abroad within American higher education was inevitable. As a nation with a young, Colonial history, curiosity and attachment with the Old World is part of our nation's bedrock. Studying the greater world has always been a necessity for American students to understand our own nation's

role. When transportation modes advanced to students getting abroad safely and with relative ease, they did.

Indiana University at Bloomington (IUB) has one of the earliest, documented records of taking students abroad for educationally-bent *tramps*. These non-credit excursions abroad took place as an outgrowth of Americans' European tourism, but were different because they were advertised explicitly to students, traveled with a university professor, and took a tight focus on targeted, subject-based learning. According to Hulstrand (2006), IUB sent its first students on an international program in 1879 (p. 48), after which point these programs became regular. One program was even described in the 1890s catalog at IUB as being for "serious scholars" (as cited by Hoffa, 2007, p. 44). According to Hoffa, IUB happens to have good, historical documentation of what they were doing internationally at the time, though their act of taking students on "faculty-led overseas touring [. . .] is probably not unique" (p. 45). David S. Jordan, a professor of natural sciences at IUB, is believed to have started the practice at his university. One detailed trip itinerary from summer 1880 describes a June 15th departure with a steamer voyage to Germany, and then literal tramps—a 50-mile walk through Switzerland, a 250-mile walk to Italy—and eventual rail and boat travel to Paris and England. In all, the trip took over three months (Hoffa, 2007, p. 44). Hoffa speculates that such early educational tramps by American academics and students must have shaped "later thinking about how to internationalize the degree studies of undergraduates" (p. 45).

Between the late-19th century to the 1920s, several key events led to the birth of study abroad within American higher education as we know it today. First, in the late 1800s, the American higher education system made a distinct departure from its

European roots. Rather than graduating students who managed to take coursework and then pass a comprehensive exam, the U.S. system moved to a modular course system that required students to take a prescribed list of required classes and a series of elective courses to graduate in a particular field (Hoffa, 2007, pp. 55-58). This liberal system allowed American students to go abroad, enroll at a university overseas, and then transfer credit back to their American university to assist with degree progress. Second, these years saw a surge of international students who were choosing to come to American universities for study. By 1919 Hoffa reports that 7,100 international students were studying at American universities. Their presence further internationalized the curriculum and views on what higher education should offer. Third, World War I brought America through a national debate as citizens weighed the appropriateness of its isolationist and non-interventionist roots versus a globally-involved nation. The war ended with the nation taking on a substantially more-prominent role in global affairs (pp. 61-62). Finally, these decades saw an influx of immigrants arriving in the United States. Hoffa describes an immigrant population that was pressured to assimilate, but nonetheless “changed the feel and texture of American society” (p. 62) through their sheer presence and numbers. These years represent a quickly-changing nation and an American higher education system that was emerging as uniquely liberal in its approach to education.

University-facilitated study abroad as we know it today began in 1923 at the University of Delaware (Hoffa, 2007, p. 71; University of Delaware, n.d.). This is the first program that was institutionally-led by an American university to send its students abroad for an educational experience that would lead to academic credit. According to

Hoffa, modern languages professor Raymond Watson Kirkbride lobbied then-University of Delaware president Walter Hullihen for a concept of the Junior Year Abroad (p. 72). The two shared an interest in international connections for their university students in the wake of World War I. Kirkbride, a veteran of the war, was inspired by the levels of art and culture he saw in Europe. Hullihen believed that Kirkbride's "plan might pave a way toward greater international understanding and goodwill" (Hoffa, 2007, p. 72). The first Junior Year Abroad program occurred in the 1923-24 academic year, took place in France, and included eight students—all men. The program quickly grew. The University of Delaware created Junior Year Abroad programs in Germany and Switzerland too, with participation at all locations growing. Hoffa reports that from 1923 to 1948, 902 students took the University of Delaware Junior Year Abroad (no programs took place from 1939 to 1946 because of World War II) (p. 73). Other American colleges and universities quickly followed with similar programs, Smith, Marymount, Rosary, and Montclair Teachers Colleges among them. Hoffa describes these universities' early efforts as "innovative and programmatic, [. . .] a departure from anything that had come before" (pp. 69-70).

Another pioneering study abroad program belonged to the New York University (NYU). Spearheaded by Dr. James Edwin Lough, the program was titled the University Travel Association (UTA) and featured coursework that spanned an entire academic year and took place around the globe on and off a rented ship, the MS Ryndam. According to Hoffa (2007), NYU solicited support from universities around the country by inviting university officials to join an educational advisory committee for the program. This allowed NYU to attract students from across the country rather than its students alone—

an early predecessor to consortia study abroad models. Hoffa describes the maiden program:

UTA's first floating voyage left New York on September 18, 1926 for a seven-and-a-half month voyage around the world. Five-hundred-four students and thirty-three faculty were on board, plus the large staff and crew. The students were drawn from 143 American colleges and universities. Before returning to New York harbor, the ship stopped in 35 countries. (p. 90)

The UTA program was hugely ambitious for its time and revealed that even this early program was subject to the fine line between tourism travel and rigorous education abroad that leaders of study abroad still battle today. Hoffa's (2007) description is ripe with signals that Lough was facing criticism from other academics about the UTA's rigor. Lough's own words argued that a UTA program brought a participant "new significance to his text-books and awaken[s] interest [which] will endure long after the Cruise has ended. This is the inspiration which the foremost educators and teachers throughout every country are trying to provide for their students" (as quoted by Hoffa, 2007, p. 91). To combat the criticism, Lough was careful to structure class time aboard the ship that amounted to the same number of hours required on campus for full-term courses and to mirror on-campus courses as much possible. This replication applied to life aboard the ship too, even beyond academics. Hoffa reports that the ship had a Student Council, a director of physical education, and students were encouraged to organize clubs and produce a yearbook (p. 92). UTA ended in spring 1936, Hoffa speculates, because of the global rancor preceding World War II (p. 95).

Just as study abroad was gaining steam in American higher education, the outbreak of World War II placed a nearly decade-long pause on all programs. Hoffa (2007) reports that because of the war, there was a complete cessation of study abroad programs in 1939 lasting until 1945, as young Americans put their efforts towards the war victory (p. 103). Following the war, “the GI Bill put more people with international experience into college classrooms than ever before” (p. 106). Additionally, with the United States’ key role in winning the war, came a new level of international engagement. Hoffa (2007) states that “the United States emerged from the war as the most whole, undamaged, and powerful nation in the world” (p. 107), leading to a responsibility to engage the rest of the world in the post-war years through diplomacy. The United States’ new engagement through foreign policy meant that international education itself was about to get a boost. Hoffa argues that the rise of internationalization in higher education over the next several decades following World War II derives from the United States’ new, heightened global position.

Hoffa (2007) describes that “the US Department of State took new interest in the revival of international education after the war. Increased student flows into and out of the country could potentially enhance its diplomatic efforts and national image in the postwar world” (p. 112) and “supporting students’ foreign travel was a way to put more [. . .] ambassadors into the field” (p. 113). A significant symbol toward this federal commitment to international education was the launch of the Fulbright Program, passed into legislation in 1946. Hoffa points out that while Fulbright Awards of the time were not granted for undergraduate students, that the lasting impact of the program on undergraduate study abroad is significant since “many Fulbrighters became active in the

field of international education following their return” (p. 114).

Programs like the Fulbright changed campus cultures with a focus toward international elements. Later pieces of legislation accelerated the efforts. Hoffa (2007) points to the 1961 passage of President Kennedy’s Peace Corp program that called particularly upon *young* Americans to engage with the world (p. 124-126) and the 1965 Higher Education Act that authorized federal financial aid to be used toward study abroad (p. 124) as seminal pieces of legislation. The internationalization of American higher education thrived in the two decades after World War II and so did the rise of study abroad. Even in the 1960s, as domestic issues like the Civil Rights Movement and the national debate over involvement in Vietnam fueled arguments that the United States should invest more at home and less abroad, federal legislative efforts still showed a commitment to international education and study abroad as a route toward better understanding. Hoffa adds that President Johnson’s International Education Act of 1966 showed “his belief that the nation’s security depended in part on an awareness of other countries and cultures” (p. 128).

The after-effects of World War II changed the pace of American higher education and the path towards a system that valued study abroad. Hoffa (2007) writes:

In sum, these various pieces of federal legislation and US diplomatic activity impacted campuses and students across the land. [. . .] Faculty members and graduate students who spent time abroad as soldiers or as Fulbright students, teachers, or scholars often returned to their campuses eager to set up overseas experiences for their own students. Many actually entered the field and became campus leaders in the cause of international education. Simultaneously, US

students, responding to the mood and spirit of the times that encouraged Americans to become more involved with the postwar world, began to travel on their own to other countries as never before. (p. 131)

While World War II caused a temporary cessation to the new act of American higher education's practice of study abroad, it is the outcome of the war itself and the post-war years that has shaped what study abroad has become today.

Open Doors Reports

This section uses primary source analysis from four *Open Doors* Reports to examine how study abroad has developed and matured into practice in American higher education. *Open Doors* has been published annually since 1954 by the American-based Institute of International Education (IIE) and is the authoritative source for statistics and trends in the field. This section first analyzes the inaugural edition to draw conclusions about study abroad in 1954. The section then analyzes three other *Open Doors* Reports, each separated by a decade. Through these documents, study abroad is examined in the 1985-86, the 1993-94, the 2003-04, and the 2013-14 academic years. The 1995-96 *Open Doors* Report is used to draw data from two time periods—the 1985-86 academic year, when study abroad statistics became a regular, annual observation in the *Open Doors Report*, allowing for longitudinal measurement, and the 1993-94 academic year. While the 1985-86 data are the earliest available on the measures used here, it is important to note that the publication of study abroad statistics lags behind the year from which the data are culled. For example, the most recent data available is from the 2015 *Open Doors Report*, but actually reflects statistics from the 2013-14 academic year. Therefore, the reports from academic year 1993-94 (*Open Doors* 1995-96 as source), academic year

2003-04 (*Open Doors* 2005 as source), and academic year 2013-14 (*Open Doors* 2015 as source) allows this primary source analysis the closest-to-possible 10-year interval understanding of how recent trends have developed. Analyzing, comparing, and contrasting these primary source reports are a window into the trends and developments in U.S. study abroad over the last 30 years from 1985 – 2015.

The inaugural *Open Doors Report*, 1954. Contemporary practitioners who work in the internationalization of American higher education refer to exchanges of students in two broad categories. Inbound refers to international students and scholars who come to the USA for study. Outbound is the term applied to enrolled students who leave the country for a temporary period of study while earning academic credit. The *Open Doors Report* tells the nation's annual story on each front. The compiled data allow colleges to compare themselves to their benchmarks and measure their own progress compared to regional and national data. Through a primary-source examination of the inaugural *Open Doors Report*, it is revealed that 1954 fell in the midst of the formative years of study abroad as an American college student tradition. This analysis concentrates on the statistics and statements dedicated to outbound students and draws conclusions on what drove the growth of study abroad as a practice in American higher education.

From the document's introduction, written by the then-president of IIE, Kenneth Holland, it is clear that study abroad by Americans was emerging as a nationwide trend in higher education in 1954. Holland writes, "Much has been said and written in the past three or four years about the increasing participation of the American community in exchange programs. This seems to us one of the most gratifying aspects of the work in which we are engaged" (Institute of International Education, 1955, p. 4). Indeed, this

was an era when widely-organized support—both public and financial—was being committed for the first time to send Americans on study abroad. Before this era, sending Americans abroad was occurring, but only in isolated fashion, such as the University of Delaware’s Junior Year Abroad program. The Fulbright Act was signed into law by President Harry Truman in 1946, creating the Fulbright Scholarship. It was not until 1948 that the first Fulbright Scholars would travel (United States Department of State, *n.d.a.*). Yet, by the time that the IIE gathered information and published the 1954 *Open Doors Report*, support for sending American students abroad was quickly gaining momentum. The IIE, in the 1954 *Open Doors Report*, states that it was assisting government agencies (both American and international), universities, foundations, and private groups by selecting nearly 400 American students to send abroad on fellowships (p. 21). Furthermore, the report lists 25 agencies, both stateside and abroad, that were offering funding for American students to study abroad. Ten of these programs were funded by national governments, while most of the remaining programs were funded by international universities hoping to attract American students (pp. 27-28). In 1954 the practice of sending American students abroad was organizing and earning widespread buy-in from the international community.

The 1954 *Open Doors Report* reveals that the driving force behind the emerging practice of American students studying abroad was international peacekeeping and diplomacy-building among national governments. In the 1953-54 academic reporting year, a total of 1,094 American students left the country for study abroad (p. 52). The impact of the Fulbright Scholarship is evident. Overwhelmingly, these were graduate students (1,080 graduate students versus 14 undergraduate students), and 916 of them

were on fully-funded grants from the United States government (p. 52). What is staggering about this data is that virtually no students were funding their own experiences abroad with out-of-pocket expenses. This reveals that the impetus and initiative for American students going abroad in masse was originally driven by the federal government of the USA and other nations' governments in the wake of World War II. Out of the remaining American students who studied abroad that year, 112 of them received either full or partial funding from government grants. The report indicates that only 6% of the students (66 individuals) who went abroad in the 1953-54 academic year did so without funding support from a nationally-funded grant (p. 52). There is no doubt that these government-supported students were the beneficiaries of post-World War II international tensions as nations invested in peacekeeping strategies and attempts at fostering exchange and diplomacy.

This notion is further supported by examining the 1954 *Open Doors Report* to see where students were studying. Over 90% (988 of 1,094) of the American students studying abroad were heading to European countries, with the biggest recipient nations being France (259 students), Germany (223), the United Kingdom (187), and Italy (119). In this early, Cold War year, no American students were studying abroad in the Soviet Union (p. 52). Latin America, Africa, and Asia were also receiving students, though only by the handful. The clear drive was to build upon or restore international relations with predominantly western-European nations.

While the distribution of where students were traveling was not diverse, the American colleges and universities that were sending these students were. According to the report, 343 American institutions sent students on study abroad in the 1953-54

academic year (Institute for International Education, 1955, p. 38). The leading institutions were the usual suspects. Harvard sent 89 of its students abroad that year, Yale 63, Columbia 61, and Michigan 44 (pp. 38-46). What is impressive, though, is the high number of small institutions that were sending students. Each of the 48 states had a college that sent a student abroad that year, including seven Mississippi students and two North Dakota students (p. 38-46). Kentucky had 15 students study abroad that year, including one student from Western Kentucky State College (p. 40).

The 1954 *Open Doors Report* provides the first organized national data on outbound students. This primary source analysis shows that study abroad was fueled by funding from government agencies, domestic and foreign, in the wake of World War II, with a preference to send graduate students. Students from prestigious universities traveled in the greatest numbers, though these federal programs also ensured that study abroad participants represented the entire nation. Robust federal funding for these students and their destinations in western Europe indicate that diplomacy and peace-building were driving factors in this era of American study abroad.

1985-86. In 1985 the IIE began tracking longitudinal statistics on outbound study abroad students annually. In the intervening years, the reports have become more robust with additional measures added as the profile of U.S. study abroad has grown increasingly more complex. The reliable measures that were first conducted in 1985 provide a way to chart the progress and trends within study abroad longitudinally. Davis (1995-96) contains the figures from the 1985-86 academic year as a point of comparison to the 1993-94 academic year. The report is analyzed as a way to evaluate the state of U.S. study abroad some 30 years ago, and a summary is displayed in Table 2.

According to Davis (1995-96), there were 48,483 American students who studied abroad in the 1985-86 academic year. This represents phenomenal growth since the original 1954 *Open Doors Report* documented 1,094 Americans who studied abroad. Europe still dominated as a destination with 79.6% of study abroad students, though students' travels were growing more diverse. In particular, Latin America (7%), Asia (5.4%), and the Middle East (4%) proved to be substantially more attractive to study abroad students in 1985-86 than their predecessors from 30 years earlier. The changes in these regions' figures can be owed to two main reasons. First, the ease of travel for Americans to get to non-European international destinations had vastly improved in the intervening years. Second, the differences represent increasing United States trade and influence with these regions of the world. Other regions of the world were still little visited by American study abroad students in 1985-86. Africa received 1.1%, North America 0.9%, Oceania 0.9%, and Multiple Regions 1% of students.

When the IIE first reported these regular study abroad statistics in 1985-86, 39.7% were studying in the Social Sciences and Humanities, 16.7% in Foreign Languages, and 10.9% in Business and Management (Davis, 1995-96). Various STEM fields were incorporated into one category, including the labels of Physical Sciences, Health Sciences, Math or Computer Science, and Agriculture. A paltry 9.4% of students studying abroad in 1985-86 were classified as STEM students. This information shows that the early days of U.S. study abroad were led by arts, humanities, social sciences, and foreign language faculties at American institutes of higher education. Significant trend reversals are evident in more recent years as the Table 2 data show.

Table 2

U.S. Study Abroad 30-year Trend Analysis 1985-86 through 2013-14

	1985-86	1993-94	2003-04	2013-14
Total	48,483	76,302	191,321	304,467
Destination				
Africa	1.1%	1.9%	3.0%	4.4% ²
Asia	5.4%	6.5%	6.9%	11.9%
Europe	79.6%	67.4%	60.9%	53.3%
Latin America	7.0%	13.4%	15.2%	16.2% ²
Middle East	4.0%	2.8%	0.5%	2.1% ²
North America	0.9%	0.7%	0.6%	0.5%
Oceania	0.9%	3.4%	7.4%	3.9%
Multiple Regions	1.0%	3.8%	5.5%	7.7%
Field of Study				
Social Science and Humanities	39.7%	37.1%	22.6% ¹	18.7% ¹
Foreign Language	16.7%	11.3%	7.5%	7.8%
Business and Management	10.9%	13.6%	17.5%	19.6%
Various STEM fields	9.4%	11.3%	16.3%	22.6%
Duration				
Short-term	45.2%	38.2%	51.6%	62.1%
Mid-length	41.9%	45.5%	41.9%	34.9%
Long-term	18.8%	14.8%	6.2%	3.0%
Top 10 Study Abroad Destinations	NA ³	1. U.K. 2. France 3. Spain 4. Italy 5. Mexico 6. Germany 7. Australia 8. C. Rica 9. Austria 10. Russia	1. U.K. 2. Italy 3. Spain 4. France 5. Australia 6. Mexico 7. Germany 8. Ireland 9. China. 10. C. Rica	1. U.K. 2. Italy 3. Spain 4. France 5. China 6. Germany 7. Ireland 8. C. Rica 9. Australia 10. Japan

Note: Adapted from *Open Doors* (1995-1996); *Fast Facts* (2005); *Open Doors Fast Facts* (2015).

¹The IIE changed categories, separating the Social Sciences and Humanities. Therefore, figures from 2003-04 and 2013-14 report on Social Sciences.

²The IIE changed several geography categories. Africa was changed to *Sub-Saharan Africa*, Latin America to *Latin America and Caribbean*, and Middle East to *Middle East and North Africa*.

³This information was not available from the 1985-86 report.

The duration of students' study abroad in 1985-86 still favored longer exchanges to short-term study abroad. Entire academic or calendar year study abroad experiences accounted for 18.8% of students, while 41.9% of students were studying abroad for a mid-length program, defined by the IIE as "one or two quarters, or one semester" (Davis, 1995-96). The trend increase in short-term study abroad is a notable point of observation as the decades pass. In 1985-86, 45.2% of U.S. study abroad students were classified as participating in a short-term program.

1993-94. Since the IIE only reported regular study abroad statistics starting with the 1985-86 academic year, the previous section used that year to begin a 30-year trend analysis. From this point on, *Open Doors Reports* used in this analysis reflect data from 10-year intervals including 1993-94, 2003-04, and 2013-14. The intervening years since the 1985-86 academic year to the 1993-94 academic year showed substantial, but not overwhelming growth. According to Davis (1995-96), 76,302 total American students studied abroad in the 1993-94 academic year. While Europe was still easily the most-visited destination for study abroad, trends continued away from the continent. Whereas in 1954 Europe received 90.3% of American study abroad students and in 1985-86 Europe received 79.6%, the downward trend shows that in the 1993-94 academic year, Europe was only receiving 67.4% of American study abroad students. This diversification is largely attributable to expanded travel to a few geographic areas. Latin America saw an increase from 7% in 1985-86 to 13.4% in 1993-94. While overall numbers were still small, Oceania and Multiple Regions saw drastic increases in this near-decade. In 1985-86 Oceania received 0.9% of study abroad students, but 3.4% by 1993-94. Meanwhile, students visiting Multiple Regions on a single study abroad

increased from 1% in 1985-86 to 3.8% by 1993-94.

Few changes in what students studied are notable in this near-decade after analyzing Davis (1995-96). Modest increases in Business and Management and Various STEM Fields are among the most noteworthy, especially since these are significant trends in the future. Business and Management students accounted for 9.4% of American students studying abroad in 1985-86 and 11.3% in 1993-94. Students studying the Various STEM fields showed similar, modest growth from 9.4% in 1985-86 to 11.3% in 1993-94.

Duration of study abroad in the 1993-94 data shows a surprisingly low number of students on short-term study abroad (Davis, 1995-96). These data are anomalous in the overall 30-year trend since short-term study abroad has drastically increased in popularity. Whereas in 1985-86, 45.2% of American students studying abroad went for eight weeks or fewer, the number strangely dipped to 38.2% in the 1993-94 academic year. This analysis does not provide a clear conclusion on what accounts for this anomaly that does not fit within the overall trend line. Mid-length study abroad programs increased modestly during this decade, while long-term study abroad showed a mild decrease.

2003-04. Data from the *Open Doors 2005 Fast Facts* (Institute of International Education, 2005) document shows that study abroad found its footing and robust support from the American higher education community in the decade between 1993-94 to 2003-04. Higher education institutions offering study abroad opportunities became the normal during this decade. The overall number of participants more than doubled from 1993-94 with 76,302 to 191,321 in 2003-04. The terrorist attacks on September 11, 2001, despite their lasting impacts on international education, did not slow the increase of study abroad

students. The analysis of the document shows that study abroad grew every single academic year from 1993-94 to 2003-04, even including from the 2000-01 academic year to the 2001-02 academic year.

While still easily holding the market share, the downward trend of American students studying in Europe continued, with 60.9% of American study abroad students in the 2003-04 academic year choosing Europe (Institute of International Education, 2005). The most notable observation from this document is China's emergence on the top-10 receiving nations list. However, the overall growth of students traveling to Asia during this decade is only slight (6.5% in 1993-94 to 6.9% in 2003-04). Regions that continued to increase were Latin America, Oceania, and students visiting Multiple Regions on study abroad. Respectively, these regions saw increases from 1993-94 to 2003-04 from 13.4% to 15.2%, 3.4% to 7.4%, and 3.8% to 5.5%.

The IIE had a change of reporting in the intervening decade, separating out Social Sciences and Humanities. However, analyzing the Institute of International Education (2005) document reveals that other fields of study continued clear trends. Foreign language students made up only 7.5% of study abroad participants in 2003-04, compared to 16.7% in 1985-86 and 11.3% in 1993-94. Business and Management and students studying within the Various STEM fields continued to study abroad more, though. Business and Management students made up 17.5% of study abroad students in 2003-04, while Various STEM fields made up of 16.3% of study abroad students, a substantial increase from the 11.3% of students the decade earlier.

The data on duration of study abroad from the Institute of International Education (2005) document shows clear trend development away from longer programs to short-

term study abroad. By 2003-04, 51.6% of students were studying abroad on a short-term study abroad program of eight weeks or fewer, while long-term programs were becoming drastically less popular. Long-term programs accounted for 18.8% of study abroad students in 1985-86, 14.8% of study abroad students in 1993-94, but only 6.2% of study abroad participants by 2003-04.

2013-14. Due to the lag in reporting, the most recent statistics on study abroad are from 2013-14 academic year and are listed in the *Open Doors 2015 Report* (Institute of International Education, 2015a). Study abroad participation is now nationally prominent in American higher education. In total, 304,467 American students studied abroad in the 2013-14 academic year, an impressive increase from a decade earlier. China's rise as a global economic superpower is evident in the data. China bolted to being the fifth most-popular study abroad destination, only trailing the four persistently most desired locations of the United Kingdom, Italy, Spain, and France. The rapid increase in students going to China is evident through the regional Destination data also. Asia received 11.9% of American study abroad students in 2013-14, compared to just 6.9% a decade earlier. Latin America and students visiting Multiple Regions continued slow and steady increases in this decade too. Meanwhile, the persistent trend of a smaller percentage of students traveling to Europe continued. In 2013-14, only 53.3% of American students studying abroad were heading to Europe, compared to over 90% in 1954, 79.6% in 1985-85, 67.4% in 1993-94, and 60.9% in 2003-04.

Students studying the Various STEM fields became the industry leader by 2013-14, according to the Institute of International Education (2015). By 2013-14, 22.6% of American students studying abroad were from the Various STEM fields—more than any

other discipline. This represents a complete 30-year trend reversal, when students in the Various STEM fields were the minority (only 9.4% in 1985-86). Business and Management showed modest growth in this decade (up from 17.5% in 2003-04 to 19.6% in 2013-14), while Foreign Language remained relatively steady and the Social Sciences declined modestly.

The trend toward more students choosing short-term study abroad continued in earnest. According to the Institute of International Education (2015) document, by 2013-14, nearly two out of every three students going on study abroad were going for a short-term program (62.1%). Over the 30-year analysis, mid-length and long-term programs have seen significant downward trends. In 1985-86, 60.79% of students were going on a program that was semester-long or longer. However, only 37.9% of students were choosing these longer study abroad experiences in 2013-14.

On one hand, seemingly little has changed. Western European nations still make up the top four most popular study destinations, though there are indications that this trend is diversifying to include greater percentages of students visiting Latin America and east-Asian nations. While this trend analysis tells much of the story, a press release that accompanied the publication of the most recent *Open Doors Report* brings greater context. In particular, “while study abroad by American students has more than tripled in the last two decades [. . .], still only about 10 percent of U.S. students study abroad before graduating from college” (Institute of International Education, 2015b). The commentary goes on to observe that although American students studying with the various STEM fields make up the largest proportion of study abroad participants, there is still a dichotomy. “Compared to the 36 percent of all U.S. undergraduates who major in

STEM fields, STEM students are still under-represented in study abroad” according to the report (Institute of International Education, 2015b).

Recent Trends in U.S. Study Abroad

Two of the major trends apparent through this primary source review of the last 30 years of study abroad are the rise of both the short-term study abroad program and the increase in study abroad programs for STEM students. Short-term study abroad programs are those lasting eight weeks or fewer (Donnelly-Smith, 2009; Hulstrand, 2006) and are a distinct departure from the historical roots of the tradition of the junior-year abroad in American higher education. The 30-year trend analysis above shows that short-term study abroad grew from 45.2% of participants in 1985-86 to a majority of students, 62.1% of all study abroad students, in 2013-14. During this same period, the percentage of study abroad participants with STEM majors grew from 9.4% to 22.6%. While still underrepresented, “the trend line is good” (Leggett, 2011) for STEM students on study abroad. One possible reason for this parallel growth is that STEM curricula are highly defined and rigorous. Whereas formerly without as many short-term study abroad program choices, students who study STEM may have found it difficult to take a semester or year away from their curriculum, the rise of short-term study abroad has expanded choices.

In a dissertation on the impact of study abroad, Medina-Lopez-Portillo (2004) connected the rise of short-term study abroad programs to two major changes that happened after World War II. First, higher education itself became inclusive of the middle class. This democratizing of higher education also inevitably led to the democratizing of study abroad, Medina-Lopez-Portillo argues (p. 15). While middle-

class groups could not afford long-term programs—both in terms of sheer cost, and in giving up time to put other educational, career, and family goals on hold—they could take a few weeks or months out to go abroad. The second change that occurred was a re-shifting of thinking about study abroad away from foreign language acquisition “to the acquisition of disciplinary learning” (p. 15). This shift meant that the audience for potential study abroad participation was practically extended to students from every major of study.

Hulstrand (2006) provides a list of reasons that short-term study abroad programs are on the rise still today (p. 48). Short-term study abroad costs less money, making it affordable to more students. For students with job responsibilities or families, they are able to take a few weeks away, but not an entire semester. The same holds true for faculty and staff who plan and travel with the programs; since they have myriad obligations and limited time, short-term study abroad is possible, while long-term programs are not. Short-term programs can also appeal to community college students. Hulstrand points out that “students who are not ready (emotionally, linguistically, or otherwise) for a long-term immersion program” (p. 48) can go on short-term study abroad. Hulstrand indicates that there has been criticism and debate about the impact of short-term study abroad programs compared to longer-term programs from the professional community, but indicates that many students who go on short-term study abroad end up going abroad again later for longer durations (p. 51-52).

Leggatt (2011) writes about the rise of STEM study abroad programs and what leading American colleges and universities are purposefully doing to shore up the deficit, citing nations such as Germany, Mexico, France, and Finland as tech-oriented societies

with advanced research institutions as ideal study abroad locations for STEM students. At Rensselaer Polytechnic Institute, all engineering undergraduate students are expected to study abroad (p. 44). New programs are springing up to meet the deficit. The German Academic Exchange Service (DAAD) has created the Research Internships in Science and Engineering (RISE) program to pair STEM undergraduates in internships in Germany. Leggatt reports that at a recent Accreditation Board for Engineering and Technology (ABET) meeting, an entire conference strand was devoted to study abroad for STEM students (p. 45).

In a foreword to Blumenthal and Laughlin (2009), IIE president Allan E. Goodman pointed to the abundance of international students studying STEM fields in the United States, pointing to our own U.S.-born STEM students as the under-represented group. Goodman indicates that financial and curricular time constraints are study abroad hurdles for STEM students. Goodman states:

Innovation and job growth require individuals to possess the capacity to think and act on a global basis, and [. . .] there's no faster path to this skill set than study abroad. The foreign-born students in our universities already have had the experience of total immersion in a culture different than their own. We need to make sure that U.S.-born students in STEM fields also get the chance to gain a global perspective before they enter the global science and technology workforce. (p. 6)

Energy and attention toward the issue of underrepresentation of STEM majors on study abroad is leading to improvement. Blumenthal and Laughlin, speaking particularly about engineering students, states that “on a résumé, study abroad is now nearly as

indispensable as good computer skills or proficiency in English” (p. 21).

History and Trends of High School Study Abroad

High school study abroad within American education dates back almost as early as the practice of study abroad within American higher education. Yet, the historical documentation within the literature is sparse and vastly understudied. According to Hoffa (2007), Donald Watt’s Experiment in International Living program was designed for secondary school students and was founded in 1932. The *experiment* was that high school-aged students would travel for a total of two months, imbedding with the language and customs of a host family to truly put aside their own culture and adopt that of another during the first month, and traveling through various European countries staying with young people near their own age to facilitate friendship and exchange during the second month (p. 64). As the outbound American practice of study abroad and the inbound arrival of international students on American shores have almost always been tied together, the Experiment in International Living also included a mirrored program to bring international students to the United States for a similar two-month program. From 1932 to 1934, annual outbound programs occurred that only included secondary-school aged participants. From then on, undergraduate-aged students also joined in, though secondary school students continued too. The program evolved into the School for International Training in Brattleboro, Vermont. Both the school and the Experiment in International Living still continue to thrive today. While high school-aged students have studied abroad since 1932, they have never been the majority of study abroad participants. However, high school study abroad participation is changing.

Berdan and Berdan (2013) argue that while most globalization efforts occur

during students' college years, it is already too late to foster ideal global thinking skills (p. 3). Instead, they call for instilling global mindfulness purposefully throughout a student's education, starting in early age and continuing. They define global mindedness as "an ability to live in and work successfully across multiple cultures—including, but not necessarily, in other countries" (p. 21). The authors conducted a survey of approximately 1,000 teachers, school administrators, parents, and professionals interested in global mindedness and found that international travel is a preferred method of delivering global mindedness skills to students, with 96% of respondents agreeing that international travel fosters such skills (p. 34). Their call is to parents and educators alike. The authors note that international travel is one preferred route, but acknowledge that this is financially or physically limiting for many others. Therefore, they propose alternative routes of delivering global mindfulness activities that are accessible for any student.

The call for equipping students with global mindedness extends to every level of education, not only higher education. O'Connell and Norwood (2007) state that equipping Americans with global mindedness skills is a national security measure, calling for Americans to take an interest in other cultures and languages, recommending that "the U.S. education system—from elementary and secondary school to higher education—needs the capacity to provide the requisite training" (p. 1). Maureen McLaughlin, the U.S. Department of Education's director of international affairs, pointed to American high schools stating that every graduate—not just "a select few"—must be equipped with the skills to engage in a global society. (Fischer, 2012)

Berdan and Berdan (2013) argue that we have to adapt our educational approach with children to lead to success in global mindedness. They argue that by deliberately

creating global thinking activities with children, including talking about current global events, consuming diverse films and books, trying various ethnic foods, and traveling both domestically and internationally are all strategies to develop children. The authors state that this encourages brain development and leads children to develop an identity of understanding and welcome for international perspectives (p. 14). Berdan and Berdan believe that starting early in childhood with this training, rather than waiting until college, develops students with the lifelong skills needed in the 21st century American workforce.

Study abroad during the high school years is a growing trend. The Institute for International Education's (IIE) Generation Study Abroad campaign includes high school study abroad in its focus. The group calls for 1,000 K-12 teachers to take a pledge to assist their students to be prepared to study abroad (Marklein, 2015). According to IIE's Generation Study Abroad (2015), organizations including the American Gap Association, the IIE's Passport Awards, InSolidarity, Greenheart Travel, Global Nomads, OneWorld Now!, and World Smart are among 18 organizations that made commitments to increase the number of high-school aged students studying abroad within the first six months between January through June 2015 after the initiative's launch. During this same time, the CIEE committed \$500,000 in scholarships to assist high school students in studying abroad (Reuters, 2015). High school study abroad is a ripe new territory for the study abroad and international education fields.

Berdan and Berdan (2013) categorize travel abroad opportunities for teens into three categories: exchange programs, cultural excursions, and mission trips (p. 172). Today, study abroad options for high school-aged students are numerous, and these fall under what Berdan and Berdan categorize as cultural excursions. These programs can be

further examined with three sub-categories: Department of State-sponsored study abroad programs and scholarships, not-for-profit organizations that put on study abroad programs and exchanges, and for-profit companies that offer study abroad programs and exchanges. Many of these options are largely tour-based programs and do not engage students in curricular study (exceptions are noted below). The Gatton Academy's Program B: Faculty-led Field-Study (Costa Rica) and Program C: Faculty-led Traditional (England), examined in this study, exist in a rare niche that involves high school-aged students in university-level, faculty-led-styled programs that earn college credit.

U.S. Department of state high school programs. While the U.S. Department of State has now long-focused on facilitating international exchange in American higher education, more-recent efforts are focusing more-and-more on high-school aged students. The U.S. Department of State's Bureau of Educational Cultural Affairs now has a Youth Programs Division that offers a slew of programs both for American high school students to study abroad, but also for international high school-aged students to come to the United States too. With a dedicated marketing presence, including a specific U.S. Department of State High School Study Abroad webpage, the federal role in expanding opportunities for United States high-school aged students to study abroad is a clear symbol of the changing age demographic of study abroad participants. Whereas the Department of State's role started with the Fulbright program in 1961 focusing on graduate students and faculty, their focus has expanded to younger participants as time has progressed. This section profiles current U.S. Department of State-sponsored study abroad initiatives for United States high-school aged students. As examples of the acceleration of these programs focused at younger participants, the Congress-Bundestag

Youth Exchange received its first funding in 1983, the National Security Language Initiative for Youth in 2006, and the Kennedy-Lugar Youth Exchange and Study (YES) Abroad in 2009.

The American Youth Leadership Program and the Youth Ambassadors Program are sponsored by the U.S. Department of State to engage American youth between the ages of 15-17 years old in study abroad. The American Youth Leadership Programs are focused on issues such as “environment and climate change, food security and nutrition, the role of the media, and science and technology” (United States Department of State, *n.d.b.*). The Youth Ambassadors programs are focused on exchanges between Latin America and the United States and involve “workshops, community service activities, team building exercises, meetings with community leaders, and home stays” (United States Department of State, *n.d.b.*). Both similarly-structured programs accept grant applications from American schools and agencies to involve high school students in intensive three-to-four week study abroad in defined nations by program. The Youth Leadership Program, a third, highly-similar program, is sponsored by the U.S. Department of State to bring international youth on short-term study abroad to the United States.

The Congress-Bundestag Youth Exchange (CBYX) is a career-focused exchange fellowship program between the United States and Germany for 75 students per nation each year. The program is administered by the U.S. Department of State’s Bureau of Educational and Cultural Affairs under the same legislative authority that authorized the Fulbright Grant in 1961. However, the program itself did not begin sending students until 1983 (Congress-Bundestag Youth Exchange, *n.d.c.*). The program accepts recent

high school graduates as well as undergraduates and especially encourages students in business and STEM fields to apply. The program is one year long and consists of a homestay with a German family or in a student residence while students undertake two months of German language study, four months of study in a student's chosen career field at a university, and a five-month internship in the student's chosen career field.

The U.S. Department of State funds the National Security Language Initiative for Youth (NSLI-Y), a program established in 2006 "to promote critical language learning among American youth" (National Security Language Initiative for Youth, *n.d.*).

Blumenthal and Laughlin (2009) define these languages as those "that are not sufficiently studied or taught in the U.S." (p. 16). NSLI-Y funds American high school students to study for a summer or an entire academic year through immersion in the culture and language for intensive learning. The NSLI-Y's seven funded languages are Arabic, Chinese, Hindi, Korean, Persian, Russian, and Turkish. Scholarship recipients are awarded full travel.

In the wake of September 11, 2001, Congress created a program in 2002 called the Kennedy-Lugar Youth Exchange to scholarship students from countries with significant Muslim populations to study in the United States. This was followed in 2009 by a similar program, the Kennedy-Lugar Youth Exchange and Study (YES), to send American youth ages 15-18 years old to spend an academic year studying abroad in countries with high Muslim populations (Kennedy-Lugar Youth Exchange and Study, *n.d.*). While the inbound program for international students accepts applications from 38 countries, the outbound program for American youth to study abroad sends students to 13 countries where safety concerns are less great. The YES scholarship covers all expenses

for American youths' participation except the cost of the visa, immunizations, and pocket money.

Non-profit organizations for high school study abroad. Before the U.S. Department of State was actively providing scholarship assistance for high school study abroad, other non-profit and for-profit groups were offering programs to this age demographic. The earliest groups to send high-school aged students on study abroad were non-profit groups and are still around. This section profiles two non-profit organizations that have sent high school students abroad for decades. While The Experiment in International Living sent high-school aged students abroad earlier (in 1932), the CIEE lays claim to being the oldest nonprofit study abroad organization (CIEE, *n.d.a.*).

The CIEE is a study abroad non-profit based in Portland, Maine. With a history dating to 1947, they are “the country’s oldest and largest nonprofit study abroad and intercultural exchange organization” (CIEE, *n.d.a.*). Common among the organizations featured here, CIEE’s main operations are focused on the traditional college population, while also having a smaller high school study abroad program embedded. CIEE sends high-school aged students abroad on year-long exchanges in 11 countries (CIEE High School Abroad, *n.d.b.*) and on short-term study abroad to one of 18 countries to enroll in a three-to-four week summer program (CIEE, *n.d.c.*). However, there is no route for high school study abroad participants to earn college credit through a CIEE study abroad program.

The Experiment in International Living is a division of the School for International Training (SIT) in Brattleboro, VT. A not-for-profit organization, SIT hosts

The Experiment in International Living for high-school aged students, while SIT also hosts separate study abroad programs for undergraduates. SIT contains the SIT Graduate Institute, a master's degree-granting program. The original Experiment in International Living program was designed for high-school aged students and launched in 1932 (Hoffa, 2007; The Experiment in International Living, *n.d.*). This well-documented program is the first mention of high-school aged students in the study abroad literature. According to The Experiment in International Living 2016 Catalog, today's programs feature group programs to set destinations in 26 nations. Students travel as a group (the average group size is 13 students) to the host destination (The Experiment in International Living, 2016, p. 76). Programs start in late June each year and are from three to five weeks in duration. Participants spend several days orienting and acclimating and then are assigned to homestays for approximately two to three weeks while they participate in some type of volunteer-based project in the local area. The students then come back together for approximately one week to see sites of interest in the country before heading home. The Experiment in International Living stresses not only the cultural immersion in the host country and with the host family, but also the cultural learning that can be experienced from other travelers. The programs are deliberate about attracting students from a wide variety of states and countries to have these travel experiences together. The programs each have their own thematic focus, so that learning is centered on a concentrated concept. However, there are no options for collegiate or high school credit to be awarded for The Experiment in International Living programs. In the summer of 2015, 550 high school students traveled on The Experiment in International Living programs (The Experiment in International Living, 2016, p. 76).

For-profit companies for high school study abroad. As participation in study abroad has grown, so has the rise of for-profit companies that offer study abroad tours. Among high school study abroad, the number of participants in study abroad programs led by non-profit versus for-profit are not tracked. However, this section profiles three of the for-profit companies offering study abroad to high-school aged participants to give an overview of how this sector operates. This includes the world's largest study abroad agency—EF Educational Tours.

EF Educational Tours is the giant of high school study abroad. Carefully guarded about the number of students they send abroad each year, the parent company, EF First (founded in 1965) includes 40,000 employees at 500 offices in 50 countries around the world (EF Education First, *n.d.*). Marketing ready-made study tours for groups from Girl Scout troops to adult learners, their main audience for study abroad is the high school student. The EF Educational Tour model has set itineraries in mainstream destinations. A high school teacher can get a free trip when they attract enough students to sign up for the program (a 6:1 ratio of paying students to free teacher). The teacher then recruits students through their classes and guides students to the application. EF Tours then sends these groups traveling to destinations around the globe where there are experienced tour guides to meet and lead the group. EF Educational Tours is partnered with two universities to offer college credit for high school students through online, highly-independent platforms (T. Alongi, personal communication, October 7, 2014). Students may pay an extra tuition fee and are given access to the online course. In the first option, students in grades nine to 12 can enroll in an online course through Eastern Oregon

University, Humanities 104: Global Perspectives. The course can earn three collegiate hours and costs approximately \$300. Students complete work before the program departure, connect their learning while traveling, and then have a final project due within 21 days of return. The second option is offered through Eastern Washington University and is available for students grades seven to 12. Students enroll at least 10 days before their program's departure and complete online assignments in the same sequence as option one outlined above. Students can earn between one to five hours of collegiate credit at the additional rate of \$250 per credit hour.

International Studies Abroad is an Austin, TX-based company whose main market is in traditional, college-aged study abroad since its 1987 founding. With just over 300 employees, it is markedly dwarfed by the scale of EF Tours (International Studies Abroad, *n.d.*). ISA High School is a small division within the company that runs short-term summer study abroad programs for high school-aged students in seven nations: China, Costa Rica, France, Germany, Italy, Peru, and Spain. The programs are based at universities in the host countries, involve instructional hours in a set curriculum during the week, and are punctuated with excursions on weekends. The programs are typically around three weeks in duration. University credit is earned for all of these programs. The credit is awarded by the international host university. ISA headquarters then receives a copy of the official transcript upon completion of the student's experience, which they then copy and provide a statement of how their program model works. Once the high school student has then selected a college and enrolls, the student sends these documents to their new university so they can be evaluated through an international credit articulation process and credit officially offered for the student. ISA reports that

this works at most universities, though they do provide some strong wording that it is not their promise that the credit will be accepted or their responsibility to see to its being awarded.

Sol Abroad is a small, Austin, TX-based study abroad company that concentrates on a niche market to deliver Spanish-immersion programs. According to their website, the company launched in 2005 and now offers study abroad programs to only four countries: Argentina, Costa Rica, Mexico, and Spain (Sol Abroad, *n.d.*). In addition to a program track for high school students, the company also offers programs to traditional college students. The high school track offers programs to high school Spanish teachers to lead their own students for one to three weeks in one of the four host countries, or students can go on a program individually for times ranging from one week to an entire exchange year. For each of the high school options, university credit is earned. In all cases, the credit is earned by an internationally-accredited university. Then, upon return to the USA and once the student has enrolled at a college, they can use their international transcript for credit articulation. In Costa Rica, one can earn up to three semester hours from the Latin University of Costa Rica. In Spain, one can earn up to six semester hours from the University of Grenada. In Argentina, a student can be awarded up to three semester hours from the Academia Buenos Aires. In Mexico, students are able to earn up to six semester hours from the University of Oaxaca.

Study Abroad and Internationalization at State, Residential STEM Academies

As detailed earlier in this chapter, The Gatton Academy is one of 16 state-funded, residential STEM academies. In the academic year 2015-16, the author surveyed these immediate peer schools' directors/principals through personal email communication for

greater understanding on study abroad and international efforts at these similar schools.

Four questions were asked of each school leader:

1. Does your school arrange/organize any international travel opportunities for your students? If so, please briefly describe the destination/s, time/s of year the trip travels, frequency that the trip/s occurs, number of students who often travel on each trip, and the nature (i.e., content specialty) of the trip/s.
2. If your school offers study abroad trip/s, do students have the opportunity to earn high school credit through the program?
3. If your school offers study abroad trip/s, do students have the opportunity to earn college credit through the program?
4. Does your school have any additional unique practices or programs that contribute to internationalization within your school community? Examples might include exchange relationships with a foreign high school, international student enrollment, special programs that occur through the year at your school, or even unusual curricular offerings. Please briefly describe.

Ten of the 16 state, residential STEM academies provided information (including The Gatton Academy). Of the 10 state, residential STEM academies, nine reported some level of internationalization effort, while seven actively took students on study abroad in the 2015-16 academic year. Table 3 displays the internationalization and study abroad efforts being made by this niche of similar schools. Schools that did not reply to the personal communication or who do not have any internationalization efforts are noted.

Study abroad at immediate peer state, residential STEM academies is on the rise. One peer school that has put in special organizational effort is the Arkansas School for

Mathematics, Science, and the Arts. The school created its Global Learning Program in the 2013-14 academic year (C. Alderdice, personal communication, July 15, 2015). The program now has stated objectives for its student learners and set annual programs. Like The Gatton Academy, the school subsidizes students' study abroad programs and provides limited scholarships for those with greatest financial need. Their website states, "We believe that when students travel to a foreign country, encounter a different culture, and meet new people, they develop new perspectives, global awareness, and better critical thinking skills" (Arkansas School for Mathematics, Sciences, and the Arts, *n.d.*).

Summary

With historical roots dating back 2600 years, scholars have sojourned to gain greater knowledge from lands abroad. As American higher education established its roots and began creating its own unique tradition, study abroad became a valued route to increased understanding and learning. Universities began offering non-credit travel study in the late 1800s, while the University of Delaware was the first to offer academic credit for study abroad in 1923. The World Wars shaped both the national view and American higher education's views on our students' responsibilities to be globally minded. In the wake of the wars, federal funding accelerated study abroad. The Institute of International Education began tracking international education statistics in 1954, with detailed, regular study abroad statistics starting in 1985-86. Recent trends show that as more students go abroad, short-term programs lasting eight weeks or fewer are the most popular, while more students with STEM majors travel abroad than ever before. In recent decades, high school study abroad has increased. Various agencies, both not-for-profit and for-profit, now send high school students on study abroad programs. The U.S. Department of State,

Table 3

Study Abroad and International Activity at State, Residential STEM Academies in 2015-16

School	State	International Travel Opportunities for Students?	High School Credit Available?	College Credit Available?	Other internationalization programs implemented within the school.
Arkansas School for Mathematics, Science and the Arts	AR	Three programs for academic year 2015/16: 1. Grand Tour of Italy (Spring Break) 2. Spanish Immersion in Barcelona (Spring Break) 3. French Immersion Tour in Quebec City, Canada (Summer) *All three programs noted above are provided by EF Educational Tours. Past programs at this school have also traveled to China, Italy, Greece, Spain, and the United Kingdom.	No, though curricular ties are embedded.	No.	1. Through Sister City relationship with Hanamaki, Japan, working to provide Japanese-language learning in area schools and to send a teacher annually to Japan. 2. Annually host students from Tennoji HS in Osaka, Japan (a designated “Super Science High School”). 3. Chinese language learning available through Confucius Institute at University of Central Arkansas. 4. Designated Humanities faculty member appointed to coordinate a Global Learning Work Group for the school. 5. Actively promote the Department of State’s National Security Language Initiative for Youth (NSLI-Y) scholarship to students.

Table 3. *Study Abroad and International Activity at State, Residential STEM Academies in 2015-16* (continued)

Illinois Mathematics and Science Academy	IL	<p>School Sponsored Exchange Programs:</p> <ol style="list-style-type: none"> 1. Russia (January, 12 students) for an exchange school program 2. China (Spring semester, 2-6 students) for a research exchange program 3. France (March every other year, 12 students) for an exchange school program <p>School-Sponsored Service Learning Programs:</p> <ol style="list-style-type: none"> 1. Ecuador (Summer, 6-12 students) for a service trip 2. Peru (December/January, 15 students) for a service trip <p>Intersession Programs (Week-long between fall and spring semester that are led by staff, parents, or alumni. These are irregular year-to-year):</p> <ol style="list-style-type: none"> 1. China (March, 14 students) for a cultural experience 2. Spain (January, 12-18 students) for a cultural experience 3. England (January, 12 students) for a cultural experience 	No.	No.	<ol style="list-style-type: none"> 1. With an ongoing exchange program with Russia, students travel every-other-year to Russia. On alternate years, Russian delegates visit IMSA. 2. Typically 2-4 students participate in an international science fair in Japan each fall. 3. Typically, 2-6 students participate in another international science fair where the international destination varies. This year it was Australia.
Kansas Academy of Mathematics and Science	KA	No programs, though exploring the possibility.	NA	NA	<ol style="list-style-type: none"> 1. Enrolls international students from South Korea, China, and the Bahamas.

Table 3. *Study Abroad and International Activity at State, Residential STEM Academies in 2015-16* (continued)

Carol Martin Gatton Academy of Mathematics and Science	KY	Four programs for academic year 2015/16: 1. Costa Rica ecology study abroad for college credit (January, 16 students) 2. Italy (January, 26 students) for a cultural experience 3. England literature study abroad for college credit (July/August, 48 students) 4. China program sponsored by Confucius Institute (Spring Break, 12 students) for research	Yes, in some cases. Costa Rica and England programs provide credit that fulfills school curricular requirements.	Yes, in some cases. Costa Rica offers credit from WKU for Honors: Costa Rican Bio-diversity Studies (BIO 285). England offers credit from WKU for Honors: Introduction to Literature.	1. The school has a STEM + Chinese curricular pathway that involves 14 students. These students study in a college-level Chinese language course of increasing rigor each of their four semesters while also completing the school's STEM-based curriculum. 2. Three years ago, the school introduced a STEM + Arabic curricular pathway that involves five students. These students study in a college-level Arabic course each of their four semesters while also completing the school's STEM curriculum. 3. Promote the Department of State's National Security Language Initiative for Youth (NSLI-Y) scholarship. 4. Students are invited to apply and travel with any WKU-sponsored study abroad program. Typically, this involves two to three students per year. 5. Through NSF-funding, students travel to Taiwan or South Korea for 10 weeks to conduct research. The average is one student per year.
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Table 3. *Study Abroad and International Activity at State, Residential STEM Academies in 2015-16* (continued)

Craft Academy for Excellence in Science and Mathematics	KY	One program to be offered in 2015/16: 1. Germany/Switzerland (June) *Program is facilitated through EF Tours.	No, but the program will focus on renewable energy.	No.	NA
Louisiana School for Mathematics, Science, and the Arts	LA	One to two trips per year during the Special Projects session in early January. Destinations are not regular and are typically arranged through a tour provider—though not always.	Yes. Students earn credit for the required Special Projects session.	No.	1. In the past, have hosted exchange students from South Korea and Germany. Students were sent to Germany in one past year during summer. There is no sustained exchange program established.
Maine School of Science and Mathematics	ME	Two programs: 1. Europe where destinations vary year-to-year (Summer, 8-10 students) for a cultural experience. 2. Bahamas (January, 8-10 students) for an ecological research program	No.	No.	1. Enroll international students routinely at the school. 2. Exchange relationship with a Super Science High School in Japan.
Missouri Academy of Science, Mathematics and Computing	MO		NA	NA	1. Enrolls international students routinely at the school, actively recruiting in China, South Korea, Spain, Panama, and Thailand. 2. International culture events are implemented throughout the year with all students in the school.

Table 3. *Study Abroad and International Activity at State, Residential STEM Academies in 2015-16* (continued)

South Carolina Governor's School for Science and Math	SC	<p>January Mini Semester: Two to three trips per year. Up to 60 students participate. A tour company is used for planning. Locations vary, but programs topics fall into two categories:</p> <ol style="list-style-type: none"> 1. History—destinations in Europe, China, or Latin America. 2. Biology—destinations in Costa Rica or Ecuador's Galapagos Islands. <p>Summer Research: Up to 10 students participate in six-week, mentored summer research abroad in Germany and South Korea. The school is looking to double this number.</p>	Yes, for both programs.	No.	<ol style="list-style-type: none"> 1. International students come to South Carolina for summers to do research, living on campus. 2. Economics courses and Research courses integrate global business activities. 3. School-wide multi-cultural awareness programs feature international activities.
Texas Academy of Mathematics and Science	TX	NA	NA	NA	<ol style="list-style-type: none"> 1. Exploring the idea of implementing study abroad opportunities in the near future.

Note: The Alabama School of Mathematics and Sciences; the Georgia Academy of Arts, Mathematics, Engineering and Sciences; the Indiana Academy for Science, Mathematics, and Humanities; the North Carolina School of Science and Mathematics; and the Oklahoma School of Science and Mathematics did not respond to requests for this data. The Mississippi School for Mathematics and Science responded, but reported no study abroad or internationalization programs.

which initially funded study abroad in the post-World War II years for graduate students and scholars, now has an entire division that plans and funds high school study abroad. Among The Gatton Academy's immediate peer state, residential STEM academies, study abroad is becoming a routine endeavor.

Impact of Study Abroad

A targeted, partial review of the literature was conducted to evaluate impact assessments on study abroad to place this study in the context of related literature. This topic is divided into four sub-sections. First, the existing literature on the impact of short-term study abroad is considered. The next sub-section discusses how other researchers have measured impacts of programs on community belongingness. The third sub-section then looks at the relationship between personal growth and development and study abroad. The final sub-section reviews the literature of study abroad impact assessments that have previously been conducted with high-school aged populations. This study conducts an impact assessment of study abroad programs at The Gatton Academy, adding to the repeated calls within the literature for more empirical research that demonstrates the effect of study abroad on participants (Bolen, 2007; Dwyer, 2004; Oppen, Teichler, & Carlson, 1990, p. 213; Sowa, 2002; Stone & Petrick, 2013; Sutton, Miller, & Rubin, 2007).

Short-Term Study Abroad Assessment

While there is a gap in assessment literature for study abroad programs' impact on students in general, this is especially true for short-term programs since they have more recently become prevalent. Such programs now make up the majority of study abroad programs offered, but that was not always the case. Hulstrand (2006) points out that

“while short-term programs may have existed in some schools for more than a hundred years, data collection efforts have lagged behind” (p. 48). As short-term study abroad participation has increased from 45.2% to 62.1% of all study abroad from 1985-86 to 2013-14, calls within the literature to assess the impact of short-term study abroad programs have increased (Chieffo & Griffiths, 2004; Ingraham & Peterson, 2004; McKeown, 2009; McLeod & Wainwright, 2009; Sutton, Miller, & Rubin in Bolen, 2007; Sutton & Rubin, 2004; Tarrant, Rubin, & Stoner, 2014).

Chieffo and Griffiths (2004) conducted an assessment targeted at addressing short-term study abroad programs at the University of Delaware’s Center for International Studies. Short-term study abroad programs are defined as those programs that are eight weeks or fewer in duration, matching up well with The Gattton Academy’s study abroad programs. Chieffo and Griffiths specifically sought to measure whether students who took study abroad courses expressed global awareness—that the authors defined by the four concepts of “intercultural awareness, personal growth and development, awareness of global interdependence, and functional knowledge of world geography and language” (p. 167)—to a greater extent than students who took traditional courses on campus. Using a 21-item, self-designed survey that was designed using a Likert and frequency scale, the authors collected data with a sample size of around 1500 students. Using multivariate statistical analysis, they found that short-term programs are worthwhile educational endeavors that have significant self-perceived impacts on students’ intellectual and personal lives. Especially pertinent to this study, the researchers found statistically-significant evidence that study abroad has a greater impact on students’ personal growth and development on four out of five items (p. 170). This finding was

backed up by students' written comments on the assessment too. Chieffo and Griffiths report that the "the overwhelming majority of their comments related to out-of-classroom learning, both ideological and personal. About 27% of the comments from the abroad group included responses related to personal growth and development" (p. 173).

A recent study from Tarrant, Rubin, and Stoner (2014) used an experimental design to measure what they call "valued added" elements of short-term study abroad (p. 141). The study sought to measure the impact on participants' global citizenship. The authors succinctly capture the crux of the call for assessments on short-term programs, stating, "Skepticism has been voiced about whether the increasingly popular short-term study abroad format can offer students a sufficiently profound experience" (p. 146). Tarrant et al. studied 286 university students who registered into one of four courses either as a short-term study abroad or as a traditional, on-campus summer course during a university's Maymester or summer sessions. The on-campus summer course served as a control group for the experiment. The authors employed a quasi/field experimental design similar to this study's, using a pretest-posttest structure with survey instruments being given to participants on the first and last days of the course. Among their findings, they found that all students who studied sustainability showed increases in their measures of global citizenship, but those who studied abroad showed greater impacts and faster impacts across time on measures than those who enrolled in the on-campus courses (p. 151). Tarrant et al. write:

It is notable that significant increments in global citizenship were brought about after only 4 weeks of instruction. Some authorities have questioned whether short-term study abroad is a sufficiently potent force to bring about transformative

learning; however, the present study joins those that do support the efficacy of short-term international education. (p. 153)

In addition to this study's implementation of a control group, another noted strength of this study is that the authors examined differences between participants who were first-time study abroad participants compared to those who had studied abroad previously (19.6%, $n = 56$). The authors found that there was a statistically-significant difference on only one measure (an item on students' ecological consciousness), and it was a "very small and negative covariate effect ($r = -.05$ and $-.10$) for the pretest and posttest, respectively" (p. 157). This is applicable here since many Gatton Academy students—including those within the present study—become repeat study abroad participants.

The long-term effects of short-term study abroad have been addressed by some researchers. DeDee and Stewart (2003) used a descriptive, retrospective, correlational design to report on the long-term effects of a winter-term, short-term study abroad program for nursing students at the University of Wisconsin-Oshkosh. Program alumni of a comparative nursing course in France and England who had traveled in the last five years were invited to participate in the study (p. 239), ultimately generating 38 participants. The study question was, "How has your international study experience influenced your personal and professional life?" (p. 239). The researchers used Zorn's (1996) 29-item International Education Survey (IES) that measures impact on professional development, international perspective, personal development, and intellectual development. Responses to the questions were measured on a seven-point Likert scale. Spearman's rho correlation analysis was used to study correlation between

age of participants at the time of the study and the level of impact that the study abroad experience had on each individual. In the four broad dimensions, the questions related to the Professional Development category showed the lowest grand mean (4.18). Personal development had a grand mean of 4.34, Intellectual Development 4.79, while the questions dealing with the International Perspective category generated the highest grand mean (5.08). The study found that the positive effects of study abroad may wear off over time. The correlation analysis showed that “younger respondents experienced greater impact” (p. 240).

In a similar study, Smith and Curry (2011) studied the long-term effects of participation of community college nursing students who participated in a short-term study abroad program in Ecuador during a 10-year window from 1999-2008. The studied population had taken a transcultural nursing course online and then spent two weeks abroad in a clinical setting. Smith and Curry used a non-experimental, descriptive study design (p. 17). Similar to DeDee and Stewart (2003), Smith and Curry also used Zorn’s (1996) 29-item International Education Survey (IES) as their research instrument, netting 36 responses. Mean scores for the four areas were “Professional Role = 5.73, International Perspective = 5.35, Personal Development = 5.32, and Intellectual Development = 4.68” (p. 18). Smith and Curry concluded that study abroad experiences positively impact future professional and personal development of nurses over the long term.

Community Belongingness

Short-term study abroad programs put students in an immersive learning community with others in an intensive, around-the-clock setting. This learning

community involves not only participants' peers, but their faculty too. Astin (1993) studied the effect of involvement in *What Matters in College: Four Critical Years Revisited* by considering the relationships and interactions that highly-involved students have with others. Astin measured the impact of student-faculty interactions without directly involving study abroad. However, the findings are generalizable to a study abroad experience. The major study was supported in part by the National Science Foundation. Considering both student-faculty interactions and student-student interactions, where Beta $\pm .05$ is significant (p. 313), Astin looks at how these interactions affect students' development. Astin controlled for other factors and between-institutional variables and concludes that there is a positive, significant effect on these interactions and how student involvement is impacted. As the present study examines the impact of study abroad on participants' perceptions of their belongingness within their learning community including faculty, staff, and other students, Astin's study is important to consider.

First looking at faculty-student interactions, Astin's (1993) measures considered interactions "such as being a guest in a professor's home, working on a professor's research project, assisting faculty in teaching a class, and hours per week spent talking with faculty outside of class" (p. 383). Short-term study abroad programs like those facilitated by The Gatton Academy pair faculty and students in environments where as much time is spent during plane rides, strolls, or meal times discussing other topics than the academic subject matter at hand, pitting students and staff and faculty in personal, interactive settings. Astin found that student-faculty interaction results in a positive correlation with student satisfaction of faculty ($\beta = .24$). Further, there is positive

correlation on each area of personal growth ($\beta = .16$) (p. 383). When a faculty member works closely with a student in a setting that goes beyond the curriculum and instruction, for example, when a student has their work personally critiqued by faculty, a positive correlation ($\beta = .18$) is noted on students' self-rated writing ability (p. 384). Astin concludes that frequent student-faculty interaction is critically important to student development (p. 384).

Astin (1993) measured student-student interactions considering a wide range of items, including students discussing course material with one another, working together on projects, and hours per week socializing with other students (p. 385). Again, while Astin did not directly look at study abroad, Astin's findings can be generalized to short-term study abroad because of the close student-student interactions facilitated by such program models. Astin found that students who have significant interactions with other students have higher satisfaction with student life ($\beta = .20$), with their faculty ($\beta = .15$), with interpersonal skills ($\beta = .19$), and overall academic development ($\beta = .15$) (p. 385). Astin concludes that frequent student-student interaction should be facilitated by college personnel by finding "ways to engage students in extracurricular activities and other programs that encourage student-student involvement" (p. 386).

In a study that uncovered the importance of belonging with youth populations, Anderson-Butcher and Fink (2005) studied youth at United Way-sponsored activities to determine what factors could predict risk and problem behaviors. Of the 98 students studied, ages ranged from 9 to 14 years old. Among other developed measures, the researchers used a five-item belonging scale developed by Anderson-Butcher and Conroy (2002) to determine if participants felt "comfortable, supported, and accepted at the

program” (p. 13). A correlational analysis was performed with students’ reported sense of belonging, attendance rates, age, risk and protective factors, and problem behaviors.

For their purposes, Anderson-Butcher and Fink concluded,

A sense of belonging was uniquely, significantly, and positively related to several (sic) factors, including community opportunities and reward for pro-social involvement and enhance perceptions about the importance of school for later in life. Likewise, belonging was independently negatively related to attitudes toward anti-social behavior and sensation-seeking. (p. 17)

The authors conclude that researchers who develop programs for youth should study what yields a sense of belonging for participants, noting that such findings “would be invaluable to youth-development administrators and leaders in attracting and keeping participants and, subsequently, in positively influencing their lives” (p. 19).

Berdan and Berdan (2013) write about student development, applying the concept to high-school aged teens, travel, and the resulting community that forms on international excursions. Berdan and Berdan advocate for teens to travel, stating that the experiences lead to new friendships and to one’s diversity of friendships. Writing on the community attributes that form when students travel together, Berdan and Berdan state:

They will learn from one another, have formative experiences together, and forge bonds that can be some of the strongest they’ll ever make. International excursions tend to bind people together much faster and much more closely because of the intensity of the experience. (p. 174)

Braskamp, Braskamp, and Merrill (2009) looked at the impact of study abroad on spring 2008 semester study abroad participants’ cognitive domain, intrapersonal

development, and interpersonal development. Braskamp et al. used a pretest-posttest survey design with matched samples—as used in the present study—and matched 245 students who completed all surveys. For the purpose of belongingness, the interpersonal development dimension is examined. This is defined by the authors as including “relating to others in terms of moving from dependency to independence to interdependence” (p. 106). Among all 245 participants’ means, statistically-significant differences were found in pre and posttest change in all comparisons examining interpersonal development ($p < .001$).

Study abroad’s impact on belongingness is a relatively unstudied dynamic within the study abroad impact assessment literature. Olszewski-Kubilius (2002) asserts that such studies that focus on the social and emotional adjustments of high school students who go into early college programs are also under-studied. Baumeister and Leary (1995) outline a hypothesis on human beings’ fundamental need to belong, stating that one’s sense of belonging is tied to “multiple and strong effects on emotional patterns and on cognitive process” (p. 497) and that feelings of not belonging can have negative impacts on health. Baumeister and Leary advocate that belongingness needs to be studied through research applications to various fields (p. 521). Though belongingness is not a common construct to approach study abroad programs’ impact, these calls are picked up in the present study.

Personal Growth and Development

Study abroad impact assessments show a clear, emerging theme that personal growth and development occurs as a result of student participation in study abroad. This is already demonstrated in the above-mentioned study on short-term study abroad

conducted by Chieffo and Griffiths (2004). This section looks at other studies that back up these findings. While pre-departure students often cite career or professional reasons for choosing to study abroad, it is often sentiments of personal growth and development that have the largest impact upon students after their study abroad program. Gmelch (1997) writes:

What the students learn about other cultures is often superficial, yet the experience is found to be educational in ways that were unexpected. Much of the personal benefit of travel comes not from what students learn about the places or cultures they visit, but from the need to continuously make decisions and deal with the demands of daily life in new and unfamiliar settings. It is suggested that these experiences foster personal development. (p. 475)

This thought is leading to a new, emerging line of research within the study abroad assessment literature. Coelho (2010) calls for “a new approach in research [. . .] to clarify short-term developmental patterns of competence” that can “serve in facilitating personal growth and educational development of the student in a given cultural milieu” (p. 55). Meyer-Lee and Evans (2007) add the category of Social and Emotional Growth as one of seven categories by which to measure the impact of study abroad with current students (p. 66). Sutton, Miller, and Rubin (2007) further this call. They point out that much of the existing impact assessment literature on study abroad pertains to intercultural awareness, but “other areas of personal growth and development [. . .] are less documented” (p. 47).

Even early on in the body of study abroad impact assessment research, the personal impacts of growth and development of the self was included in some

assessments. One of the first large-scale approaches to measuring study abroad was conducted by Oppen, Teichler, and Carlson (1990). The authors used a pretest-posttest longitudinal design “to observe changes” (p. 12) among students who studied abroad. The study was vast. It included 82 study abroad programs, with study participants from the United Kingdom, France, Germany, Sweden, and the USA. In total, 439 participants completed both the pretest and posttest. Standardized statistical analyses including *t*-tests, ANOVA, MANOVA, regression, and factor analysis were all used (p. 17). When the study was published, impact assessments of study abroad programs were rare. The authors saw their study as fresh and ground breaking, calling it an “exploratory study to open up the research field” (p. 19).

Among Oppen, Teichler, and Carlson’s (1990) diverse approaches, social confidence, personal confidence, and negative self-efficacy were studied as indicators of the impact of study abroad. The authors hypothesized that “students would lose a bit of self-confidence if their prior perceptions are shaken by experiences in other countries which lead them to rethink what they had known before” (p. 141). In this first study that looked at indicators of personal growth and development and the relationship with study abroad, no statistically-significant changes were found among 14 studied items. The authors wrote, “Neither social confidence nor personal confidence was higher, on average, after the study abroad period as compared with before” (p. 142). Yet, the authors noted high variability among their subjects. Some participants had drastic changes—both positive and negative—that canceled each other out. This further mystified the effect of study abroad on a participant’s personal development, opening the door to further exploration in the field.

Thot (1998) performed an impact assessment using participants from the Congress-Bundestag Youth Exchange (CBYE). The CBYE is a one-year exchange program facilitated by the United States Department of State. The program is designed for American students to study and perform an internship in Germany. The program is 60% funded by the German government and 40% by the United States government. While this scholarship and study abroad experience is available for students immediately following high school, Thot's methodology included participants ranging in time from those who had just returned from their year abroad to participants who were as many as 14 years removed from their study abroad. As a result, the age range of participants was highly varied. Thot used a 41-item questionnaire and solicited 166 participants.

Thot's (1998) approach was broad, and it did not set out to particularly measure the effects of the study abroad program on personal growth and development. Yet, these themes emerged through the participants' responses. Thot asked participants to rate extra-curricular experiences while on study abroad on a Likert-type rating of satisfaction. Respondents' ratings on independent travel were easily the highest rated, with 90.4% rating the experiences as either High or Medium-High (70.5% rated as High) (p. 28). One item on Thot's questionnaire asked participants, "What was the best thing that happened to you while attending the program?" (p. 72). Thot reports that "there were students who felt that their personal development during the program was the best thing that happened to them" (p. 39), as the experience broadened their views, helped them gain independence, open-mindedness, and clarity on their own personal goals.

A strength of Thot's (1998) design is that some participants were removed by as many as 14 years from their study abroad experience, allowing these individuals time to

process the impact of their experience. This long-term perspective is rare in study abroad evaluation, since critics have questioned whether if immediate impacts of study abroad—even when statistically-validated—persist once the student re-embeds in the routine life back home. One of Thot's items asked participants how the program had enriched their lives (p. 52). Participants reported a greater sense of maturity, independence, enriched views on personal situations, and the ability to make better friendships (p. 53). It is noteworthy here that the participants cited reasons of improving career prospects, improving foreign language skills, and getting travel abroad experience as their major reasons for choosing to study abroad (p. 18). However, after the study abroad program, the assessment reveals that the participants remark the greatest impacts on elements of personal growth and development rather than career or language development.

Ehrenreich (2006) used a qualitative approach to understand the impact that study abroad had on a population ($N = 22$) of individuals who had been language assistants (student teachers) in Germany while on study abroad. Through semi-structured retrospective interviews, Ehrenreich chose to evaluate the impact of the assistantships in four ways, including personal learning. Ehrenreich's interviews resulted in the analysis of 630 pages of transcripts that were analyzed using the MAXQDA software (p. 205), a program that analyzes text. Much like Thot's (1998) findings, participants in the Ehrenreich study reported that language and culture were their main motivators for going abroad (language has a direct career-advancement angle within the Ehrenreich research since these participants were training to be teachers of the German language), yet when asked after their year abroad what was the most important experience they had, Ehrenreich reports that the “overwhelming majority of informants (20 of 22, or 91%)

mentioned personal development and growth” (p. 190).

From a different angle, Ingraham and Peterson (2005) conducted an impact assessment on Michigan State University study abroad participants using both quantitative and qualitative methods. Sources of data were written reports from faculty who led study abroad programs, the University’s database, departmental surveys, and a survey instrument created by Ingraham and Peterson that was issued as a pre and posttest for study abroad participants. Ingraham and Peterson created a 27-item survey that sought to measure “intellectual growth, personal growth, intercultural awareness, and professional development” (p. 87). Ingraham and Peterson state the need to quantify the changes in personal growth when students study abroad. Their sample consisted of 1104 students. The overall alpha measure was .90 for all five factors, with Personal Growth having the highest alpha level of .92 (p. 88). However, Ingraham and Peterson concluded that some of the impact on personal growth has less to do with being abroad than it did “intensely learning in a small group, together day and night in an unfamiliar setting” (p. 93).

Dwyer (2004) conducted an ambitious, longitudinal study of former study abroad participants from the Institute for the International Education of Students (IES) program to compare evaluation results among program duration. Armed with the context that 72% of study abroad participants were going for a full year or longer in the 1950s and 1960s and that only 20% of study abroad participants were studying abroad for a year or longer in the 1990s, Dwyer wanted to understand the effect of program length on outcomes. Dwyer’s study invited 17,000 previous study abroad participants who had studied abroad from 1950 to 2000 and resulted in a 25% response rate ($N = 3,723$). Of the participants,

32% had studied abroad for a full year, 62% for a semester, and 6% for a summer term (p. 155). Dwyer reports findings across five areas, one of which is personal growth. Dwyer finds that “the impact (on personal growth through study abroad) is impressive regardless of term lengths. This is particularly the case in the areas of increased self-confidence, tolerance of ambiguity and maturation” (p. 160). Among all participants, 96% reported increased self-confidence (97% of those who participated in study abroad for a summer term and 98% of those who participated in study abroad for a full year). Increased maturity was reported by 97% of the participants (95% of those who participated for a summer term and 98% of those who participated for a full year). Dwyer concludes that those who study abroad for a full year do have more significant impacts than those who go for shorter durations, though in the case of personal growth, the impact is still significant no matter the duration of the program (pp. 160-161).

Laubscher (1994) observed students returning to Pennsylvania State University after study abroad holistically changed, and set out with the objective “to find out how students on their own have used out-of-class experiences (while abroad) to enhance their learning” (p. xiv). Laubscher used an embedded case study design with 30 Penn State students who studied abroad during the fall 1990 semester. Laubscher’s focus was on the learning process while abroad, but concludes that students’ out-of-class time while on study abroad served as a catalyst for personal growth and development that leads to greater autonomy, independence, self-confidence, and tolerance of ambiguity. Of the participants Laubscher interviewed, “the informants’ discussion of educational benefits clearly included these and other abstract qualities among the personal areas of development” (p. 77).

High School Study Abroad Assessment

Study abroad impact assessments at the secondary school level are rare, though there are a few precedents. Armstrong (1982) measured the impact of an immersive, seven-week, language homestay program hosted by Indiana University's Honors Program. Applicants for the study abroad program were selected from a pool of nominated secondary school students throughout Indiana. Students in this program are nominated by a foreign language teacher and then go through a selection process that involves written and oral foreign language tests, an application, and an interview. Selected students are then placed for a homestay and intensive language study. Armstrong designed a two-pronged study to measure the program's impact. First, a pretest/posttest design was constructed to measure participants' Spanish-language gains through speaking, writing, listening, and reading while they were in a seven-week program in Mexico (p. 366). Second, a 120-item questionnaire was developed and sent to 120 of the program's alumni who were in college at the time of the survey. In the first prong of the study, Armstrong found that a seven-week intensive program abroad had greater language-learning impacts than an entire year of traditional classroom instruction in a traditional school setting (p. 367). For example, while typical gains from a full year of traditional classroom language study on a 100-point test yields an eight point gain in listening comprehension, Armstrong found that seven weeks in the intensive program yielded a 10.18-point gain (p. 367).

The second prong of Armstrong's (1982) study yields evidence for the longer impact of study abroad undertaken during the secondary school years. The study solicited 88 responses from the 120 alumni surveyed. One of Armstrong's findings was

that study abroad at the secondary-school level clearly indicated a desire within participants to study abroad again as undergraduates. Thirty-five of the 88 respondents (40%) had already studied abroad again since their high school study abroad program when they resubmitted their questionnaire, and the only reason noted by other past participants for not going abroad again was financial. The interest in additional study abroad was intact. This is evident in the responses of 72 of 88 (82%) of participants who reported they were planning additional travel abroad (p. 369).

Boyd et al. (2001) studied middle-and-high-school aged students who had participated in an International 4-H Youth Exchange study abroad program. The International 4-H Youth Exchanges are summer study abroad programs lasting four to eight weeks and are for 4-H students ages 12 to 18, while some programs require students to be at least 15 years old. The programs are held in Costa Rica, Finland, Japan, Norway, and South Korea. One dimension of the study asked participants about their involvement with their community before and after their study abroad experience. The authors surveyed 108 alumni of the International 4-H Youth Exchange study abroad programs by mail. Only 28 of the alumni returned their surveys. A post-then-pre-test design was used, and responses were analyzed using *t*-tests. Results showed statistically-significant evidence that participating in these study abroad programs increased participants' interest in community activities. Participants reported that they are involved in community activities, with a $p < .00$.

Stitsworth (1988) used a short-term homestay program in Japan to measure personality changes in high-school aged participants. Stitsworth's study used a pretest-posttest design with the California Psychological Inventory as the testing instrument.

The study included 154 study abroad participants and a control group of 112 students who did not study abroad. ANCOVA was used to measure differences. Stitsworth's findings indicate that study abroad participants showed statistically-significant increases in self-confidence, flexibility, and independence as compared to the control group. Also looking at short-term study abroad impacts, Iwami (2001) studied two Japanese high school students' English communicative performance on a five-day study abroad in the United States using videos of interactions with Americans to analyze the students' language abilities.

While short-term study abroad programs for high school students are little-studied, high school students have been participating in semester and year-long exchange programs for decades. The impacts of these programs have been evaluated by some researchers. Enomoto (1996) presented a case study on Japanese language learning of three Australian students who spent an exchange year in Japan in 1994. His work used pre and posttest interviews and was limited to language-learning criteria such as students' abilities with pronunciation, appropriateness of word choice, and range of expression (p. 100). Bachner and Zeutschel (2009) focused on former high school exchange students from Germany and the United States who participated in the Youth for Understanding programs between 1951 and 1987. A mixed-methods approach was used that included data collected through survey and interviews. Bachner and Zeutschel found that "international youth exchange is a clearly consequential and positive experience in the estimation of the majority of study respondents" (p. 64) and that "the single best predictor, or indicator, of satisfaction/success is the extent to which one felt the exchange had a positive effect on one's level of self-development and maturity" (p. 77). Hao (2012)

studied a population of 50 Mainland Chinese students who were studying abroad for an exchange year, employing the popular Intercultural Development Inventory (IDI) to measure changes to students' intercultural sensitivity levels as a result of study abroad.

Hansel and Chen (2008) examined the long-term effects of students who participated as an exchange student during high school 20 to 25 years after their exchange experience with the American Field Service (AFS) program. Almost 12,000 program alumni were contacted and 1,920 returned surveys. A control group was created by having each respondent provide contact information for two high school peers, and this resulted in a control group of 511 responses so that effects could be compared between students who had participated in a foreign exchange program as a high school student and those who had not. The study included an instrument called the Educated Intercultural Traveler that has an Eigen value of 1.429 for the composite variable among the instrument's four items. Using the Educated Intercultural Traveler instrument, Hansel and Chen found a statistically-significant higher level of educational attainment among the high school exchange participants than the control group. The high school exchange participants also went on to study abroad *again* in college at a far greater percentage than the control group (34% of AFS returnees compared to 22% of the control group). The four-item instrument had a significant correlation for the entire group ($p < 0.01$) (p. 15), indicating statistically-significant evidence that exchange experiences as a high school student correlates with more advanced degree attainment and repeat study abroad experiences in college.

In a study on Generation Y students' intentions of studying abroad, Pope, Sánchez, Lehnert, and Schmid (2014) hypothesized that younger students in the age 18 to 25 range

would have a higher desire to study abroad than Gen Y students over 25 years old. Their belief was that younger students want more collegiate opportunities that include personal development, while older students are more want to be focused on career development opportunities. Their findings were significant to the $p < .01$ level that younger students intend to study abroad more than their older generational peers. While this study looked at college-age students and not high-school aged students, the findings indicate that younger students are ripest for study abroad.

Limburg-Weber (1999) called for study abroad as an option for gifted and talented students, pointing to the benefit of personal development. Berdan and Berdan (2013) pick up on this same call, serving as a precursor for the present study's focus:

Spending time abroad also facilitates personal growth and development. Most teenagers return home not only with radically expanded ideas about other people and cultures, but also with new perspectives on themselves and their own lives. They develop more self-confidence, even after having been abroad for only a few weeks. They will navigate public transportation systems, use foreign currency, interpret maps and schedules not always in English, and quite possibly at some point, have to ask for help from strangers. All this they will have done on their own or with peers, but without their parents' help. These experiences not only can make our teens feel good about themselves, they also result in an improved sense of maturity and independence. Such can-do confidence is critical to future success, first in academics and later in the workplace. (p. 174)

To this author's knowledge, no study has considered the effect of study abroad on a gifted and talented student population at the secondary school level to measure

differences in perceptions of community belonging or personal growth and development.

Conceptual Framework

This chapter has included a partial, targeted review of the literature pertaining to this study. Before closing the chapter, a conceptual, theoretical framework for this study's research questions on peer belongingness, mentor belongingness, and personal growth and development is identified and discussed.

Hierarchy of Needs

The guiding conceptual framework for this study is grounded in Abraham Maslow's classic hierarchy of needs theory. First introduced in 1943, Maslow further developed his theory in his seminal *Motivation and Personality* (1954) detailing a framework for human motivation. The theory outlines five levels of motivation. Within the theory's hierarchical structure, there are clear mandates that each lower level must be sufficiently satisfied before motivation guides an individual to seek fulfillment at the next level. However, the theory does not operate solely in ascension toward the highest level. One can also descend through the hierarchy if lower-level needs that were once satisfied become unsatisfied.

Maslow's (1954) hierarchical theory starts with fundamental human needs. The level called *physiological needs* is the lowest of the five on Maslow's original theory. Maslow asserts that humans must have their basic needs for food, water, sleep, and bodily functions fulfilled before motivation can advance one to seek other needs. When the physiological level is "relatively well gratified" (p. 84), Maslow states that a new set of needs emerge. The second level of motivation is called *safety needs*. At this still lower-level of need, individuals seek fulfillment of shelter and familiar settings, placing

the individual on a routine of consistency and stability. The safety needs level transcends physiological needs which might be driven by hunger to a higher motivation, one to secure not only today's food, but also tomorrow's.

At Maslow's (1954) third level, with food, water, physical needs, safety, and security fulfilled, *belongingness and love needs* surface for the individual, with a person recognizing their need and desire for the fulfillment and satisfaction that comes from interacting with others, belonging to a group, and finding meaning relationships (pp. 89-90). Belongingness then opens the way for individuals to seek *esteem needs*, the fourth level. Within esteem needs, Maslow includes the attributes of confidence and independence, along with achievement, adequacy, mastery, competence, freedom, reputation, prestige, status, dominance, recognition, attention, importance, and appreciation (p. 90). The fifth level, *self-actualization needs*, is Maslow's highest level. Maslow believed that even when all of the other needs were fulfilled, one would still feel "discontent and restlessness" (p. 91) and would then feel motivated to pursue who they were born to be. "A musician must make music, an artist must paint, a poet must write," Maslow wrote (p. 91), going on to include the desire to parent, to perform athletically, to invent, as other examples of the self-actualized individual who is fulfilling what they feel is their life's purpose.

Maslow's theory applies directly to study abroad programs. If a program designer is successful in taking care of students' basic needs of food, water, shelter, and safety, the student has the freedom to access higher levels of motivation. In an intensive setting, as Gatton Academy study abroad programs are, the student participant encounters new challenges and learning with their peers in an around-the-clock environment. The present

study operates under the presumption that this community dynamic, while traveling and studying abroad, accelerates and promotes Maslow's third level of belongingness needs. This dynamic is measured in this study through items related to students' own perceptions of peer and mentor belongingness. Correspondingly, when the student feels comfortable, accepted by the group, and part of the in-group, the student's motivation is then ripened to pursue needs at Maslow's fourth level, the esteem needs. This study is guided by the theory that the study abroad participant who feels belongingness can then seek fulfillment of self-esteem attributes such as confidence, curiosity, independence, and self-awareness. This study operates under the theory that participation in study abroad accelerates a student participant's advancement through Maslow's hierarchy of needs, opening the way to pursue the self-actualization stage.

Hierarchy of Needs in the Research

Maslow's hierarchy of needs has been applied repeatedly to research on study abroad. As examples, Andreasen (2003) applied Maslow's theory to create a formula that would measure students' or faculty members' self-motivation to become involved internationally. With the view that every potential participant in study abroad has a slew of external and internal barriers to overcome before going abroad, Andreasen argued that study abroad programs can be designed to promote participants through advancement on Maslow's hierarchical system (p. 67). Citron (2002) directly applied Maslow's hierarchy of need to study abroad program design, arguing that the theory could be applied to promote students' cultural integration. By looking at the theory through the host country's culture, program designers can help students first meet their basic, lower level needs for food, shelter, and safety. Citron argues that study abroad can be purposefully

sculpted by program designers to help students then achieve higher level needs on Maslow's scale, such as finding social connections not available at home or through activities that promotes skills, achievement, and self-expression. Citron views study abroad as an opportunity for students to continue towards self-actualization, writing, "Needs in this realm could be met on the home culture's terms if students define their life goals abroad as they did at home, or they could be met on the host country's terms if students change the way they define themselves or the meaning they ascribe to their pursuits" (p. 54).

Travel Career Ladder

Pearce (1988; 1991; 1993; 2005) adapted Maslow's hierarchy of needs into a new conceptual model called the Travel Career Ladder (Figure 2). Similar to Maslow's theory, the model has five levels, including physiological, safety or security, relationship, self-esteem or development, and fulfillment. Pearce's model, as Maslow's, states that lower-level needs must be met before ascending to fulfill other needs. Likewise, the concept assumes that one can descend and ascend within the framework if lower-level needs cease to be fulfilled. Yet, differing from Maslow, the model was adapted to evaluate a traveler's, particularly a tourist's, "relationship between patterns of travel motivation and travel experience" (Pearce, 2005, p. 226). The attributes that Pearce uses to define each of the five levels apply directly to the traveler.

Applying Maslow's concepts to the act of travel, the traveler's basic physiological and safety needs must be met before travelers experience gains in relationships and their sense of belonging, or need to affiliate with others. A traveler is then motivationally cultivated to access higher-level needs for self-esteem, including self-development,

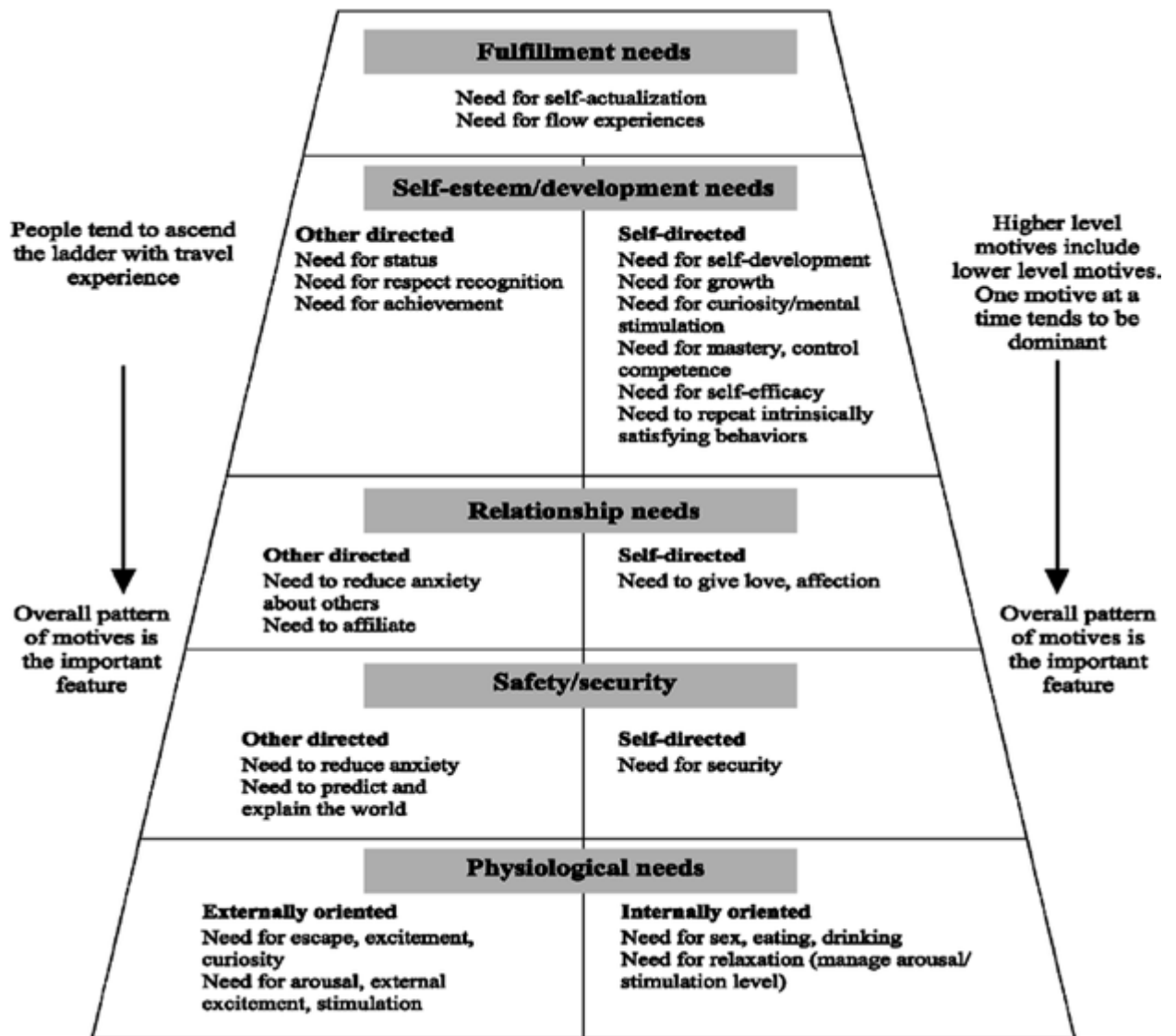


Figure 2. Pearce's (1991) Travel Career Ladder conceptual model (as depicted in Wong & Musa, 2014).

personal growth, curiosity, and self-efficacy (independence). In Pearce's most recent study with the model, conclusions are that self-development is the "central backbone" for all travelers' motivations, but individuals who are newest to the act of travel are particularly motivated by gains including personal development and relationship growth. This conclusion is particularly notable for Gatton Academy study abroad programs because of the age demographic that travels with the school. The students are 11th and

12th graders, who have fewer life and travel experiences accumulated. Pearce's findings indicate that these students are positioned for relationship growth and personal development. While Pearce modified Maslow's theoretical framework for the tourist, these same concepts apply to the student traveler on study abroad as well. Pearce's concepts are directly linked to the variables of peer belongingness, mentor belongingness, and personal growth and development measured within this study.

Chapter Summary

This chapter covered a partial, targeted review of literature relevant to this study. The research on specialized STEM academies was reviewed to examine what research has been done on schools similar to and including The Gatton Academy. Study abroad has been examined from its historical roots through current trends and practices, including the present practices within high school study abroad. The literature on the impact assessments of study abroad on participants has been examined. Finally, theoretical frameworks, Abraham Maslow's (1943; 1954) classic hierarchy of needs model and the since-adapted Travel Career Ladder model (Pearce 1988; 1991; 1993; 2005) were applied to this study on the impact of study abroad on Gatton Academy students' sense of community belongingness and personal growth and development. Chapter II describes in detail the methods with which this research was conducted.

CHAPTER III: METHODOLOGY

Introduction

The purpose of this summative, impact evaluation is to assess effects of Gatton Academy study abroad programs on student participants' perceptions of peer belongingness, mentor belongingness, and personal growth and development, as well as to compare differences among program models being employed by the school. This study is guided by six research questions:

1. For student participants, do Gatton Academy study abroad experiences enhance their perception of belongingness with fellow peers in the school community?
2. To what extent do differences of student participants' perceived effects on peer belongingness exist among the three program models employed by The Gatton Academy?
3. For student participants, do Gatton Academy study abroad experiences strengthen their perception of mentor/mentee relationships with school staff and faculty?
4. To what extent do differences of student participants' perceived effects on mentor/mentee relationships with school staff and faculty exist among the three program models?
5. For student participants, do Gatton Academy study abroad experiences lead to increased perceptions of personal growth and development?
6. To what extent do differences of student participants' perceived effects on personal growth and development exist among the three program models employed by The Gatton Academy?

The previous chapter provided an overview of relevant literature. This chapter focuses

on the research design and methods employed to investigate the six research questions.

Research Design

A quasi-experimental, pretest and posttest design was implemented to measure differences between study abroad participants' perceptions of their peer belongingness, mentor belongingness, and personal growth and development. While randomized experimental designs are always preferred, employing a control group or random assignment was not possible in this study. Study abroad participation has become a central part of The Gatton Academy's school culture. Over 90% of students at the small school study abroad. As Weiss (1998) wrote, "when a program already serves everyone, there are no leftover people to assign to a control group" (p. 88). As another complication, students could not be randomly assigned to a Gatton Academy study abroad program, because their own selection of destination and program content are important life decisions. These design complications are not unique to The Gatton Academy study abroad programs alone, but are indeed routinely encountered by evaluators who measure the impact of study abroad and other programs.

As a result, a slew of previous researchers have offered significant guidance on research design. Rossi and Freeman (1993) outlined a hierarchy of five research designs for evaluations. While recognizing that randomized experiments with strong control groups are the "flagship of evaluation," pretest-posttest comparison design of a treatment was listed as the second most-preferred design. The design implemented by this study was Rossi and Freeman's first recommended course when randomization and a control group are not possible (pp. 324-325). Carlson, Burn, Useem, and Yachimowicz (1990) echoed the optimal value of a fully-randomized, pretest-posttest control group design, but

stated, “Since for a variety of practical and ethical reasons random assignment to study abroad cannot be made, true experimental research designs are not feasible. Instead, research on study abroad must be limited to pre-experimental and quasi-experimental research designs” (p. 3). When a researcher does not have control over selecting subjects or randomly assigning participants to experimental conditions or treatments, Campbell and Stanley (1963) also recommended quasi-experimental research designs as “viable alternatives with the primary advantage of providing an approximation of an experimental design” (as cited in Carlson, Burn, Useem, & Yachimowicz, 1990). Opper, Teichler, and Carlson (1990) recommended the pretest-posttest measures when differences before and after a study abroad program are being assessed, writing, “This measure is undoubtedly the most suitable approach” (p. 189).

Setting and Participants

The present study took place at The Gatton Academy, a specialized, residential high school for 11th and 12th graders in Bowling Green, Kentucky. The school is located on Western Kentucky University’s (WKU) campus. Founded in 2007, it is co-educational and highly selective. Sophomores in high school with advanced interests in science, technology, engineering, and mathematics (STEM) careers apply to the school. High school students at The Gatton Academy take courses with the wider university population at WKU. Beyond the classroom, learning is enhanced through two main experiential learning opportunities: research and study abroad (Roberts, Breedlove, & Strode, 2016). Study abroad in particular has become a major component of the program, with the vast majority of students traveling on a program with the school during high school. Of the Academy’s recent class of 2016 graduates, 92% had studied abroad with

the school. The study was conducted in 2016, when the Academy enrolled 120 students—60 in each grade. The school is expanding to a total of near 200 students by fall 2017. The school's expansion and subsequent possible expansion of study abroad program offerings made this study's window an optimal time for program assessment.

In the school's foundational days, only non-credit study abroad programming was offered. In the inaugural academic year, students were offered the opportunity to travel to Italy in Winter Term 2008. At the time, there was no intention to form other programs besides a similar annual program. The following school years continued along this course, featuring travel programs to the Iberian Peninsula (Spain and Portugal, Winter Term 2009), Greece (Winter Term 2010), and the Mediterranean (Italy, Monaco, France, and Spain, Winter Term 2011). After these programs' success with high participation numbers and frequent anecdotal praise from participants, the school formed greater ambitions for its study abroad program. The year 2011 was pivotal for the Academy's study abroad program in the following ways: (a) it was decided that the annual non-credit winter program from then on would alternate between Italy during even years and Greece during odd years and (b) the Academy introduced two credit-bearing study abroad programs following WKU's Faculty-led Study Abroad (FLSA) model. The first newly-created FLSA program was a research-based field course in Costa Rica in the Winter Term, while the second was a Summer Term, traditional classroom abroad program in England. The programs have been routinely implemented in this way since 2011. This study conducts an impact assessment on the three study abroad programs that the school hosted in 2016: Program A: Non-Credit (Italy), Program B: Faculty-led Field-Study (Costa Rica), and Program C: Faculty-led Traditional (England). The three program

models differ from one another in significant ways. Comparison of each program's aggregate data was compared within this study to determine if program model design might determine the impact of study abroad with this population.

To encourage participation in study abroad and help lower the cost to students, The Gatton Academy has offered a scholarship for each student since the program's foundation. Originally, the intent for the scholarship was to aid in the cost of winter programs. However, when the summer program was introduced in 2011, the Academy decided that the Winter Term scholarship—if not spent—could also apply to lower the cost of summer programs too.

Gatton Academy Study Abroad Program Objectives

With the growth in the study abroad dimension of the school, The Gatton Academy established a set of goals for its study abroad programs. Ingraham and Peterson (2005) outlined six goals of study abroad for Michigan State University study abroad participants (p. 84) that were multi-pronged, addressing intellectual growth, professional development, personal growth, intercultural competence, self-awareness, and the ultimate internationalization of the home campus. The goals outlined by Ingraham and Peterson were influential as The Gatton Academy staff formulated its own goals for its study abroad program. Five were articulated for Gatton Academy study abroad programs (The Gatton Academy, 2016a), paralleling the language when possible of the school's larger, stated goals. Phrases such as “companionship of peers” and “independent thought and action” were modified to fit the study abroad program goals, while another goal directly incorporated language from the school's creed. The present study seeks to assess the following two goals: (a) Accelerate the personal growth of each

student through increased confidence, self-awareness, and the abilities to think and act independently and (b) Build upon the sense of belonging with peers and mentors within the Academy community.

Prior to this study, the school had not formally evaluated its performance on any of these study abroad program goals. The way in which Gatton Academy students perceived the impact of their study abroad programs had only been reported anecdotally until now. To generate ideas for this study's direction, three focus groups were conducted in the fall semester 2014 with Gatton Academy students about the school's study abroad programs. Each focus group included four to eight students and was video recorded. Two of the three groups were conducted with students who had just returned from a study abroad program, and they were asked the following questions:

- Why did you pick the program you picked?
- What benefits did you get out of your program?
- In the previous question, how did you define *benefits*?
- What do you think the value of studying abroad is?

The third and final focus group was conducted with students who had signed up for a study abroad program, but who had not yet traveled. This group was asked:

- Why did you pick the program you picked?
- What benefits do you anticipate getting out of your program?
- In the previous question, how did you define *benefits*?
- What do you think the value of studying abroad is?

The sessions revealed that while some students mentioned study abroad programs as a way to expand global views and better understand distant cultures, more often, students

were defining their benefits and values in terms of deepening their connections to The Gatton Academy community and in terms of personal confidence and independence. Similar to Yashima's (2010) approach of using interviews and open-ended questions to sample participants' views before creating a specific direction for an impact assessment, these focus groups were used as guidance to direct the current study's scope. The themes of belongingness and personal growth and development that emerged during these focus groups became the impetus for this assessment.

Two models of evaluation were utilized in this study, the Goal-Attainment Model and the closely-related Effects Model. Hansen (2005) outlined the Goal-Attainment Model, calling it the "classic model" (p. 449) for evaluating a program. In Goal-Attainment Model evaluations, pre-stated objectives are assessed to determine how a program is delivering upon its own stated goals. This study sought specifically to address two of The Gatton Academy study abroad program's objectives. This study involved a close examination of the participants' perceptions of peer belongingness, mentor belongingness, and personal growth and development. By testing participants both before study abroad and immediately following, this impact assessment also followed the Effects Model. Outlined by Hansen (2005), Effects Models are described as analyzing a program before and after it is conducted (p. 450).

Participants

In August of 2015, the 2016 study abroad program dates, descriptions, and itineraries were announced to the 120 students enrolled at The Gatton Academy for the academic year. These programs were announced broadly to students and parents alike at in-person orientation sessions, on the school's website, and through listservs that all

students and parents were subscribed. Application deadlines were advertised for the three study abroad programs, and students self-selected which program or programs they would apply to. As stated earlier, in this quasi-experimental design, no control group was available. The Non-Credit program traveled in January 2016 with 26 participants and all students participated in each dimension of the study. The Faculty-led Field-Study program traveled in January 2016 with 16 participants. All but one student from the Faculty-led Field-Study participated in all dimensions of the study ($n = 15$). The Faculty-led Traditional program traveled in July and August 2016 with 48 participants, all who participated in each dimension of the study. Across the three programs, the students shared many common characteristics. Due to of The Gatton Academy's selectivity as a school and because of its small scope and size, the study participants were all in the age range of 15 to 18 years old, all were from Kentucky, all were identified as gifted and talented students, and all had expressed interests in advanced careers in the science, technology, engineering, and mathematics fields. Differences among the program groups included that the Faculty-led Traditional participants were all at the same grade level (rising 12th graders), while the Non-Credit and Faculty-led Field-Study groups were made up of students from both 11th and 12th grades. Additionally, as Weiss (1998) pointed out, the comparison groups will no doubt differ from each other by "the sheer fact that participants selected themselves" (p. 200). The pretest data was one way to determine if any differences in groups exist in terms of peer belongingness, mentor belongingness, or personal growth and development before their programs abroad commenced.

Instrumentation

Study abroad impact assessments that measure the effect of study abroad on cognitive and affective learning was promoted by Sutton, Miller, and Rubin (2007). Some well-known scales for assessing study abroad already exist, such as Hammer and Bennett's (2001) popular Intercultural Development Inventory (IDI), the Cross-Cultural Adaptability Inventory, the Multicultural Personality Questionnaire, and the Intercultural Sensitivity Inventory. Yet, these scales focus largely on cross-cultural skills. No existing scale was ideal for the goals of this study. Therefore, Sutton, Miller, and Rubin recommend that researchers produce local tests, with the benefit "for great content validity through shaping items to the specific content" of local study abroad programs (p. 36). Because an existing instrument was not on the market to measure the impact of study abroad on participants' views regarding peer belongingness, mentor belongingness, and personal growth and development, instrumentation was built from the ground up for this study. Although it was a time-consuming process, it allowed for the best approach to measure the specific variables outlined by this study.

While no existing instrument was ideal for this evaluation, Anderson-Butcher and Conroy (2002), Kashdan et al. (2009), and Ryff (1989) all included instruments that served as models and inspirations for the two scales created for this study. First, a 20-item Belongingness Scale was designed to measure perceptions of belongingness in The Gatton Academy community—both with peers and with faculty-staff mentors. Second, a 17-item Personal Growth and Development Scale was designed to measure perceptions of participant confidence, curiosity, independence, and self-awareness—attributes that define the term personal growth and development for this study. The Belongingness and

the Personal Growth and Development Scales were designed to be delivered in identical form at the pretest and posttest. The pretest (Appendix A) and posttest (Appendix B) exams for the Faculty-led Field-Study program are offered as examples, though the only variation made for the Non-Credit and Faculty-led Traditional programs were the substitutions of program destination.

In addition to the items on the Belongingness Scale and Personal Growth and Development Scale, the pretest and posttest have additional evaluative questions that separate them. The pretest includes the following additional questions at the beginning of the survey:

- Are you a First-year or Second-year student at The Gatton Academy?
- Which gender do you identify as?
- Have you ever traveled outside of the USA before?
- To date, have you been on any study abroad program with The Gatton Academy before?
- If you answered Yes, which study abroad program/s have you already traveled on?

The pretest then includes two open-ended items at the end of the instrument:

- Why did you choose this study abroad program?
- What do you expect to get out of this study abroad program?

The posttest has additional questions at the end of the instrument. The next 10 items appear with the same 10-point level of agreement scale described above:

- This study abroad program lived up to my expectations.
- I am glad I selected this study abroad program.
- As a result of this study abroad program, I feel more confident.

- This study abroad program has added significant value to my Academy experience.
- I made new friends as a result of this study abroad program.
- I have grown intellectually as a result of this study abroad program.
- This study abroad program has made me more aware of my strengths.
- I am more connected to the Academy staff as a result of this study abroad program.
- This study abroad program has challenged my abilities.
- I feel more independent as a result of this study abroad program.

The posttest includes three open-ended questions:

- What does this study abroad program do well?
- What aspect of this study abroad program should the Academy expand upon?
- What would you change about this study abroad program?

Indicators for Key Variables

Indicators provide evidence that conditions exist or results have or have not been achieved and aid decision-makers in assessing progress toward the achievement of goals and objectives (Horsch, 1997). Therefore, indicators are essential in establishing accountability of a results-based system. With this in mind, the instruments' items were broken down into the following indicators to evaluate the research questions: perception of peer belongingness, perception of mentor belongingness with school staff and faculty, and perception of personal growth and development. On the pretest and posttest, the Belongingness Scale was listed as items 1 – 20, and the Personal Growth and Development Scale were listed as items 21 – 37. Specifically, the following items

address peer belongingness and research questions one and two: 1, 3, 4, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 18, and 19. Items pertaining to mentor belongingness with staff and faculty and addressing research questions three and four are: 2, 5, 13, 17, and 20. Items pertaining to perceptions of personal growth and development and addressing research questions five and six are 21-37. Participant responses were grouped by study abroad program model for comparison to other programs for research questions two, four, and six.

Assurance of Participant Anonymity

Participants were assured that their responses would be anonymous to the evaluator. Pretest and posttests were matched through a special code that was uniquely assigned to each student. The following were the first three questions on both the pretest and posttest:

1. What are the last two digits of your permanent home address? (i.e., If your home address were 123 Main Street, your response would be 2 3).
2. What are the last two letters of your mother's maiden name? (i.e., If your mother's maiden name is Smith, your response would be T H).
3. What are the numerical digits for your birth month? (i.e., If your birthday is in January, your response would be 0 1).

Using this unique code, each participant's pretest and posttest were independently paired for study while the identity of each participant remained concealed. A backup question was planned in case a student did not know or have a response to any of the three questions: *What are the last two digits of your personal cell phone number?* The backup question was used with one student, a twin, whose sibling was on the same study abroad

program. All pairs of pretest and posttest data were successfully matched using this identifying system.

Validity

An instrument's validity is defined as "a judgement by the stakeholders as to whether the tool or method being used is an accurate measure of the intended outcomes. This question of relevancy is a subjective determination that is not easily measured but can be decided based on the opinions of experts and stakeholders" (Deardorff & Deardorff, 2007, p. 94). Therefore, to validate the 20-item Belongingness Scale and the 17-item Personal Growth and Development Scale, a standardized procedure entitled the Content Validity Index (CVI) was used. Both item-level CVI (I-CVI) and scale-level CVI (S-CVI) were tested using the procedures outlined in Polit and Beck (2006). A panel of six experts, who work with and have traveled with Gatton Academy study abroad programs in a professional capacity, rated each item on both scales using the following criteria outlined by Davis (1992) and cited by Polit and Beck (2006): 1 = *not relevant*, 2 = *somewhat relevant*, 3 = *quite relevant*, and 4 = *highly relevant* (p. 491). The 20 items on the Belongingness Scale were validated with acceptable I-CVI procedures. The S-CVI for the Belongingness Scale was 0.95 (see Table 4)—comfortably beyond the standard of 0.80 for acceptability (Polit and Beck, 2006, p. 493). The 17 items on the Personal Growth and Development Scale were also validated item-by-item. The S-CVI for this 17-item set is 0.94 (see Table 5). Through this process, a total of three weak-performing items were removed from the scales before deployment to students.

Table 4

Validity Measures for the 20-item Belongingness Scale

Item	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Number in Agreement	Item CVI
1	4	4	4	4	4	4	6	1.00
2	3	4	2	3	3	3	5	0.83
3	4	4	4	4	3	4	6	1.00
4	3	4	4	3	3	3	6	1.00
5	3	4	3	3	3	3	6	1.00
6	3	3	3	2	3	3	5	0.83
7	3	4	4	3	4	1	5	0.83
8	4	4	4	4	4	4	6	1.00
9	4	4	4	3	4	4	6	1.00
10	3	4	4	3	3	4	6	1.00
11	3	2	3	3	3	4	5	0.83
12	3	3	3	2	3	3	5	0.83
13	4	4	4	3	3	3	6	1.00
14	4	4	4	3	4	3	6	1.00
15	4	4	4	4	4	4	6	1.00
16	4	4	4	4	3	4	6	1.00
17	4	4	4	3	3	3	6	1.00
18	4	4	4	3	3	3	6	1.00
19	4	4	4	2	4	4	5	0.83
20	4	4	4	3	3	3	6	1.00
Mean I-CVI								0.95
S-CVI/UA¹								0.70
Proportion Relevant								0.95
Mean expert proportion (S-CVI)								

¹Universal Agreement

Table 5

Validity Measures for the 17-item Personal Growth and Development Scale

Item	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Number in Agreement	Item CVI
1	4	4	2	3	4	3	5	0.83
2	4	4	2	3	4	3	5	0.83
3	4	4	4	3	3	3	6	1.00
4	4	4	4	4	4	4	6	1.00
5	4	4	3	4	3	3	6	1.00
6	3	4	3	3	3	2	5	0.83
7	4	3	4	3	4	3	6	1.00
8	4	4	4	3	3	4	6	1.00
9	4	3	4	2	3	3	5	0.83
10	4	4	4	3	3	3	6	1.00
11	4	4	3	3	3	4	6	1.00
12	4	4	4	4	4	4	6	1.00
13	4	4	4	4	3	4	6	1.00
14	3	4	4	3	3	4	6	1.00
15	4	4	3	3	4	4	6	1.00
16	3	2	3	2	3	3	4	.67
17	4	4	4	4	4	3	6	1.00
							Mean I- CVI	0.94
							S-CVI/UA¹	0.71
Proportion Relevant	1.00	0.94	0.88	0.88	1.00	0.94	Mean expert proportion (S-CVI)	0.94

¹Universal Agreement**Reliability**

Any originally-created instrument must be tested to determine that when used to take repeated measures with a population, it does so consistently (Weiss, 1998). This process is called reliability testing. Deardorff and Deardorff (2007) state that “an instrument that does not yield consistent results cannot be trusted, and any conclusions drawn from the results would be suspect” (p. 94). This study determined reliability by Cronbach’s alpha, item-agreement percentage, and kappa statistics.

Cronbach's alpha. Deardorff and Deardorff (2007) recommend using Cronbach's alpha as a measure of internal consistency (p. 94). To obtain Cronbach's alpha for the Belongingness and Personal Growth and Development Scales, a test-retest measure was performed with the cumulative 41 students who traveled on Programs A and B and participated in this study. The initial pretest instrument was given at the first pre-departure orientation session late in the fall semester 2015. One week later an identical retest was given to the same participants. Using the unique code that each participant was assigned, responses were matched and Cronbach's alpha computed. Cronbach's alpha is "reported as a correlation, where a value of 1 would indicate a test with perfect reliability, and a value of 0 would represent a test with no reliability" (Weiss, 1998, p.146). Muijs (2011) recommends that any Cronbach alpha score "above 0.7 is acceptable for research purposes" (p. 217), and DeVellis (2012) breaks possible alpha score ranges into "below .60, unacceptable; between .60 and .65, undesirable; between .65 and .70, minimally acceptable; between .70 and .80, respectable; between .80 and .90, very good; and much above .90, one should consider shortening the scale" (p. 109). The alpha for the 20-item Belongingness Scale was .91, which indicated that the collective items form a scale with a very good rating according to the DeVellis rubric. The alpha for the 17-item Personal Growth and Development Scale was a .90, also indicating an ideal reliability measure.

Item agreement percentage and kappa statistics. Other measures of reliability were performed on the originally-developed scales used in this study. Item agreement percentage was used here to define perfect agreement between participants who responded to items exactly the same on the pretest and the retest. Tables 6 and 7 show

items in exact agreement between the retest and posttest for the two respective scales (% Identical Responses). As the scales were designed on a 10-point level of agreement, participants correspondingly had 10 choices for their response. As DeVellis (2012) discusses, perfect agreement is a useful indicator, but when there are many choices on a scale for a respondent to choose from, exact agreement between a pretest and retest becomes less likely.

Cohen's kappa coefficient is another approach to test reliability of instruments. Outlined by Cohen in 1960 and maintained as a statistical standard ever since, "this approach determines to what extent the frequency of exact agreements between (raters) exceeds what could be expected by chance" (DeVellis, 2012, p. 50). Cohen (1960) provided the following guidance to interpret kappa statistic agreement values: 0.01-0.20 = Slight, 0.21-0.40 = Fair, 0.41-0.60 = Moderate, 0.61-0.80 = Substantial, and 0.81-0.99 = Almost Perfect. Illustrated in Table 6, the 20-item Belongingness Scale has eight items that measured in substantial agreement and 12 items that measured in moderate agreement. Shown in Table 7, the 17-item Personal Growth and Development Scale has all but one item that measures in the moderate agreement range. This analysis was considered alongside the Cronbach's alpha measures to determine that the two scales' reliability were acceptable for this study. Beyond the reliability measures outlined here, the retest scores of the 41 participants in the Non-Credit and Faculty-led Field-Study programs were not used in any other statistical comparisons.

Table 6

Item Exact Agreement Percentages and Kappa Statistics for 20-item Belongingness Scale

Item	N-Size	N Identical Pretest-Retest Responses	% Identical Responses	Kappa	Kappa 95% Conf Intv	
					Lower Limit	Upper Limit
1	41	17	41.46	0.57	0.41	0.73
2	41	22	53.66	0.62	0.46	0.77
3	41	15	36.59	0.45	0.26	0.65
4	41	20	48.78	0.63	0.46	0.80
5	41	19	46.34	0.52	0.34	0.70
6	41	23	56.10	0.68	0.53	0.83
7	41	13	31.71	0.43	0.26	0.59
8	41	17	41.46	0.44	0.25	0.64
9	41	15	36.59	0.57	0.42	0.71
10	41	15	36.59	0.64	0.52	0.76
11	41	26	63.41	0.60	0.49	0.72
12	41	11	26.83	0.42	0.24	0.60
13	41	14	34.15	0.50	0.33	0.68
14	41	22	53.66	0.62	0.44	0.80
15	41	25	60.98	0.66	0.52	0.81
16	41	20	48.78	0.63	0.49	0.76
17	41	11	26.83	0.48	0.31	0.65
18	41	22	53.66	0.51	0.30	0.71
19	41	22	53.66	0.62	0.42	0.82
20	41	14	34.15	0.52	0.36	0.69

Table 7

Item Exact Agreement Percentages and Kappa Statistics for 17-item Personal Growth and Development Scale

Item	N-Size	N Identical Pretest-Retest Responses	% Identical Responses	Kappa	Kappa 95% Conf Intv	
					Lower Limit	Upper Limit
1	41	22	53.66	0.58	0.42	0.73
2	41	20	48.78	0.44	0.23	0.65
3	41	15	36.59	0.41	0.21	0.61
4	41	25	60.98	0.49	0.29	0.70
5	41	23	56.10	0.61	0.44	0.78
6	41	22	53.66	0.50	0.28	0.73
7	41	21	51.22	0.57	0.43	0.72
8	41	14	34.15	0.52	0.33	0.71
9	41	11	26.83	0.42	0.27	0.58
10	41	20	48.78	0.54	0.35	0.72
11	41	17	41.46	0.38	0.19	0.56
12	41	20	48.78	0.49	0.30	0.69
13	41	14	34.15	0.59	0.48	0.69
14	41	11	26.83	0.55	0.41	0.69
15	41	15	36.59	0.52	0.35	0.68
16	41	17	41.46	0.51	0.33	0.68
17	41	11	26.83	0.45	0.29	0.61

Procedure

As this study's participants were under the age of 18 and considered minors, the project underwent full board review from the Western Kentucky University Institutional Review Board (IRB) in November 2015. An Informed Consent process was created so that each parent/guardian of all student participants were notified of the study and given an Informed Consent document (Appendix C). Parents were then given one week to opt their student out of the study by signing the opt-out line of the Informed Consent form and returning the form to the evaluator. All student participants were then given an Informed Assent document (Appendix D) and given a choice to participate before the pretest. Each student participant signed the Informed Assent document before the pretest.

was administered.

Each program had at least one attendance-mandatory pre-departure orientation program. Pretests were given at these meetings. The first round of data collection occurred late in the fall semester 2015 and at the end of the Winter Term 2016. Participants for the Non-Credit and Faculty-led Field-Study programs were given the pretest late in the fall semester 2015 at the programs' first pre-departure orientation. One week later, the students were given the instrument again as a re-test measure. Internal consistency of items on the pretest and retest measured instrument reliability (as described previously in detail). Participants in the Non-Credit and Faculty-led Field-Study programs were given the posttest on the final full day of their study abroad program. The posttest for the Faculty-led Field-Study was given at the time of the students' final exam. The Non-Credit program's posttest was given in the hotel common space on the final evening of the study abroad program.

The second round of data collection occurred late in the spring semester 2016 and at the end of the Summer Term 2016 study abroad program. Participants for the Faculty-led Traditional program were given the pretest at the pre-departure orientation late in the spring semester at the programs' second pre-departure orientation. Participants for the Faculty-led Traditional program were given the posttest on the final full day of their study abroad program at the time of their final exam.

All pretests were administered by the program evaluator and study author. Posttests were administered by Gatton Academy staff members who were on site supervising the programs abroad. The instruments were all delivered in paper-and-pencil format. The data collection process is outlined in Figure 3 below.

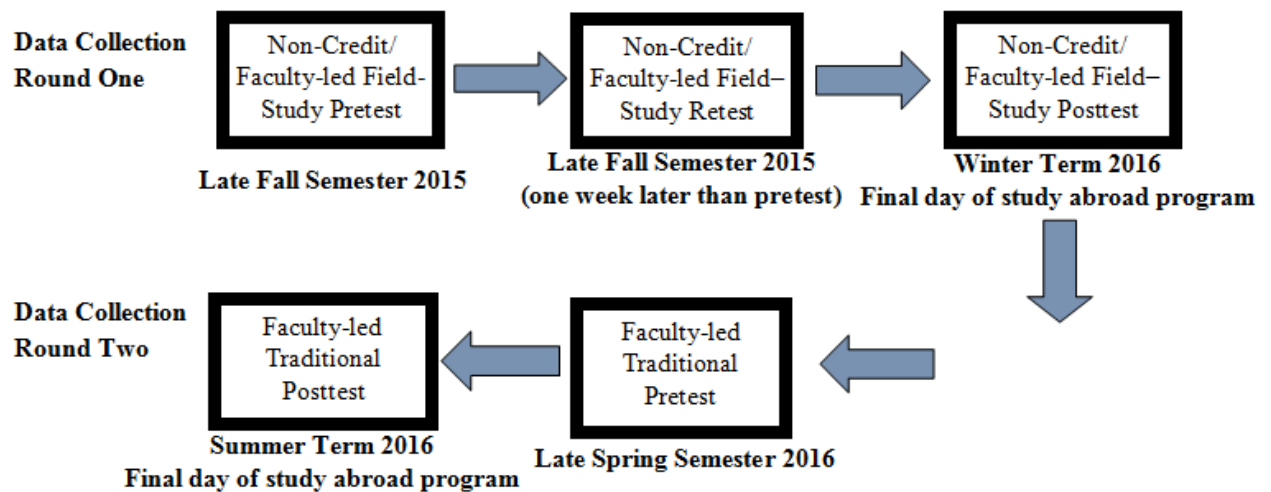


Figure 3. Data collection model. This figure illustrates the data collection process for this evaluation.

Data Analysis

The collected data were quantitative and analyzed using statistical methods with the SAS software. Paired-samples *t*-tests were performed to compare pretest and posttest means of participant responses. For research questions one, three, and five, all participants' scores were considered in the paired-samples *t*-tests. The results from these paired-sample *t*-tests were used to determine differences in perceptions of peer belongingness, mentor belongingness, and personal growth and development from the pretest to posttest to determine levels of change. For research questions two, four, and six, pretest and posttest results of the three program models were tested separately to determine if differences existed between various models. Paired-samples *t*-tests were used for these procedures by conducting one paired-samples *t*-test for each program model per research question. By doing these tests separately, each program model could then be studied independently and compared with the other program models. The aggregate results from each program model was used to determine if differences in perceptions of peer belongingness, mentor belongingness, and personal growth and

development exist among the three study abroad program models studied.

Strength of Study Design

While a control group would have been optimal to create a true experimental design, the ability to compare groups among the three programs allow for a sound, quasi-experimental study design. Random assignment with study abroad is never possible. Sutton, Miller, and Rubin (2007) point out that “one cannot very well randomly assign students to study abroad, nor prevent them from doing so on a random basis. Those who elect to study abroad may very well possess attributes that would mature into traits like self-efficacy or global mindedness whether they were afforded a study abroad opportunity or simply remained on campus” (p. 32). This example highlights a particular strength of this study’s design. Almost every Gatton Academy student participates in study abroad. Even though a control group or random assignment was not possible, this study is truly representative of The Gatton Academy population.

Sutton, Miller and Rubin (2007) argue that internal validity is “jeopardized when researchers change instrumentation from pretesting to posttesting” (p. 31). Internal validity of this study was preserved by not changing the 37 items designed to measure peer belongingness, mentor belongingness, and personal growth and development. The items were designed to be answered both before and after the trip, and they appear identical on the pretest and posttest. Because of ample planning for this study and the stringent reliability testing that the instrument underwent, the integrity of the study was protected.

Another strength of this study was the population examined. Sutton, Miller, and Rubin (2007) write about potential pitfalls with comparing study abroad program models

that draw from various populations. They explain, “inadvertent interaction between treatments and groups could occur if, for example, it turned out that a semester-long exchange were more expensive than a three-week residence. In that case, a comparison between the two levels of duration abroad could be confounded with an unintended comparison between wealthier or less wealthy students, or between nonscholarship students and scholarships students” (p. 32). In the case of the present study, all students were recipients of full scholarships during the semesters at The Gatton Academy, freeing family resources for study abroad during Winter Term and Summer Term when the three programs are held. Additionally, every study participant had access to apply for a number of scholarships, including a need-based scholarship from The Gatton Academy to assist in covering expenses of the experiences. These unusual and helpful features of this study’s population thwart this threat to internal validity.

Campbell and Stanley (1963) referred to the factor of participants who drop out between treatment conditions *mortality*. One could also think of this phenomenon as attrition of study participants between pretest to posttest. Another strength of this study is that participants from the pretest to posttest were steady. All participants were measured consistently both before and at the conclusion of the study abroad programs. This strength results because of the timing of the tests. Pretests were given when all students were at a program orientation and in the same room. Posttests were given when students were gathered in class on the final day of the programs, or, in the case of the Non-Credit program, when students were gathered at an end-of-program meeting at their hotel. While paired-samples pretest-posttest designs are prone to threats of only representing the attitudes of students who are motivated to complete all surveys while not

representing the attitudes of those who do not complete due to mortality, this study successfully collected and paired posttest results from all students who filled out the pretest.

Chapter Summary

This chapter has outlined the methods used in this quasi-experimental, pretest and posttest design to measure the six research questions. The study was conducted to assess two of The Gatton Academy's study abroad program objectives using participants from study abroad programs in 2016 to measure impact on peer belongingness, mentor belongingness, and personal growth and development. This chapter outlined the methods used to create two original instruments, the Belongingness Scale and the Personal Growth and Development Scale, outlining the validity and reliability measures that were conducted with these original scales. The testing procedure and the data analysis techniques used were then outlined. Chapter IV presents the results of this study.

CHAPTER IV: RESULTS

Introduction

The purpose of this study was to assess effects of Gatton Academy study abroad programs on student participants' perceptions of peer belongingness, mentor belongingness, and personal growth and development and to compare differences among three program models being used by the school. The three program models are all short-term study abroad programs offered by the specialized, residential, public high school for gifted students. This study contributes to knowledge gaps on the effect of study abroad on participants, as well as the way in which the various program models of short-term study abroad may impact participants differently. The concept of high school study abroad is a burgeoning area of interest. The Institute of International Education's bold, five-year Generation Study Abroad charge calls to double the number of students studying abroad by 2020. The goal includes special language including high school participants in this effort. The present study is one of the few ever conducted to measure the impact of study abroad on a high-school aged population and is the only study of its kind to measure these impacts with the gifted and talented population at a specialized, residential high school. Meanwhile, the project also contributes to the growing field of assessment research with study abroad. In particular, short-term study abroad programs have become the most common way for university students to study abroad, a new trend that has emerged over the last 30 years. Measuring how these short-term programs impact participants is now an important line of research in the study abroad field. This study contributes to that growing line of inquiry. The program models are arranged similar to many short-term university study abroad programs.

This study was guided by six research questions:

1. For student participants, do Gatton Academy study abroad experiences enhance their perception of belongingness with fellow peers in the school community?
2. To what extent do differences of student participants' perceived effects on peer belongingness exist among the three program models employed by The Gatton Academy?
3. For student participants, do Gatton Academy study abroad experiences strengthen their perception of mentor/mentee relationships with school staff and faculty?
4. To what extent do differences of student participants' perceived effects on mentor/mentee relationships with school staff and faculty exist among the three program models?
5. For student participants, do Gatton Academy study abroad experiences lead to increased perceptions of personal growth and development?
6. To what extent do differences of student participants' perceived effects on personal growth and development exist among the three program models employed by The Gatton Academy?

Hypotheses were developed for each research question:

1. H₁: Participating in study abroad programs significantly changes Gatton Academy students' perceptions of belongingness with fellow peers in the school community.
2. H₁: Significant differences in students' perceptions of peer belongingness exist among the three program models employed by The Gatton Academy.
3. H₁: Participating in study abroad programs significantly strengthens Gatton Academy students' perceptions of mentor/mentee relationships with school staff

and faculty.

4. H₁: Significant differences in students' perceptions of mentor belongingness exist among the three program models employed by The Gatton Academy.
5. H₁: Participating in Gatton Academy study abroad programs leads to significantly- increased perceptions of personal growth and development.
6. H₁: Significant differences in students' perceptions of personal growth and development exist among the three program models employed by The Gatton Academy.

Recap of Methodology

This study was conducted with 11th and 12th grade students who attend The Gatton Academy located on the campus of Western Kentucky University. Study participants were gifted and talented students from this specialized, residential, public high school who were studying jointly to complete high school requirements while enrolling in and earning credit for college courses in lieu of their traditional, final two years of high school. As the vast majority of the school's students participated in study abroad during 2016, a control group was not possible. Therefore, a quasi-experimental, pretest and posttest design was employed to measure differences between student perceptions immediately before and at the conclusion of three study abroad programs.

Program A: Non-Credit occurred in Italy in January 2016 and was the shortest program at 12 days. This program is also classified as a study tour. Most similar to the majority of other high school study abroad programs, this program was overseen by school staff, but did not have a faculty member or an academic mission. No credit was awarded. Program B: Faculty-led Field-Study occurred in Costa Rica in January 2016

and was 16 days in duration. This program is classified as a field-study because students were immersed at three research locations where they directly engaged as researchers. The program was guided by a university faculty member in addition to staff from the school, and three hours of collegiate credit was awarded upon completion. Program C: Faculty-led Traditional occurred in England in July and August 2016 and was the longest program at 23 days. This program was based at two locations in England where students immersed in an intensive-literature course. Class days and traditional classroom instruction were consistently backed up with every-other-day field trips to sites associated with the students' literary readings. The program was guided by a university faculty member and four staff from the school. Three hours of collegiate credit was awarded to students upon completion of the course.

Pretest data were collected at the study abroad pre-departure orientation sessions for each program. Posttest measurements were taken on the final day of each study abroad program. These posttest measurements were delivered at the same time as students' final exam for the two Faculty-led programs. A 37-item survey instrument was designed, validated, and reliability-tested to measure participants' perceptions on peer-belongingness, mentor belongingness, and personal growth and development. Peer belongingness was defined as students' perception of fit with peers within The Gattton Academy school community and was measured by 15 items, one of which was scored through reverse coding. Mentor belongingness was defined as students' perceived fit with the school's staff and faculty. Mentor belongingness was measured by five survey items. Personal growth and development was defined through the four attributes of confidence, curiosity, independence, and self-awareness and was measured by 17 items.

The data were analyzed using quantitative, statistical measures using the SAS software. Paired-sample *t*-tests were used to measure differences in the means between pretests and posttests for each research question. However, for research questions two, four, and six, each program models' means were looked at separately to determine the various program models' impact on student perceptions. The standard $\alpha = 0.05$ cutoff was applied to all research questions to determine statistical significance.

Participant Breakdown

The study included a total of 89 participants. The demographics of the study participants are presented in Table 8.

Table 8

Demographics of Study Participants

Program Model	<i>N</i>	<u>Gender</u>		<u>Grade-level</u>		<u>Traveled abroad before?</u>	
		F	M	11th	12th	Yes	No
Program A: Non-Credit	26	16	10	15	11	20	6
Program B: Faculty-led Field-Study	15	8	7	11	4	10	5
Program C: Faculty-led Traditional	48	26	22	48	0	36	12
Total	89	50	39	74	15	66	23

There were four noteworthy observations about the participants. First, the program sizes were uneven. The Faculty-led Traditional program was, in particular, a far-larger study abroad than the others. Its students made up 54% of the study's overall participants, while 29% of participants came from the Non-Credit program and only 17% of participants came from the Faculty-led Field-Study. Second, 56% of the study participants were female. While this still represents a gender imbalance with more

female participants, it is actually closer to equal gender representation than the 65% to 35% female-to-male gender divide that is persistent in national study abroad trends over the last 15 years (Institute of International Education, 2015c.). Third, 83% of the study participants were 11th graders. There were more 11th grade students on every one of the three programs studied, but this difference is especially apparent with the Faculty-led Traditional model (again, the largest program) only being accessible to 11th graders. Finally, the sample was a well-traveled group even before their study abroad. Only 26% of the total group was traveling internationally for their first sojourn.

Results for Peer Belongingness Measures

Research question one was designed to determine whether Gatton Academy study abroad experiences enhance participants' perceptions of belongingness with fellow peers in the school community. Table 9 includes a summary of the results.

Table 9

Peer Belongingness Pretest and Posttest Scores for all Participants

	Pretest			Posttest			<i>t</i> Value
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	
Peer Belongingness	89	120.13	20.13	89	121.30	19.80	-0.57

This test considered all 15 items that measured peer belongingness. A paired-samples *t*-test was conducted using all 89 of the study participants' mean scores from the pretest and the posttest. While a small amount of growth was observed from the pretest to the posttest mean scores (+1.17), no statistical difference was measured in perceptions of peer belongingness ($t(88) = -0.57, p = 0.57$). The hypothesis for research question one was therefore rejected.

Research question two looked at the extent to which differences in participants' perceived peer belongingness exist among the program models. The results are summarized in Table 10.

Table 10

Pretest and Posttest Peer Belongingness Scores by Program Model

Program Model	Pretest			Posttest			<i>t</i> Value
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	
Program A: Non-Credit	26	126.62	18.38	26	131.31	14.24	2.21*
Program B: Faculty-led Field-Study	15	112.80	18.69	15	115.60	21.55	0.85
Program C: Faculty-led Traditional	48	118.92	20.81	48	117.67	20.21	-0.36

Note: * $p < .05$

To perform this analysis, paired-samples *t*-tests were conducted to test differences in means from pretest to posttest. The *t*-tests were conducted by program model separately. A statistically-significant difference was found for the pretest-posttest scores for the Non-Credit program ($t(25) = 2.21, p = 0.04$), while no statistical differences were measured for the Faculty-led Field-Study model ($t(14) = 0.85, p = 0.41$) or for the Faculty-led Traditional model ($t(47) = -0.36, p = 0.72$). Breaking the measure down by program model spotlights the difference in responses. The Non-Credit program's mean increased by 4.69 points on the 15 peer belongingness items. The Faculty-led Field-Study peer belongingness mean increased as well, though to a lesser degree, by 2.8 points from pretest to the posttest. The Faculty-led Traditional program's mean actually decreased by a small increment of 1.25 points from the pretest to the posttest. The hypothesis for research question two was accepted since significant growth existed with the Non-Credit model.

To further examine differences in peer belongingness among program models, individual items were analyzed. Table 11 summarizes changes in mean scores for each item. This analysis was performed to get a deeper understanding of which items contributed to the changes in peer belongingness measures. Participants scored each item on a 10-point level-of-agreement scale from 1 (Low Agreement) to 10 (High Agreement).

The students from the Non-Credit program showed growth on more items when compared to the other program models. Of the 15 indicators for Peer Belongingness, Non-Credit program scores increased on 11 measures and decreased on four. The Faculty-led Field-Study had nine items that increased, two that did not change, and four items that decreased from the pretest to the posttest. The Faculty-Led Traditional program had six items that increased, two that did not change, and seven items that decreased.

Not only did the Non-Credit program participants respond more consistently with indicative peer belongingness growth across the items, but the total magnitude to which their levels of agreement grew is greater. The Non-Credit program showed a total net gain of 4.24 points, while the Faculty-led Field-Study produced a 1.14-point net gain, and the Faculty-led Traditional program slumped by a loss of 0.79 points. Some items in particular drove these differences. One example is item 12 where students responded to an item regarding knowing their peers beyond their first name. The Non-Credit program participants had considerable growth on this item (+1.12), while the Faculty-led Field-Study had a decline (-0.36) and the Faculty-led Traditional program gained (+0.85) from the pretest to posttest. Another example is item 14 that asked students to respond about

Table 11

Peer Belongingness Items' Change in Mean from Pretest to Posttest

Peer Belongingness Survey Item	Program Model					
	Program A: Non-Credit		Program B: Faculty-led Field-Study		Program C: Faculty-led Traditional	
	<i>N</i>	<i>M</i>	<i>N</i>	<i>M</i>	<i>N</i>	<i>M</i>
1. I believe I fit in well with other students at the Academy.	26	0.54	15	0.87	47	-0.21
3. I feel comfortable expressing myself around other Academy students.	25	-0.20	15	0.07	48	-0.48
4. I feel like I am a valued member of the Academy community.	26	0.19	15	0.33	48	-0.44
6. I know the first names of most students in my grade at the Academy.	26	0.46	15	0.20	47	0.49
7. I have difficulty making new friends at the Academy. ¹	26	-0.35	15	-0.87	48	0.00
8. There is a strong sense of community at the Academy.	26	-0.19	14	0.00	48	-0.44
9. The Academy community encourages me to be an open and sharing individual.	25	0.08	15	0.60	47	-0.53
10. I get a lot of personal satisfaction from being around other Academy students.	26	0.35	14	0.21	48	-0.25
11. The Academy fits my educational goals.	26	-0.04	15	0.20	48	0.00
12. Besides their names, I know something about most Academy students in my grade.	26	1.12	14	-0.36	48	0.85
14. I spend a lot of my free time with other Academy students.	26	0.96	14	0.00	48	0.15
15. I enjoy being a part of the Academy community.	26	0.15	15	-0.40	48	0.13
16. I feel at home at the Academy.	26	0.23	15	0.13	47	-0.23
18. I have made new friends at the Academy.	25	0.36	13	-0.31	44	0.11
19. I have a closer sense of community and more personal friendships at the Academy than I did during my 9 th and 10 th grade years.	26	0.58	15	0.47	48	0.06
Total		+4.24		+1.14		-0.79

¹Item 7 was reverse coded. Positive changes in means were made negative to reflect changes.

spending free time with other Academy students. Non-Credit program participants' mean score rose sharply (+0.96), while scores from the Faculty-led Field-Study remained neutral and scores from the Faculty-led Traditional only gradually increased (+0.15). These differences indicate a clear and sizable positive growth in attitudes on perceptions of peer belongingness among the Non-Credit program participants.

However, the Non-Credit program's growth scores did not outperform the other program models on every item for peer belongingness. By looking at select items, the other two programs showed strengths. For example, the growth in mean score for the Faculty-led Field-Study program was stronger on some items, including item one that measured students' perception of fit with other peers. Here, the mean score for Faculty-led Field-Study participants went up (+0.87) from the pretest to the posttest, while the Non-Credit program had a more-modest rise (+0.54) and the Faculty-led Traditional declined (-0.21). Another example is item nine that dealt with the school community's encouragement of individuals' openness. The mean score for the Faculty-led Field-Study participants went up considerably (+0.60), while the Non-Credit program scores rose slightly (+0.08) and the Faculty-led Traditional scores dropped (-0.53). Although to a lesser magnitude than the previous two examples, the Faculty-led Field-Study appears to outperform the other program models on peer belongingness items three (comfort expressing self around other students), four (feeling like a valued member of the school community), and 11 (school fitting educational goals) also. The Faculty-led Traditional model seems to be the top-performing model for item six that deals with students knowing first names of most students in their grade (+0.49), likely owing to the size of this program. Also, as item seven was reverse coded, it appeared that even though the

Faculty-led Traditional program score remained steady from pretest to posttest with no measured change (0.00), the program still outperformed the Non-Credit and Faculty-led Field-Study models. The item dealt with students' perceived difficulty making new friends. The Non-Credit program showed a loss of -0.35 on item seven, while the Faculty-led Field-Study model had an even greater decline (-0.87). These examples illustrate that by looking deeper at the individual survey items, one sees apparent peer belongingness strengths within each program.

Results for Mentor Belongingness Measures

Research question three was designed to examine whether Gatton Academy study abroad experiences strengthen participants' perceptions of mentor relationships with the school's staff and faculty. The results are summarized in Table 12.

Table 12

Mentor Belongingness Pretest and Posttest Scores for all Participants

	Pretest			Posttest			<i>t</i> Value
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	
Mentor Belongingness	89	38.98	8.05	89	38.93	7.77	0.06

This test considered the five items designed to measure mentor belongingness. Looking at all 89 study participants to analyze differences of means between pretest and posttests on these items, a paired-samples *t*-test was performed. No statistical difference was measured in perceptions of mentor belongingness from the pretest to the posttest ($t(88) = 0.06, p = 0.95$). Therefore, the hypothesis for research question three was rejected.

To enhance the analysis of the previous question, research question four examined the extent to which differences existed between various program models from

participants' perceptions on mentor relationships with school staff and faculty. The results from these tests are summarized in Table 13.

Table 13

Pretest and Posttest Mentor Belongingness Scores by Program Model

Program Model	Pretest			Posttest			<i>t</i> Value
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	
Program A: Non-Credit	26	41.23	7.99	26	42.85	5.22	1.53
Program B: Faculty-led Field-Study	15	35.93	7.81	15	37.40	8.14	0.82
Program C: Faculty-led Traditional	48	38.71	7.96	48	37.29	8.18	-1.26

Paired-samples *t*-tests were utilized to contrast the means of mentor belongingness pretest and posttest scores for each program model group. No statistical differences were measured for any of the three program models on mentor belongingness: Non-credit ($t(25) = 1.53, p = 0.14$), Faculty-led Field-Study ($t(14) = 0.82, p = 0.43$), or Faculty-led Traditional ($t(47) = -1.26, p = 0.21$). As a result of these tests, the hypothesis for research question four was rejected.

To further examine the differences between the three program models, the five individual mentor belongingness items were analyzed. Table 14 summarizes the results.

This procedure was performed by examining the change in means from the pretest to the posttest on the 10-point agreement scale for each program model by item. Analyzing the survey items individually revealed that the Non-Credit program showed some growth on four of five indicators for how students perceive their belongingness

Table 14

Mentor Belongingness Items' Change in Mean from Pretest to Posttest

Mentor Belongingness Survey Item	Program Model					
	Program A: Non-Credit		Program B: Faculty-led Field-Study		Program C: Faculty-led Traditional	
	<i>N</i>	<i>M</i>	<i>N</i>	<i>M</i>	<i>N</i>	<i>M</i>
1. I like the Academy staff/faculty.	26	0.08	15	-0.47	48	-0.31
5. The Academy staff/faculty helps me fit in to the program.	26	-0.12	15	-0.20	48	-0.38
13. I would feel comfortable talking to an Academy staff/faculty member about a personal question.	26	0.50	15	0.67	48	-0.40
17. The Academy staff/faculty take time to get to know me.	26	0.23	15	-0.13	48	-0.17
20. I know at least one Academy staff/faculty member who seems to understand me very well.	26	0.92	14	1.36	48	-0.17
Total		+1.61		+1.23		-1.43

with school mentors, including a net gain across all five items (+1.61). The Faculty-led Field-Study model also showed growth overall (+1.23), although three of five indicators actually declined. All five items for the Faculty-led Traditional program declined, with a net loss of -1.43.

Particular items for the Non-Credit and Faculty-led Field-Study models showed sizable growth. As an example, item 20 dealt with having at least one school staff or faculty member that participants believed understood them well. The mean for the Faculty-led Field-Study program increased (+1.36), while the Non-Credit program increased as well (+0.92). On the same item, the Faculty-led Traditional program declined (-0.17). Likewise, item 13 dealing with students' comfort talking with a school

staff/faculty member about a personal question showed noticeable growth for the Faculty-led Field-Study (+0.67) and Non-Credit (+0.50) models, while scores declined for the Faculty-led Traditional program (-0.40).

Item five dealt with participants' perceptions of the Academy staff/faculty helping students fit into the program. Scores declined for each program model, include losses of -0.12 for the Non-Credit model, -0.20 for the Faculty-led Field-Study, and -0.38 for the Faculty-led Traditional model. In a similar fashion, item two either declined or increased to a very small degree with each program model. Item two dealt with participants' agreement of liking the Academy staff/faculty. The Non-Credit program showed a small increase of +0.08 from the pretest to posttest, while the Faculty-led Field-Study declined -0.47, and the Faculty-led Traditional program declined -0.31. It was also noted that the Faculty-led Traditional program showed a small to moderate amount of decrease in student perceptions from the pretest to posttest on all five indicators of mentor belongingness.

Results for Personal Growth and Development Measures

Research question five was designed to determine if Gatton Academy study abroad experiences led to increased perceptions of personal growth and development for participants. The results are summarized in Table 15.

Table 15

Personal Growth and Development Pretest and Posttest Scores for all Participants

	Pretest			Posttest			<i>t</i> Value
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	
Personal Growth and Development	89	136.91	20.64	88	140.39	19.63	-1.65

Personal growth and development was measured by 17 items. One student chose not to fill out these items on the posttest. Therefore, while $N = 89$ for the pretest, $N = 88$ for the posttest. This question was first examined by conducting a paired-samples t -test comparing all study participants' mean personal growth and development scores from the pretest and the posttest. No statistical difference was measured in perceptions of personal growth and development ($t(87) = -1.65, p = 0.10$). As a result, the hypothesis for research question five was rejected. Observing the change in mean, a noticeable amount of positive personal growth and development seemed to have occurred with the mean increasing by 3.48 from the pretest to the posttest on the study abroad programs overall.

The three program models were considered individually to enhance the previous question. Research question six examined the extent to which differences of students' perceived effects on personal growth and development existed among the three program models. The results are summarized in Table 16.

Table 16
Pretest and Posttest Personal Growth and Development Scores by Program Model

Program Model	Pretest			Posttest			t Value
	N	M	SD	N	M	SD	
Program A: Non-Credit	26	142.27	19.15	26	148.35	14.76	-1.92
Program B: Faculty-led Field-Study	15	127.73	21.73	15	137.87	23.57	-2.18*
Program C: Faculty-led Traditional	48	136.88	20.47	47	136.79	19.75	0.12

Note: * $p < 0.05$

Paired-samples t -tests were utilized to contrast the means of personal growth and development pretest and posttest scores for each program model group. A statistically-significant difference was found for the pretest-posttest scores for the Faculty-led Field-

Study model ($t(14) = -2.18, p = 0.05$), while no statistical differences were measured for the Non-Credit model ($t(25) = -1.92, p = 0.07$) or for the Faculty-led Traditional model ($t(46) = 0.12, p = 0.90$). The mean for the Faculty-led Field-Study model increased +10.14, while the mean for the Non-Credit program increased +6.08, and the mean for the Faculty-led Traditional program incrementally fell by -0.09 from the pretest to the posttest. Due to the statistically-significant difference of the Faculty-led Field-Study program on this measure, the hypothesis for research question six was accepted.

The differences between program models were further examined by looking individually at the change in mean for each of the 17 items designed to measure personal growth and development. Table 17 shows the change in mean from the pretest to the posttest on the 10-point level-of-agreement scale for each program model.

The Faculty-led Field-Study program was the only one of the three program models analyzed to show a statistically-significant difference in the t -tests. Every item of the 17 personal growth and development items grew for that program, including gains of over a point for two items. Item 30 that looked at confidence when students find themselves in new places increased by +1.13 for the Faculty-led Field-Study model. The same item increased for the Non-Credit program (+0.92) and declined for the Faculty-led Traditional model (-0.19). Item 29 dealt with students trying new things during their leisure time. This item considerably increased for the Faculty-led Field-Study (+1.07), while increasing only +0.46 for the Non-Credit model and decreasing -0.09 for the Faculty-led Traditional. Three other items were notable with the Faculty-led Field-Study. Item 34 dealt with participants' perceptions on the Academy experience teaching leadership. The Faculty-led Field-Study model increased +0.87, while the Non-

Table 17

Personal Growth and Development Items' Change in Mean from Pretest to Posttest

Personal Growth and Development Survey Item	Program Model					
	Program A: Non-Credit		Program B: Faculty-led Field-Study		Program C: Faculty-led Traditional	
	<i>N</i>	<i>M</i>	<i>N</i>	<i>M</i>	<i>N</i>	<i>M</i>
21. I enjoy trying new things.	26	0.31	15	0.27	47	0.13
22. I form opinions about new ideas independently of those around me.	26	0.19	15	0.33	46	-0.17
23. I am confident with my abilities when challenged with new experiences.	26	0.35	14	0.64	47	0.19
24. I feel like I have grown as a result of my experiences at the Academy.	26	-0.31	15	0.20	47	0.13
25. I actively seek as much information as I can in new situations.	26	0.12	15	0.07	47	0.19
26. I enjoy experiencing a new culture.	26	0.23	15	0.53	47	-0.02
27. I am a more confident person as a result of my experiences at the Academy.	26	0.65	15	0.27	47	0.13
28. Speaking to adults has become easier as a result of my experiences at the Academy.	26	0.65	14	0.14	47	0.40
29. My Academy friends and I try new things in our leisure time.	26	0.46	15	1.07	47	-0.09
30. I am more confident when I find myself in new places as a result of my Academy experiences.	26	0.92	15	1.13	47	-0.19
31. I enjoy looking for experiences that challenge how I think about the world.	26	0.38	15	0.60	47	-0.28
32. Experiences I have at the Academy make me a more independent person.	26	0.19	15	0.40	47	0.00

Table 17. *Personal Growth and Development Items' Change in Mean from Pretest to Posttest* (continued)

Personal Growth and Development Survey Item	Program Model					
	Program A: <u>Non-Credit</u>		Program B: <u>Faculty-led Field-Study</u>		Program C: <u>Faculty-led Traditional</u>	
	<i>N</i>	<i>M</i>	<i>N</i>	<i>M</i>	<i>N</i>	<i>M</i>
33. I am confident being myself around most other Academy students.	26	0.46	15	0.80	47	-0.55
34. The Academy experience has taught me to be a leader.	25	0.44	15	0.87	47	0.09
35. Exploring new cultures helps me better understand who I am.	26	-0.19	15	0.40	47	-0.23
36. I never miss the opportunity to have a new experience.	26	0.73	14	0.43	47	-0.21
37. Experiences I have had at the Academy make me confident in my abilities.	26	0.62	15	0.87	47	-0.02
Total		+5.70		+9.02		+0.13

Credit (+0.44) and Faculty-led Traditional (+0.09) grew less. Item 33 looked at students' confidence being themselves around other Academy students. Again, the Faculty-led Field-Study model grew the most with an increase of +0.80, while the Non-Credit program grew +0.46 and the Faculty-led Traditional model declined -0.55. Finally, item 37 looked at students' confidence in their abilities resulting from their time at the school. The Faculty-led Field-Study model grew by +0.87, while the Non-Credit program increased +0.62 and the Faculty-led Traditional program only slightly declined (-0.02). These examples include items that led to the significant difference of growth for the Faculty-led Field-Study on personal growth and development.

Despite not showing statistically-significant growth, the Non-Credit program had an increase in scores on all but two of the 17 items that measured personal growth and

development. Some select items drove the apparent growth, including item 30 that looked at confidence in new places (+0.92), item 36 that dealt with students reporting never missing an opportunity to have a new experience (+0.73), item 27 that looked at confidence as a result of Academy experiences (+0.65), item 28 dealing with ease of speaking to adults (+0.65), and item 37 dealing with confidence in abilities (+0.62).

Examining the individual items for the Faculty-led Traditional model reveals a mixture of modest perceptual changes for participants' perceptions of personal growth and development. Nine of the 17 personal growth and development items decreased from the pretest to the posttest, indicating that students agreed less with more than half of the indicator items after completing the 23-day traditional program. It appeared that these declines were mild, though. Eight of the nine declining items were no greater a change than a -0.30 decline, with item 33 (dealing with confidence being oneself around other Academy students) showing the greatest decline at -0.55.

Rank-Order Analysis of Posttest Evaluation Questions by Program Model

Each participant's posttest included 10 additional quantitative evaluation questions. These were all scored on the same 10-point level-of-agreement scale used earlier. To help better understand the results, these additional posttest evaluation questions were considered in rank order of highest to lowest rankings where the highest-performing item were ranked first. Table 18 summarizes the rank order for each program model for the 10 questions. This analysis technique was performed to identify additional information on factors that may be behind differences of participant attitudes measured by the 37-item scale. It should be noted that the posttests presented to the study's participants included the actual host country name in the survey items above. A sample

is included in Appendix B. Other than host country name, these items were identical on each posttest.

The rank order of items one through seven were mostly homogenous with each of these item's rank score by program model within 0 to 3 ranks of one another. Item eight, on the other hand (dealing with connectivity to the school staff as a result of the study abroad) was disparate. This item ranked first for students on the Non-Credit program ($M = 9.42$), while it ranked 10th (last) by students on both the Faculty-led Field-Study ($M = 8.07$) and Faculty-led Traditional ($M = 6.90$) programs. This indicated that students on the Non-Credit program felt more connected to the Academy staff after their program than students on the two Faculty-led programs.

Meanwhile, students on the Non-Credit and the Faculty-led Traditional models agreed less with Item 9 dealing with their programs challenging their abilities when compared to the Faculty-led Field-Study program ($M = 9.00$). Students on the Non-Credit model had a mean of 7.73, while students on the Faculty-led Traditional program had a mean of 7.63. This indicated that students from the Faculty-led Field-Study program agreed that their abilities were tested to a higher degree than students who participated in the Non-Credit and Faculty-led Traditional models.

Item 10 dealt with participants' feelings of independence resulting from their study abroad. This item showed a similar, though less-drastic difference in perceptions from students on the Faculty-led Field-Study model ($M = 9.13$), than students from the Non-Credit ($M = 8.50$) and Faculty-led Traditional ($M = 8.33$) models. This indicated that participants on the Faculty-led Field-Study program agreed to a greater extent that they felt more independent as a result of their study abroad program than students

Table 18

Rank Order of Posttest-only Evaluation Questions by Program Model

Item	Program Model Variable			Difference between highest ranking and lowest ranking
	Program A: Non-Credit	Program B: Faculty-led Field-Study	Program C: Faculty-led Traditional	
1. The program lived up to my expectations.	5	6	3	3
2. I am glad I selected program.	2	2	1	1
3. As a result of the program, I feel more confident.	8	7	7	1
4. The program has added significant value to my Academy experience.	3	1	2	2
5. I have made new friends as a result of the program.	4	5	5	1
6. I have grown intellectually as a result of the program.	6	8	6	2
7. The program has made me more aware of my strengths.	9	9	9	0
8. I am more connected to the Academy staff as a result of the program.	1	10	10	9
9. The program has challenged my abilities.	10	4	8	6
10. I feel more independent as a result of the program.	7	3	6	4

from the Non-Credit or Faculty-led Traditional models, backing up the statistically-significant difference on perceptions of personal growth and development for the Faculty-led Field-Study program.

Analysis of Posttest Written-Response Evaluation Items

The posttest for each program also included three written-response questions designed to help program organizers better understand students' evaluative scores and to collect information and feedback that may lead to program improvements. The three written-response questions were as follows:

1. What does the program do well?
2. What aspect of the program should the Academy expand upon?
3. What would you change about the program?

The posttest was delivered in a pencil-and-paper format, and participants were given six lines to respond to each of the three questions.

Written-response question one responses were coded into five categories: peer belongingness, mentor belongingness, personal growth and development, program design and arrangements, or other. The results of this procedure are summarized in Table 19.

Table 19

Percentage of Total Written Responses by Category for each Program Model on Written-Response Item 1

Category	Program Model Variable		
	Program A: Non-Credit	Program B: Faculty-led Field-Study	Program C: Faculty-led Traditional
Peer Belongingness	21%	27%	12%
Mentor Belongingness	7%	0%	4%
Personal Growth and Development	10%	20%	8%
Program Design and Arrangements	55%	40%	60%
Other	7%	13%	16%

Six Non-Credit program students, four Faculty-led Field-Study participants, and six Faculty-led Traditional students remarked positively on their study abroad program with statements relative to peer belongingness. Of all total written remarks on question one, these represent 21%, 27%, and 12% of the total responses, respectively. These statements reflect participants who reported getting to know students they had not talked to previously before their study abroad program. Likewise, there were written comments reflecting that pre-existing relationships were strengthened as a result of studying abroad together. For example, one student from the Faculty-led Field-Study model wrote that their program made them “feel more integrated and interactive with [their] classmates.”

On the same question, only two Non-Credit program students (7%) and two Faculty-led Traditional participants (4%) wrote comments that were categorized into the mentor belongingness category. No students from the Faculty-led Field-Study program (0%) commented relevant to mentor belongingness. One student from the Non-Credit model wrote that they “felt genuinely supported by the staff and had lots of good bonding experiences.” Comments regarding staff/faculty from the Faculty-led Traditional program reflected the students’ faculty instructor. “The program has a good professor who cares about his students and their work,” wrote one Faculty-led Traditional student.

On the same written-response item, three comments from the Non-Credit model (10%), three comments from the Faculty-led Field-Study program (20%), and four Faculty-led Traditional replies (8%) were coded as Personal Growth and Development remarks. A Faculty-led Field-Study participant remarked on their study abroad, “It really submerses you into a life you’re not used to. It brings out your strengths and weaknesses, and by doing so, you improve upon them.” The preceding quote provides articulation

behind the statistically-significant growth on personal growth and development observed with the Faculty-led Field-Study. A Faculty-led Traditional student commented that their program was “phenomenal at encouraging students’ independence and confidence in unfamiliar settings.”

On written-response question one, the majority of student replies were coded into the Program Design and Arrangements category. Students took the opportunity to remark on what site visits, locations, and days of the program they enjoyed. Sixteen of the Non-Credit program’s written responses were relevant to the Program Design and Arrangements (55%), while the Faculty-led Field-Study model solicited six comments in this regard (40%), and a majority 29 of the Faculty-led Traditional comments (60%) were about programmatic logistics.

The second written-response question dealt with what the study abroad program should expand upon. The overwhelming majority of students used their response space to comment on the program arrangements. Therefore, the responses were not coded in the same system as above. Typical responses suggested more time in one location and less time in another. These comments will prove incredibly beneficial as program organizers continue to evaluate the design of each program and make decisions on alterations for future years. However, a few of the participants’ responses are noteworthy for the present study’s purpose. For example, two students from the Non-Credit model wanted fewer arranged group dinners, commenting that they would like more freedom to choose and explore on their own. Four students from the Faculty-led Traditional model commented that the program’s staff should consider planning additional group activities beyond the scope of the coursework to facilitate the class getting to know each other

better. Relevant to peer belongingness, one student from the Faculty-led Traditional program also commented on “rampant bullying among the students.”

The third written-response question dealt with what students would change about their study abroad. Overwhelmingly once again, participants took the opportunity to comment on alterations to the programs’ arrangements, specifically suggesting more time in one place or less time in another. From the Non-Credit program, the most common response came from 13 students who commented on adding more time in small towns. The most common response from the Faculty-led Field-Study was a call for more days at the program’s marine research station. Nine students from the Faculty-led Traditional model suggested more time in London. Many comments from this program also suggested various literary works and authors that should either be added or omitted from the literature-based course. This item solicited responses from students that are relevant and helpful for the program organizers to consider as they plan logistics for future iterations of the programs. Relevant to the current study, two students from the Faculty-led Traditional program suggested that program organizers should plan more group activities during free times.

Summary of the Findings

This chapter presented the results from a research study that examined the effects of study abroad on perceptions of peer belongingness, mentor belongingness, and personal growth and development. The study was conducted at a specialized, residential high school and used a quasi-experimental pretest-posttest design to quantitatively compare differences in participants’ level-of-agreement to survey items designed to measure peer belongingness, mentor belongingness, and personal growth and

development. The study's six research questions were addressed in this chapter using analytic statistics, particularly paired-samples *t*-tests. Additionally, results from each of the survey items were presented to delve into the responses and changes that led to perceived growth.

In particular, the findings are summarized as the following:

- When all ($N = 89$) participants' scores were analyzed in the aggregate, peer belongingness, mentor belongingness, nor personal growth and development revealed a statistically-significant degree of change from the pretest to posttest.
- By considering the scores from each individual program model separately, the Non-Credit program participants showed statistically-significant growth for peer belongingness.
- By considering the scores from each individual program model separately, the Faculty-led Field-Study program participants showed statistically-significant growth on personal growth and development indicators.
- Individual item analysis revealed the areas in which participants grew the most by program model, providing greater context to the extent of growth for each program model.

Since this study was also designed as an impact evaluation, responses to several additional posttest items, designed both as quantitative measures where students responded on a level-of-agreement scale and as written-response items, were included. The results of these posttest items were included in this chapter to lend further insight into the statistical measures presented. Chapter V includes conclusions, discussion, and reflections on the outcomes of the study.

CHAPTER V: DISCUSSION

Introduction

This study was an impact assessment of the effects of study abroad on participant perceptions of three variables: peer belongingness, mentor belongingness, and personal growth and development. Additionally, the study compared results from three different short-term study abroad programs to measure differences between program designs. This study was conducted during 2016 with high school students at The Gatton Academy, a specialized, residential high school on the campus of Western Kentucky University.

This study was conducted to contribute to several key knowledge gaps. First, short-term study abroad programs have become the most common way for American students to study abroad. For the last 25 years, international education researchers have put out a repeat call for impact assessments of study abroad programs (Bolen, 2007; Dwyer, 2004; Oppen, Teichler, & Carlson, 1990, p. 213; Sowa, 2002; Stone & Petrick, 2013; Sutton, Miller, & Rubin, 2007). Furthermore, there is a greater push than ever for American students to study abroad. In particular, a 2015 challenge to double the number of Americans studying abroad by 2020 included high school student participation (Institute for International Education, 2016). While high school students have been going abroad for travel programs, the model used at The Gatton Academy is unusual among high school student study abroad programs. In addition to a Non-Credit program (which is a comparative model to how many other high school students travel abroad), two other models of study abroad were used. In particular, the school's college-level Faculty-led Field-Study program and Faculty-led Traditional programs are modeled similar to university-level short-term study abroad programs. When participants have completed

the courses, they are awarded college credit for their study abroad experience. This study not only performed an impact assessment, but it also looked at the differences in impact among the three program models used. By studying a high school population, this study contributes to the little-examined field of high school study abroad. In particular, it is the first study abroad impact assessment conducted with a population of gifted and talented students at a specialized, residential high school.

Research questions and hypotheses were developed to guide the study. Research questions were:

1. For student participants, do Gatton Academy study abroad experiences enhance their perception of belongingness with fellow peers in the school community?
2. To what extent do differences of student participants' perceived effects on peer belongingness exist among the three program models employed by The Gatton Academy?
3. For student participants, do Gatton Academy study abroad experiences strengthen their perception of mentor/mentee relationships with school staff and faculty?
4. To what extent do differences of student participants' perceived effects on mentor/mentee relationships with school staff and faculty exist among the three program models?
5. For student participants, do Gatton Academy study abroad experiences lead to increased perceptions of personal growth and development?
6. To what extent do differences of student participants' perceived effects on personal growth and development exist among the three program models employed by The Gatton Academy?

Hypotheses were:

1. H₁: Participating in study abroad programs significantly changes Gatton Academy students' perceptions of belongingness with fellow peers in the school community.
2. H₁: Significant differences in students' perceptions of peer belongingness exist among the three program models employed by The Gatton Academy.
3. H₁: Participating in study abroad programs significantly strengthens Gatton Academy students' perceptions of mentor/mentee relationships with school staff and faculty.
4. H₁: Significant differences in students' perceptions of mentor belongingness exist among the three program models employed by The Gatton Academy.
5. H₁: Participating in Gatton Academy study abroad programs leads to significantly- increased perceptions of personal growth and development.
6. H₁: Significant differences in students' perceptions of personal growth and development exist among the three program models employed by The Gatton Academy.

Almost all students at The Gatton Academy studied abroad in 2016. Therefore, this research was structured as a quasi-experimental design using the three program models as comparison groups, as no control group could be fairly assigned. Original instrumentation was created, validated, and reliability tested to measure student perceptions of their fit with peers, fit with school staff and faculty, and their own views of personal growth and development. A pretest was delivered to each participant at a study abroad program orientation and the posttest was delivered on the final day of the program. Data were quantitative and analyzed using the SAS statistical software using paired-

samples *t*-tests to measure differences of perceptions on each variable for all participants. Additionally, each of the three program models were considered separately so that results could be compared among the three study abroad programs to determine if differences existed. Several other analysis techniques were performed to determine what led to differences, including an item-by-item analysis.

Recap of Findings

Chapter IV presented the study's results. The six research questions were analyzed using standardized statistical measures. Additional analyses were employed to further examine the extent of growth and change that occurred on the studied variables and among the three program models. The major findings were:

- Scores from the study's total population ($N = 89$) were analyzed collectively and no statistically-significant growth was recorded for peer belongingness, mentor belongingness, nor personal growth and development from the pretest to posttest.
- Scores were analyzed by program model. The Non-Credit program participants showed statistically-significant growth for peer belongingness.
- Also resulting from the analysis of scores by program model, the Faculty-led Field-Study participants showed statistically-significant growth on the personal growth and development variable.
- Items were analyzed individually. It appeared that the program models each impacted participants differently, while all had identifiable strengths. These analysis techniques allowed for a more dynamic understanding of participant growth.

Discussion of Peer Belongingness Findings

Research questions one and two concerned the variable of peer belongingness. Research question one examined whether studying abroad with The Gatton Academy increased perception of peer belongingness among participants. Results for the 15 items that measured peer belongingness revealed that the overall mean for the 89 study participants moderately increased (+1.17) from pretest to posttest. While it appeared that in general, study abroad improved peer belongingness at The Gatton Academy to a noticeable degree, there was no statistically-significant difference on peer belongingness from the pretest to posttest.

Research question two continued the examination of peer belongingness. Separate analyses by program model were performed to determine if there were differences in the scores. This process revealed a significant difference among the program models. In particular, the Non-Credit program had a statistical difference in significantly-improved peer belongingness scores, while scores for the Faculty-led Field-Study showed improvement, and scores for the Faculty-led Traditional program actually decreased from pretest to posttest. The Non-Credit program model had a measurable impact on improving students' perceptions of fit with their peers in The Gatton Academy community (mean scores improved +4.69 points). The items that seemed to make the biggest difference for Non-Credit program participants dealt with knowing and spending free time with school peers at The Gatton Academy. This indicated that the Non-Credit program participants perceived that their fit with peers at the school was positively affected by their participation in the Non-Credit study abroad program. Since this program had no course content, homework, and assignments, it was possible that the

model itself allowed participants more time to spend with their peers in a relaxed setting, leading to improved peer relationships. Additionally, the program was the shortest of the three models which indicated that not only did the change occur to a greater degree than other models, but that the change itself was fast in happening.

Scores for the Faculty-led Field-Study program increased though not to a statistically-significant level (mean scores improved +2.8 points). The items that drove this increase seemed to cluster around students' comfort in expressing themselves openly around their peers. The Faculty-led Field-Study model placed students in a rigorous outdoor field setting, indicating that participants' challenging experiences on the program may have contributed to openness, sharing, and genuine expressiveness with their peers. Additionally, students were paired with peers for coursework on the Faculty-led Field-Study program to conduct original field-research projects. This programmatic design element led to collaboration with peers and was likely a contributor to the growth observed by the peer belongingness test.

The mean score for the Faculty-led Traditional program dropped by -1.25 points. The Faculty-led Traditional program was set up as a reading and writing intensive course, largely independent academic activities, indicating that this program design may not have facilitated the building of student relationships as well as other programs. However, items dealing with students getting to know and make friends with peers actually grew more than other programs. These items likely outperformed the other program models because of the sheer size of the Faculty-led Traditional program. With 48 students on this study abroad, all of whom were 11th graders at the time, the students traveled with 80% of their graduating class. Even though the scores on the collective peer belongingness

indicators went down, the results indicated that the program helped students get to know more peers, even if the relationships they formed may not have been as deep or meaningful as in other models. The items that showed the greatest decline seemed to cluster around the sense of comfort with peers, a sense of feeling at home with peers, and feeling valued in the community by peers. With the program model being the longest at 23 days, participants may have been experiencing some fatigue with their peer group at the time of the posttest. Additionally, this program design gave students the largest amount of free time that was left unstructured. While students were required to spend their free time exploring off-site locations in groups of four or greater, this program design element allowed students to pick their peer groups. It was observed by the program staff/faculty that students seldom varied their peer groups. Therefore, this program design element was likely a deterrent for growth with the peer belongingness variable, as students were not expanding their social comfort beyond their existing clique.

Discussion of Mentor Belongingness Findings

Research questions three and four looked at the mentor belongingness variable, a concept that was defined for this study as students' perceived fit with the school's staff and faculty. Mentor belongingness was measured by five items. Research question three examined whether change in perceptions of mentor belongingness existed for study abroad participants. This question looked at all 89 participants' scores from the pretest to the posttest and found an incremental decline with a loss of -0.05 in mentor belongingness scores. Therefore, as only a slight change was recorded, no statistical evidence existed that mentor belongingness changed as a result of study abroad participation.

Research question four examined this same variable by program model to determine to what extent differences of perceptions of mentor belongingness existed among the program types. It was determined that though none of the program models made a significant difference, there was noticeable variability and differences among the programs. The Non-Credit and Faculty-led Field-Study models showed growth, with mentor belongingness scores increasing +1.61 and +1.23, respectively. The Faculty-led Traditional program showed a decline of -1.43 from pretest to posttest.

Examining item-by-item differences revealed what drove these differences. The growth of the Non-Credit and Faculty-led Field-Study models came from two items in particular which measured participants' feelings as to whether or not they knew an Academy staff or faculty member who understood them and who they trusted. The two items were stated as follows:

13. I would feel comfortable talking to an Academy staff/faculty member about a personal question.

20. I know at least one Academy staff/faculty member who seems to understand me very well.

These two items had high increases from the pretest to posttest on the Non-Credit (+0.50 and + 0.92) and Faculty-led Field-Study programs (+0.67 and +1.36), while the Faculty-led Traditional scores fell on these two items (-0.40 and -0.17). These differences may well be present as a result of the program sizes. The Non-Credit program with 27 students and the Faculty-led Field-Study program with 16 students may have created a more-intimate environment where students spent more time getting to know the programs' staff and faculty, whereas the Faculty-led Traditional program had 48 total students,

perhaps too large of a program to foster meaningful interactions. As the Non-Credit program showed the greatest amount of positive change, it is also possible that the absence of an academic course allowed the staff and faculty to interact in more personal ways with the participants. As an operating theory, it is quite possible that students on the Non-Credit program interacted differently with the staff and faculty who led their program than the students on the two Faculty-led study abroad classes, leading to the highest level of difference on the posttest scores. Without a class or academic focus on the Non-Credit program, interactions between participants and the staff/faculty may have been different than what students are accustomed thereby reflecting in greater measure on their posttest responses.

Discussion of Personal Growth and Development Findings

Research questions five and six were designed to examine the variable of personal growth and development, defined for this study through the attributes of confidence, curiosity, independence, and self-awareness. Personal growth and development was measured through 17 survey items. In particular, research question five looked at the impact of participating in a Gatton Academy study abroad program on participants' perceptions of personal growth and development. This question looked at all participants' scores from the pretest to the posttest and found that there was no statistically-significant increase, though there was overall growth of +3.48 points from the pretest to the posttest.

Research question six was designed to look program-by-program to determine if differences existed among the three study abroad program models used by the school on changes in personal growth and development. The results indicated statistically-significant growth for the Faculty-led Field-Study program model and its 15 participants

with average growth of +10.14 from the pretest to the posttest. The Non-Credit program and its 27 participants showed average growth of +6.08 on the personal growth and development variable, yet the results were not statistically-significant. While it cannot be concluded that the Non-Credit model would lead to statistically-significant growth in personal growth and development, this measure should be repeated with the program with a greater number of participants to provide a more-meaningful measure of impact. Finally, the Faculty-led Traditional program showed an incremental decline of only -0.09 on this measure.

Conducting an item-by-item analysis revealed the items that led to the greatest differences. In particular, the Faculty-led Field-Study group grew on all 17 items related to the variable of personal growth and development. The most noticeable growth clustered around items related to three concepts: confidence, self-awareness, and independence in new experiences. Items that measured these concepts showed sharp growth during the 16-day program. It appeared that the Faculty-led Field-Study's traits of involving students directly in research projects and in new experiences drove these increases and led to the statistically-significant finding.

The items that showed the greatest growth for the Non-Credit program model seemed to cluster around two concepts: confidence and ease with new experiences. From research question two, findings indicated that Non-Credit program participants showed statistically-significant growth with their perceptions of peer belongingness. This effect was likely a contributor to increased levels of confidence as well. The Non-Credit program moved from site location to site location more frequently than the other program models. It is possible that this trait of the program design contributed to the Non-Credit

program participants' perceptions of ease with new experiences and greater levels of independence since they were regularly finding themselves in new locations and constantly making adjustments.

The Faculty-led Traditional model had a mixed array of responses on the 17 items for personal growth and development. Minor variability was seen among the individual items and there were approximately an equal number of items that showed growth and losses. Considering the findings from research questions two and four, which showed losses of perceptions of fit with peers and mentors alike among the students on the Faculty-led Traditional program, it was likely that these perceptions might also have been a prohibiting factor in perceptions of confidence and independence.

Conclusions

The results indicated that study abroad programs at The Gattton Academy did not generally result in significant increases in perceptions of peer belongingness, mentor belongingness, and personal growth and development. However, the results indicated that program models produce different results. Therefore, it was concluded that when program model was added as a compounding variable that participant perceptions of peer belongingness, mentor belongingness, and personal growth and development did have significant growth on some metrics.

In particular, it is concluded that the Non-Credit program model contributed most to effecting peer belongingness. With a statistically-significant finding on peer belongingness, the Non-Credit program appeared to aid students' fit with peers more than other program designs. Despite the Non-Credit program being the shortest of the three models considered, the lack of an academic class seemed to lend more time for

participants to concentrate on relationships with fellow travelers. Additionally, the program's frequent movement from location to location also appeared to increase students' confidence and independence when encountering new situations.

It is concluded that the Faculty-led Field-Study program model contributed most to effecting personal growth and development. With a statistically-significant finding on personal growth and development, the Faculty-led Field-Study program appeared to aid students' growth on confidence, curiosity, independence, and self-awareness.

Additionally, scores for the Faculty-led Field-Study model also grew on the variables of peer belongingness and mentor belongingness, though not to a statistically-significant level. It was concluded that the Faculty-led Field-Study model's statistically-significant growth on personal growth and development is resultant from the program design elements of immersion with researchers and rigorous field locations. The smaller, intimate program design and team-based course structure seemed to reflect growth in students' belongingness with both peers and school staff and faculty.

The Faculty-led Traditional model showed declines on measures of peer belongingness, mentor belongingness, and personal growth and development. None of these measures were statistically-significant. It was concluded that the program's rigid academic structure, requiring students to perform a great deal of independent study through reading and writing and the low-degree of structure during free time contributed to the decline on peer belongingness. On mentor belongingness, it was concluded that the large size of this program was a prohibiting factor in increasing students' perceived fit with peers and with school staff and faculty. With only an increment of personal growth and development decline, it was concluded that students' lack of perceived fit with peers

and mentors (observed in the other tests) likewise led to a lack of confidence that was measured by the personal growth and development scale.

Researcher Reflections

It is not unusual for one to discover a number of elements that give a researcher pause for reflection. This impact assessment strives to provide guidance for best practice and further study. During the course of this study, this researcher found some intriguing information relating this study to previous research that was unanticipated. These reflections seem worthy of sharing for further research.

The first reflection deals with the dynamics of cross-cultural adjustment. The Faculty-led Traditional program was the longest of the three programs at 23 days, nearly twice as long as the 12-day Non-Credit program and substantially longer than the Faculty-led Field-Study model. It was possible that the Faculty-led Traditional participants were experiencing effects of culture shock at the time of the posttest that participants from the other programs were not. The widely accepted Lysgaard (1955) U-curve theory of cross-cultural adjustment is depicted in Figure 4.

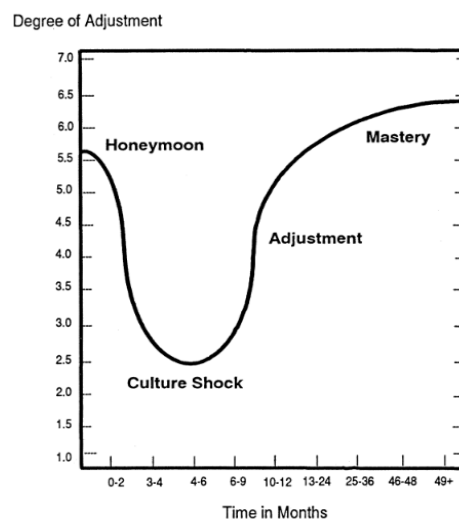


Figure 4. Lysgaard (1955) U-curve theory of cross-cultural adjustment. This particular illustration of the model appeared in Black and Mendenhall (1991).

The theory's model illustrates that travelers experience a honeymoon phase in the first days and weeks upon arrival in a foreign country. The honeymoon phase is followed by a sharp descent in degree of adjustment to a culture shock period. The culture shock period is characterized by travelers' feelings of anxiety, frustration, and anger toward a culture. This period may be a fatigue with the daily struggle of adaptation to the unfamiliar. Eventually given time, the theory operates that travelers rebound and work their way through these feelings during the adjustment and mastery phase where they plateau into a tranquil period of mastered adjustment. Consistent with this theory, the results of the Faculty-led Traditional program indicated some effects of the culture shock phase.

The second reflection is about the timing of the posttest administration. The posttest was delivered on the final day in-country for each study abroad program. For the Non-Credit study abroad program the posttest was administered in a hotel lobby on the last evening of the program before students flew home. The previous 12 days had been spent without an academic focus and students were closing out their program without an academic obligation. The posttest for both the Faculty-led Field-Study and the Faculty-led Traditional programs were also delivered on the final day of the program. However, these tests were delivered immediately before students took their final exams for the class in which they were enrolled. It was possible that this created a difference in mindset between the study participants' responses on the posttest. Students of the two Faculty-led designs may have been experiencing anxieties as they awaited their final exam for their short, intensive academic course, thereby creating a difference with the results. Posttests for all future studies should be administered at end-of-program meetings separate from

final exams and after final exams are over to ensure similar testing environments are created for each prong of the data collection.

The final two reflections deal with external validity considerations. Weiss (1998) described external validity as “concerned with whether the findings of one evaluation can be generalized to apply to other programs of similar type” (p. 185). This study examined a special population that may have started at very different initial levels of self-esteem, for example, that may have impacted the level of change on individuals as a result of study abroad participation. As this study examined a population comprised entirely of identified gifted and talented students, caution should be used when generalizing effects to all populations of students until further study is completed. It is reasonable to assume that even though pretest and posttest measures within this study reveal the difference that study abroad made on this given population, the nature of the population may affect the range of difference possible. For example, as studied by Amini (2005), self-esteem scores among gifted and talented students were significantly higher than for non-gifted students studied ($p = 0.0001$) (p. 138). This notion was backed up by Olszewski-Kubilius (2002), who stated that gifted populations who participated in early-college programs may be socially advanced or have higher confidence and maturity and warned that researchers should consume findings with such populations with this understanding.

It is also possible that the measured effects may have been impacted by other, non-measured variables during the passage of time from the pretest to the posttest. It was impossible to ascertain if other variables beyond those pursued by the survey instrument may have impacted the changes observed with this study’s participants. This is a common threat to any pretest/posttest design that involves human subjects. Sutton,

Miller, and Rubin (2007) wrote about this threat, “In educational settings, students are exposed to multiple treatments in sequence, and prior (or even simultaneous) interventions often interact with the primary experimental intervention in unpredictable ways” (p. 29). Comp, Gladding, Rhodes, Stephenson, and Vande Berg (2007) examined this potential threat specifically as it pertains to the pretest-posttest design of study abroad programs. “Significant challenges exist in attempting to assess the impact and outcome of pre- and post –program interventions, such as predeparture orientation and reentry support. The first is methodological; it is quite difficult to isolate program interventions’ impact from other contributing factors that might impinge and impact upon education abroad participants” (p. 112).

Recommendations for Further Research

It would be beneficial for this study to continue so that several years’ data could be used in the aggregate to better understand the observed changes. Growth in study abroad participants’ perceptions of peer belongingness, mentor belongingness, and personal growth and development was hypothesized at the beginning of this study. While statistically-significant growth was recorded on peer belongingness for the Non-Credit program and on personal growth and development for the Faculty-led Field-Study program, improved scores were also observed for the Non-Credit and the Faculty-led Field-Study on all three measured variables. Yet, the Faculty-led Traditional model showed decreased scores on all three variables. The Faculty-led Traditional program had clear differences as a model when compared to the Non-Credit and Faculty-led Field-Study programs. Interpersonal dynamics with any single study abroad group can affect the results. Future researchers should consider that this impact study depended upon the

dynamics of only three given study abroad programs. Short-term study abroad programs are intimate experiences that place students in stressful and highly-dynamic situations. There can be kismet or chaos with fellow travelers, and this can make all the difference. Collecting additional data over the course of several of the same study abroad programs would lend the additional data to sufficiently dilute any possible effects of poor interpersonal dynamics with any single group. Likewise, a continuation of this study that allows for an increase in the number of overall participants would be of value as it would add statistical strength to all measures performed.

Additionally, a modified, longitudinal study design to take multiple posttest measurements on the impacts on peer belongingness, mentor belongingness, and personal growth and development would also provide information on whether measured effects are a temporary phenomenon or if these effects may change over time. Sutton, Miller, and Rubin (2007) wrote

It should be mentioned that although all learning gains may erode over time, when we speak of changes in attitudes, worldview, and the like it is particularly important [that researchers of study abroad's impact] establish that these gains are not temporary. Several researchers (see review by Sell, 1983; Nash, 1976) have reported that initially recorded changes did not appear to persist after return from overseas. Claims regarding attitudinal shifts apparently need to be reassessed by delayed posttesting after some time has passed to ascertain whether they dissipate as the student re-aculturates to life back home, and the memory of the stretching effect of foreign travel recedes (p. 42).

This same call was offered by Meyer-Lee and Evans (2007) who wrote, "assessment both immediately after education abroad as well as some years later could

establish whether the immediate outcomes diminished over time, stayed about the same, or even increased” (p. 66). Therefore, it is recommended that future researchers measure the ways that study abroad impacts peer belongingness, mentor belongingness, and personal growth and development with a repeated posttest design at timed intervals. For example, as a line of additional research inquiry, this same population of students should be studied five years down the road to measure how Gatton Academy study abroad experience impacts may evolve over time.

As indicated in the Researcher Reflection section, studies with gifted and talented populations may not be generalizable to all populations. It is possible that the participants of this study had higher perceptions of their personal growth and development or levels of belonging at the time of the pretest that make the findings less generalizable to other student groups. Therefore, further studies on community belongingness and personal growth and development resulting from study abroad participation should be conducted with various groups of students. Multiple tests with various groups will determine how various populations of students are affected.

As a final recommendation for further research, initiating curriculum mapping of existing study abroad programs should be considered as a way of assuring an intended focus on priority outcomes. This concept, using the identified data that showed the core strengths of each program model, could be implemented at the school to facilitate intended outcomes. The Non-Credit program appeared to add particular value for peer belongingness. As an example of curriculum mapping, if facilitating an increase of peer belongingness was deemed important early on in the experience of attending the school, this particular study abroad program model could be more-highly incentivized to the first-

semester students. The results allow the school to begin making deliberate decisions about its study abroad curriculum with the outcomes it seeks. Instituting curriculum mapping with the programs and then repeating this impact assessment would be an important line of future research inquiry.

This same concept of curriculum-mapping can be applied to any student group where particular outcomes are a priority. The Gatton Academy is one of countless student groups where peer belongingness, mentor belongingness, and personal growth and development matter. If the impacts of particular program models can be determined, study abroad programs can be deliberately targeted to student development needs for particular student group populations. These groups exist in high schools and on college campuses. Sororities and fraternities, student organizations, athletic teams, honors programs, ambassador groups, and freshmen who have declared a shared major are all examples of other groups where curriculum-mapping of study abroad delivery could be studied by future researchers.

Considerations for Improved Practice

The three study abroad models analyzed in this study are annual programs that can be modified for improved practice. Additionally, The Gatton Academy is currently undergoing an expansion and will be at its new capacity of approximately 200 students starting in the fall semester of 2017. With this growth comes the school's consideration of creating a new study abroad program. This study lends evidence for program design that can maximize positive student gains. This evidence should be considered by The Gatton Academy for the modification and creation of future programs.

First, it is recommended that the school's short-term study abroad programs should be kept between 15 to 30 participants for highest degree of impact. The number of participants on a program appeared to have an effect on magnitude of impact. In particular, the Faculty-led Field-Study program with 16 students and the Non-Credit program with 27 students showed considerably more gains than the Faculty-led Traditional program with 48 students. This program size range is believed to create more intimate and personal environments that foster greater fit in the community and create the best environments for personal growth and development.

Second, it is recommended that the school retain one option for students that is a Non-Credit program design. While there are arguments for eliminating a Non-Credit program from the study abroad offerings to maximize the school's credit production and pupils' academic progress during the Winter and Summer Terms, it appeared that the Non-Credit program positively impacted students on all three studied variables. With participants freed from the obligations to academic study and the resultant stress from course assignments and exams, the author believes that Non-Credit participants concentrated on enjoying time with peers and mentors and experienced a growth in confidence as a result.

Finally, it is recommended that the school concentrates on other program design elements, such as limiting the number of participants on study abroad programs, rather than trying to keep students abroad longer. The duration of the short-term study abroad programs appeared to matter. The shorter programs appear to have greater impacts on peer belongingness, mentor belongingness, and personal growth and development. This is possibly a result of the 23-day Faculty-led Traditional participants' spending

significantly more time in-country and reaching the stage of culture shock outlined in the U-curve theory of cross-cultural adjustment. While this area needs further research, current evidence supports that the shortest programs have the highest impacts.

Summary

This study contributed to a knowledge gap on the impact of short-term study abroad programs on participants. Short-term study abroad is now the most popular way for American students to study abroad. In addition, multiple calls exist to drastically increase the number of American students studying abroad in the coming years. Among these calls is the inclusion of high school-aged students studying abroad. This study addressed a little-examined area of the effect of study abroad on high-school aged students. In particular, it was the first study abroad impact assessment conducted with a population of gifted and talented students at a specialized, residential high school. The study looked at variables of peer belongingness, mentor belongingness, and personal growth and development and compared these variables among three different models of study abroad. The findings of this study can be generalized to short-term study abroad at large so long as the consumer of this study understands the special population examined here. The findings of this study also begin a new strand of research on study abroad impacts with gifted and talented high school students and on the variety of impacts among program models used with this population.

REFERENCES

- Ambrose, D. (2010). From the editor's desk. *Roeper Review*, 32(1), 1.
- Amini, M. (2005). Identifying stressors and reactions to stressors in gifted and non-gifted students. *International Education Journal*, 6(2), 136-140.
- Anderson, P. H., Lawton, L., Rexeisen, R. J., & Hubbard, A. C. (2006). Short-term study abroad and intercultural sensitivity: A pilot study. *International Journal of Intercultural Relations*, 30, 457-469.
- Anderson-Butcher, D., & Conroy, D. E. (2002). Factorial, convergent, and predictive validity of a measure of belonging in youth development programs. *Educational and Psychological Measurement*, 62(5), 857-876.
- Anderson-Butcher, D., & Fink, J. S. (2005). The importance of a sense of belonging to youth service agencies: A risk and protective factor analysis. *Journal of Child and Youth Care Work*, 20, 11-21.
- Andreasen, R. J. (2003). Barriers to international involvement. *Journal of International Agricultural and Extension Education*, 10(3), 65-69.
- Arkansas School for Mathematics, Sciences and the Arts. (n.d.). *Global learning program*. Retrieved from <http://asmsa.org/academics/global-learning-program>
- Armstrong, G. K. (1982). Language study abroad for high school students: Indiana's program for proficiency and recruitment. *Foreign Language Annals*, 15(5), 365-370.
- Atkinson, R. D., Hugo, J., Lundgren, D., Shapiro, M. J., & Thomas, J. (2007). Addressing the STEM challenge by expanding specialty math and science high schools. *NCSSSMST Journal*, 12(2), 14-23.

- Bachner, D. J., & Zeutschel, U. (2009). *Students of four decades: Participants' reflections on the meaning and impact of an international homestay experience*. New York: Waxmann Publishing.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497-529.
- Bard College at Simon's Rock the Early College. (2016). Homepage. Retrieved from <http://simons-rock.edu/>
- Berdan, S. N., & Berdan, M. S. (2013). *Raising global children: Ways parents can help our children grow up ready to succeed in a multicultural global economy*. Alexandria, VA: American Council on the Teaching of Foreign Languages.
- Black, J. S., & Mendenhall, M. (1991). The U-curve Adjustment Hypothesis revisited: A review and theoretical framework. *Journal of International Business Studies*, 22(2), 225-247.
- Blaisdell, S., & Tichenor, K. R. (2002). Where are the students going? NCSSSMST gender and ethnicity differences for major and institution choices. *NCSSSMST Journal*, 7(2), 14-16.
- Blumenthal, P., & Laughlin, S. (Eds.). (2009). *Promoting study abroad in science and technology fields: Fifth in a series of white papers on expanding capacity and diversity in study abroad*. New York: Institute of International Education.
- Bolen, M. C. (Ed.). (2007). *A guide to outcomes assessment in education abroad*. Carlisle, PA: Forum on Education Abroad.

- Booth, D., Sethna, B. N., Stanley, J. C., & Colgate, S. O. (1999). Special opportunities for exceptionally able high school students: A description of eight residential early-college-entrance programs. *Journal of Secondary Gifted Education, 10*(4), 195-202.
- Boyd, B. L., Giebler, C., Hince, M., Liu, Y., Mehta, N., Rash, R., . . . Yanta, Y. (2001). Does study abroad make a difference? An impact assessment of the International 4-H Youth Exchange Program. *Journal of Extension, 39*(5).
- Braskamp, L. A., Braskamp, D. C., & Merrill, K. C. (2009). Assessing progress in global learning and development of students with education abroad experiences. *Frontiers: The Interdisciplinary Journal of Study Abroad, 18*, 101-118.
- Camara, W. J., & Schmidt, A. E. (1999). *Group differences in standardized testing and social stratification*. New York: College Entrance Examination Board. Retrieved from <https://research.collegeboard.org/sites/default/files/publications/2012/7/researchreport-1999-5-group-differences-standardized-testing-social-stratification.pdf>
- Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Chicago: Rand McNally.
- Carlson, J. S., Burn, B. B., Useem, J., & Yachimowicz, D. (1990). *Study abroad: The experience of American undergraduates*. Westport, CT: Greenwood Press.
- Carroll, J. B. (1967). Foreign language proficiency levels attained by language majors near graduation from college. *Foreign Language Annals, 1*(2), 131-51.
- Chieffo, L., & Griffiths, L. (2004). Large-scale assessment of student attitudes after a short-term study abroad program. *Frontiers: The Interdisciplinary Journal of Study Abroad, 10*, 165-177.

- CIEE. (n.d.a.). *Who we are*. Retrieved from <https://www.ciee.org/who/>
- CIEE. (n.d.b.). *High school abroad*. Retrieved from <https://www.ciee.org/high-school-study-abroad/>
- CIEE. (n.d.c.). *Global navigator high school programs*. Retrieved from <https://www.ciee.org/high-school-summer-abroad/>
- Citron, J. L. (2002). U.S. students abroad: Host culture integration or third culture formation? In W. Grünzweig, & N. Rinehart (Eds.), *Rockin' in Red Square: Critical approaches to international education in the age of cybersecurity* (pp. 41-56). Münster: Lit Verlag.
- Coelho, G. V. (2010). Personal growth and educational development through working and studying abroad. *Journal of Social Issues*, 18(1), 55-67.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement*, 20, 37-46.
- CollegeBoard. (2014). *10 years of Advanced Placement exam data shows significant gains in access and success; Areas for improvements*. Accessed from <https://www.collegeboard.org/releases/2014/class-2013-advanced-placement-results-announced>
- Committee on Prospering in the Global Economy of the 21st Century: An Agenda for American Science and Technology; National Academy of Sciences; National Academy of Engineering; & Institute of Medicine. (2007). *Rising above the gathering storm: Energizing and employing America for a brighter economic future*. Washington, DC: The National Academic Press.

- Comp, D., Gladding, S., Rhodes, G., Stephenson, S., & Vande Berg, M. (2007). Literature and resources for education abroad outcomes assessment. In M. C. Bolen (Ed.), *A guide to outcomes assessment in education abroad* (pp. 97-136). Carlisle, PA: Forum on Education Abroad.
- Congress-Bundestag Youth Exchange. (n.d.). *About CBYX for young professionals*. Retrieved from <https://www.cbyx.info/about-cbyx>
- Dash, K. (2012). Economic impact: Methodology and overall findings. *NCSSSMST Journal*, 17(1), 24-29.
- Davis, T. M. (Ed.). (1995/96). *Open doors 1995/96: Report on international exchange*. New York: Institute of International Education.
- Deardorff, D. K. (2007). How and why to use results of outcomes assessment. In M. C. Bolen (Ed.), *A guide to outcomes assessment in education abroad* (pp. 221-230). Carlisle, PA: Forum on Education Abroad.
- Deardorff, D. K., & Deardorff, D. L. (2007). An overview of the basic methods of outcomes assessment. In Bolen, M. C. (Ed.), *A guide to outcomes assessment in education abroad* (pp. 89-96). Carlisle, PA: Forum on Education Abroad.
- DeDee, L. S., & Stewart, S. (2003). The effect of student participation in international study. *Journal of Professional Nursing*, 19(4), 237-242.
- DeVellis, R. F. (2012). *Scale development: Theory and applications* (3rd ed). Los Angeles: Sage.
- Donnelly-Smith, L. (2009). Global learning through short-term study abroad. *Peer Review*, 11(4), 12-15.

Dwyer, M. M. (2004). More is better: The impact of study abroad program duration.

Frontiers: The Interdisciplinary Journal of Study Abroad, 10, 151-163.

Editors of *The Harvard Daily Echo*. (1881). *An account of the elective courses given at*

Harvard College. Retrieved from <https://archive.org/details/accountofelectiv00camb>

EF Education First. (n.d.). *Our history*. Retrieved from <http://www.eftours.com/our-story/our-history>

Ehrenreich, S. (2006). The assistant experience in retrospect and its educational and professional significance in teachers' biographies. In M. Byram & A. Feng (Eds.), *Living and Studying Abroad: Research and Practice* (pp. 186-209). Clevedon, UK: Multilingual Matters, LTD.

Engle, L., & Engle, J. (2004). Assessing language acquisition and intercultural sensitivity development in relation to study abroad program design. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 10, 219-236.

Enomoto, S. (1996). Assessing the outcomes of secondary school students' study abroad in Japan. *Japanese Studies*, 16(1), 94-104.

Every Student Succeeds Act, S 1177, §§4102-4107, 114 Cong. (2015).

Feldhusen, J. F., & Jarwan, F. (1995). Predictors of academic success at state-supported residential schools for mathematics and science: A validity study. *Educational and Psychological Measurement*, 55(3), 505-512.

Fischer, K. (2012, August 7). U.S. will make broader global skills for college students a new priority. *Chronicle of Higher Education*. Retrieved from <http://chronicle.com/article/US-Will-Make-Broader-Global/133435/>

- Gatten, O. K. (2014). *Student transitions at a residential STEM school*. Retrieved from TopScholar Masters Theses and Specialist Projects, Paper 1449.
- Generation Study Abroad. (2015). *Meeting America's global education challenge: Generation study abroad year one impact*. Retrieved from <http://www.iie.org/Programs/Generation-Study-Abroad/About/Impact>
- Gmelch, G. (1997). Crossing cultures: Student travel and personal development. *International Journal of Intercultural Relations*, 21(4), 475-490.
- Gott, M. T. (2012). Comparison of academic achievement, college readiness, and perception between students from traditional high schools and The Gatton Academy (Doctoral dissertation). Retrieved from TopScholar Dissertations, Paper 25.
- Hammer, M. R., & Bennett, M. J. (2001). *The Intercultural Development Inventory (IDI) manual*. Portland, OR: Intercultural Communication Institute.
- Hansel, B., & Chen, Z. (2008). AFS long term impact study: Report 1: 20 to 25 years after the exchange experience, AFS alumni are compared with their peers. *AFS International*. Retrieved from <http://www.afs.org/afs-and-intercultural-learning/research/>
- Hansen, H. F. (2005). Choosing evaluation models: A discussion on evaluation design. *Evaluation*, 11(4), 447-462.
- Hao, C. (2012). *The effect of study abroad on the development of intercultural sensitivity among Mainland Chinese high school students* (Doctoral dissertation). Available from ProQuest Digital Dissertations. (AAT 3543104).

- Hoffa, W. W. (2007). A history of US study abroad: Beginnings to 1965. In *Frontiers: The Interdisciplinary Journal of Study Abroad. Special Publication*. Lancaster, PA: Whitmore Printing.
- Horsch, K. (1997). Indicators: Definition and use in a results-based accountability system. *Harvard Family Research Project*. Retrieved from <http://www.hfrp.org/publications-resources/browse-our-publications/indicators-definition-and-use-in-a-results-based-accountability-system>
- H. R. 2272: *America COMPETES Act*, 110 Cong. (2007).
- Hulstrand, J. (2006). Education abroad on the fast track. *International Educator*, 15(3), 46-55.
- Ingraham, E., & Peterson, D. (2005). Assessing the impact of study abroad on student learning at Michigan State University. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 10(5), 83-100.
- Institute of International Education. (1955). *1954 annual report*. Retrieved from <http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0C CYQFjAA&url=http%3A%2F%2Fwww.iie.org%2F~%2Fmedia%2FFiles%2FCorporate%2FAR%2F1954-IIE-Annual-Report.ashx&ei=OT07U4bJL5TJsASepIDICg&usg=AFQjCNFVwQWXhIb9AOaYhodKjGyPgXSU5Q&bvm=bv.63934634,d.cWc&cad=rja>
- Institute of International Education. (2005). *Open doors 2005 fast facts*. Retrieved from <http://www.iie.org/~media/Files/Corporate/Open-Doors/Fast-Facts/Fast%20Facts%202005.pdf?la=en>

- Institute of International Education. (2015a). *Open doors 2015 “fast facts.”* Retrieved from <http://www.iie.org/~media/Files/Corporate/Open-Doors/Fast-Facts/Fast-Facts-2015.pdf?la=en>
- Institute of International Education. (2015b). *Open doors 2015: International students in the U.S. up ten percent to nearly one million; Highest rate of growth in 35-years; Increases reported in 44 states. Study abroad by American students picks up momentum.* Retrieved from <http://www.iie.org/en/Who-We-Are/News-and-Events/Press-Center/Press-Releases/2015/2015-11-16-Open-Doors-Data>
- Institute of International Education. (2015c). *Profile of U.S. study abroad students, 2003/04-2013/14.* Open Doors Report on International Educational Exchange. Retrieved from <http://www.iie.org/opendoors>
- Institute of International Education. (2016). *Generation study abroad.* Retrieved from <http://www.iie.org/Programs/Generation-Study-Abroad>
- International Studies Abroad. (n.d.). *History.* Retrieved from <http://studiesabroad.com/about/press/quick-facts>
- Iwami, I. (2001). Observation of high school students’ real-life communication during a study tour abroad. *Journal of the Japan-Britain Association for English Teachers*, 5, 13-37.
- Jones, B. M. (2009). Profiles of state-supported residential math and science schools. *Journal of Advanced Academics*, 20(3), 472-501.

- Kashdan, T. B., Gallagher, M. W., Silvia, P. J., Winterstein, B. P., Breen, W. E., Terhar, D., & Steger, M. F. (2009). The Curiosity and Exploration Inventory-II. Development, factor structure, and psychometrics. *Journal of Research in Personality, 43*, 987-998.
- Kauffman, N. L., Martin, J. N., Weaver, H. D., & Weaver, J. (1992). *Students abroad: Strangers at home*. Yarmouth, ME: Intercultural Press.
- Kennedy-Lugar Youth Exchange and Study. (n.d.). *About the program*. Retrieved from <http://yesprograms.org/about>
- Kraft, R. J., Ballantine, J., & Garvey, D. (1994). Study abroad or international travel: The case of Semester at Sea. *International Review, 4*, 23-61.
- Laubscher, M. R. (1994). *Encounters with difference: Student perceptions of the role of out-of-class experiences in education abroad*. Westport, CT: Greenwood Press.
- Leggett, K. (2011). Encouraging STEM students to study abroad. *International Educator, 20*(4), 44-47.
- Limburg-Weber, L. (1999). Send them packing: Study abroad as an option for gifted students. *Journal of Secondary Gifted Education, 11*(2), 43-51.
- Loveland, E. (2006). Education abroad required: An interview with Goucher College president Sanford Ungar. *International Educator, 15*(1), 22-25.
- Lysgaard, S. (1955). Adjustments in a foreign society: Norwegian Fulbright grantees visiting the United States. *International Social Science Bulletin, 7*, 45-51.
- Marklein, M. B. (2015, February 11). Drive to double study abroad turns to schoolteachers. *The Chronicle of Higher Education*. Retrieved from <http://chronicle.com/article/Drive-To-Double-Study-Abroad/189941>

- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50, 370-396.
- Maslow, A. H. (1954). *Motivation and personality*. New York: Harper & Row.
- Mathews, J. (2016, April 17). Top-performing schools with elite students. *The Washington Post*. Retrieved from https://www.washingtonpost.com/local/education/top-performing-schools-with-elite-students/2016/04/12/1cd321d4-00d7-11e6-b823-707c79ce3504_story.html
- McKeown, J. S. (2009). *The first time effect: The impact of study abroad on college student intellectual development*. Albany, NY: State University of New York Press.
- McLeod, M., & Wainwright, P. (2009). Researching the study abroad experience. *Journal of Studies in International Education*, 13(1), 66-71.
- Medina-López-Portillo, A. (2004). *College students' intercultural sensitivity development as a result of their studying abroad: A comparative description of two types of study abroad programs* (Doctoral dissertation). Available from ProQuest Dissertations and Theses Database. (3137038)
- Meyer-Lee, E., & Evans, J. (2007). Areas of study in outcomes assessment. In M. C. Bolen (Ed.), *A guide to outcomes assessment in education abroad* (pp. 61-70). Carlisle, PA: Forum on Education Abroad.
- Milleret, M. (1991). Assessing the gain in oral proficiency from summer foreign study. *Association of Departments of Foreign Languages Bulletin*, 22(3), 39-43.
- Muijs, D. (2011). *Doing quantitative research in education with SPSS* (2nd ed.). Los Angeles: Sage.

- National Consortium of Specialized STEM Schools. (2016). *Institutional members*. Retrieved from <http://ncsss.org/about/institutional-members>
- National Research Council. (2005). *Policy implications of international graduate students and postdoctoral scholars in the United States*. Board on Higher Education and the Workforce. Washington, DC: The National Academic Press.
- National Science Foundation. (2016). *Science and engineering indicators 2016*. National Science Board. Arlington, VA: National Center for Science and Engineering Statistics.
- National Security Language Initiative for Youth. (n.d.). *About NSLI-Y*. Retrieved from <http://www.nsliforyouth.org/nsli-y/about/>
- Nelson, C. A. (1881). Past and present college periodicals. In M. King (Ed.), *The Harvard register: An illustrated monthly*, (Vol. 3, January to July 1881, pp. 400-404). Cambridge, MA: Harvard College.
- Newsweek*. (2013, May 6). "2013 America's best high schools." Retrieved from <http://www.newsweek.com/2013/05/06/america-s-best-high-schools.html>
- O'Connell, M. E., & Norwood, J. L. (Eds.). (2007). *International education and foreign languages: Keys to securing America's future*. Washington, DC: The National Academies Press.
- Olszewski-Kubilius, P. (2002). A summary of research regarding early entrance to college. *Roeper Review*, 24(3), 152-157.
- Olszewski-Kubilius, P. (2010). Special schools and other options for gifted STEM students. *Roeper Review*, 32, 61-70.

- Opper, S., Teichler, U., & Carlson, J. (1990). *Impacts of study abroad programmes on students and graduates*. London: Jessica Kingsley Publishers.
- Pearce, P. L. (1988). *The Ulysses factor: Evaluating visitors in tourist settings*. New York: Springer-Verlag.
- Pearce, P. L. (1991). Dreamworld: A report on public reactions to Dreamworld and proposed developments at Dreamworld. *In a report to Ernst and Young on behalf of the IOOF in conjunction with Brian Dermott and Associates*. Townsville, Australia: Department of Tourism, James Cook University.
- Pearce, P. L. (1993). Fundamentals of tourist motivation. In D. Pearce, & R. Butler (Eds.), *Tourism research: Critiques and challenges* (pp. 85-105). London: Routledge and Kegan Paul.
- Pearce, P. L. (2005). Developing the travel career approach to tourist motivation. *Journal of Travel Research*, 43(3), 226-237.
- Peterson, C., Engle, L., Kenney, L., Kreutzer, K., Nolting, W., & Ogden, A. (2007). Defining terms for use in designing outcomes assessment projects. In M. C. Bolen (Ed.), *A guide to outcomes assessment in education abroad* (pp. 163-204). Carlisle, PA: Forum on Education Abroad.
- Pfeiffer, S. I., Overstreet, J. M., & Park, A. (2010). The state of science and mathematics education in state-supported residential academies: A nationwide survey. *Roeper Review*, 32, 25-31.
- Polit, D. F., & Beck, C. T. (2006). The Content Validity Index: Are you sure you know what's being reported? Critique and recommendations. *Research in Nursing and Health*, 29, 489-497.

- Pope, J. A., Sánchez, C. M., Lehnert, K., & Schmid, A. S. (2014). Why do Gen Y students study abroad? Individual growth and the intent to study abroad. *Journal of Teaching in International Business*, 25(2), 97-118.
- Reghenzani, D. M. (1991). *International travel and study programs: A preliminary exploration from a traditional and non-traditional, credit and non-credit perspective*. Proceedings from Mid-South Educational Research Association. Lexington, KY.
- Reuters. (2015). "CIEE announces \$500,000 in high school study abroad scholarships as part of IIE Generation Study Abroad™ pledge." Retrieved from <http://www.reuters.com/article/me-ciee-idUSnBw205045a+100+BSW20150120>
- Roberts, J. L. (2010). Lessons learned: Advocating for a specialized school of mathematics and science. *Roeper Review*, 32, 42-47.
- Roberts, J. L. (2013). The Gatton Academy: A case study of a state residential high school with a focus on mathematics and science. *Gifted Child Today*, 36(3), 193-200.
- Roberts, J. L., Breedlove, L., & Strode, D. B. (2016). Experiential learning at The Gatton Academy of Mathematics and Science in Kentucky. *Gifted Child Today*, 39(4), 228-235.
- Rossi, P. H., & Freeman, H. E. (1993). *Evaluation: A systematic approach* (5th ed.). Newbury Park, CA: Sage.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069-1081.

- Simpson, M. (2013, Winter). Governor Steve Beshear celebrates the Academy's number one *Newsweek* ranking. *The Challenge*, 1, 13.
- Smith, K., & Curry, K. (2011). Is it worth it? Measuring the long-term effects of an international experience for nursing students in Ecuador. *Journal of Community Health Nursing*, 28, 14-22.
- Sol Abroad. (n.d.). *Why choose Sol?* Retrieved from <http://www.solabroad.com/why-choose-sol>
- Sowa, P. A. (2002). How valuable are student exchange programs? *New Directions for Higher Education*, 117, 63-70.
- Stanley, J. C. (1991). A better model for residential high schools for talented youths. *The Phi Delta Kappan*, 72(6), 471-473.
- Stitsworth, M. H. (1988). The relationship between previous foreign language study and personality change in youth exchange participants. *Foreign Language Annuals*, 21(2), 131-137.
- Stone, M. J., & Petrick, J. F. (2013). The educational benefit of travel experiences: A literature review. *Journal of Travel Research*, 52(6), 731-744.
- Streib, L., & Yarett, I. (2012, May 28). America's best high schools: Our report card on the 1,000 that make the grade. *Newsweek*, 34-37.
- Subotnik, R. F., & Jarvin, L. (2005). Beyond expertise. Conceptions of giftedness as great performance. In R. J. Sternberg & J. E. Davidson (Eds.), *Conceptions of giftedness* (2nd ed., pp. 343-357). New York: Cambridge University Press.

- Subotnik, R. F., Tai, R. H., & Almarode, J. (n.d.). *Study of the impact of selective SMT high schools: Reflections on learners gifted and motivated in science and mathematics*. Retrieved from http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_072643.pdf
- Subotnik, R. F., Tai, R. H., Rickoff, R., & Almarode, J. (2010). Specialized public high schools of science, mathematics, and technology and the STEM pipeline: What do we know now and what will we know in 5 years? *Roeper Review*, 32, 7-16.
- Sutton, R. C., Miller, A. M., & Rubin, D. L. (2007). Research design in assessing learning outcomes of education abroad programs. In M. C. Bolen (Ed.), *A guide to outcomes assessment in education abroad* (pp. 23-59). Carlisle, PA: Forum on Education Abroad.
- Tarrant, M. A., Rubin, D. L., & Stoner, L. (2014). The added value of study abroad: Fostering a global citizenry. *Journal of Studies in International Education*, 18(2), 141-161.
- The Daily Beast*. (2014, August 27). "America's top high schools 2014." Retrieved from <http://www.thedailybeast.com/features/2014/america-s-top-high-schools.html>
- The Experiment in International Living. (2016). *Make your summer matter: Innovative summer abroad programs for high school students*. Retrieved from <http://www.experiment.org/documents/experiment/Experiment-2016-catalog.pdf>
- The Experiment in International Living. (n.d.). *History and mission*. Retrieved from <http://www.experiment.org/pn/about-the-experiment/history-and-mission/>
- The Gatton Academy. (2015). *2015-16 School profile*. Retrieved from http://www.wku.edu/academy/documents/15_16_profile.pdf

- The Gatton Academy. (2016a). *Study abroad and global learning*. Retrieved from www.wku.edu/academy/academics/study_abroad
- The Gatton Academy. (2016b). *About The Gatton Academy*. Retrieved from <http://www.wku.edu/academy/about/index.php>
- Thelin, J. R. (2004). *A history of American higher education*. Baltimore: The Johns Hopkins University Press.
- Thomas, J. (2000). First year findings: NCSSSMST longitudinal study. *NCSSSMST Journal*, 5(2), 4-5.
- Thomas, J., & Williams, C. (2010). The history of specialized STEM schools and the formation and role of the NCSSSMST. *Roeper Review*, 32, 1, 17-24.
- Thot, I. D. (1998). *The "Congress-Bundestag Youth Exchange for Young Professionals": What are the effects on U.S. students? An executive summary*. Retrieved from ERIC database. (ED420288).
- United States Department of State. (2016). *100,000 strong educational exchange initiatives*. Retrieved from <http://www.state.gov/100k/>
- United States Department of State. (n.d.a.). The early years: Bureau of Educational and Cultural Affairs. Retrieved from <http://eca.state.gov/fulbright/about-fulbright/history/early-years>
- United States Department of State. (n.d.b.). *American youth leadership program*. Retrieved from <http://exchanges.state.gov/us/program/american-youth-leadership-program>
- United States Department of State. (n.d.c.). *Youth ambassadors*. Retrieved from <http://exchanges.state.gov/non-us/program/youth-ambassadors>

- University of Delaware. (n.d.). *Institute for global studies brief history*. Retrieved from http://www.udel.edu/global/studyabroad/information/brief_history.html
- Weiss, C. (1998). *Evaluation: Methods for studying programs and policies* (2nd ed.). New Jersey: Prentice Hall.
- Wong, K. M., & Musa, G. (2014). Retirement motivation among 'Malaysia My Second Home' participants. *Tourism Management*, 40, 141-154.
- Yashima, T. (2010). The effects of international volunteer work experiences on intercultural competence of Japanese youth. *International Journal of Intercultural Relations*, 34, 268-282.
- Zorn, C. R. (1996). The long-term impact on nursing students of participating in international education. *Journal of Professional Nursing*, 12(2), 106-110.

APPENDIX A

Pretest Instrument Sample

Instructions: The following three questions will assign a unique code to your responses. This will help the researcher ensure your anonymity.

What are the last two digits of your permanent home address? (i.e., If your home address were <i>123 Main Street</i> , your response would be <u>2</u> <u>3</u>).	____	____
What are the last two letters of your mother's maiden name? (i.e., If your mother's maiden name is <i>Smith</i> , your response would be <u>T</u> <u>H</u>).	____	____
What are the numerical digits for your birth month? (i.e., If your birthday is in January, your response would be <u>0</u> <u>1</u>).	____	____

Instructions: Please answer the following five questions about yourself.

Are you a First-year or Second-year student at The Gatton Academy?	First-year	Second-year
What gender do you most closely identify as?	Female	Male
Have you ever traveled outside of the USA before?	Yes	No
To date, have you been on any study abroad program with The Gatton Academy before?	Yes	No
If you answered Yes, which study abroad program/s have you already traveled on with The Gatton Academy?	<div style="display: flex; flex-direction: column; gap: 5px;"> <div>1. _____</div> <div>2. _____</div> <div>3. _____</div> </div>	

Instructions: The 20 statements below are about The Gatton Academy community. Please indicate your level of agreement for each item by circling the single number that best represents your level of agreement. A response of 1 indicates your lowest level of agreement and a response of 10 indicates your highest level of agreement.

	AGREEMENT									
	Low					High				
1. I believe I fit in well with other students at the Academy.	1	2	3	4	5	6	7	8	9	10
2. I like the Academy staff.	1	2	3	4	5	6	7	8	9	10
3. I feel comfortable expressing myself around other Academy students.	1	2	3	4	5	6	7	8	9	10
4. I feel like I am a valued member of the Academy community.	1	2	3	4	5	6	7	8	9	10
5. The Academy staff helps me fit in to the program.	1	2	3	4	5	6	7	8	9	10
6. I know the first names of most students in my grade at the Academy.	1	2	3	4	5	6	7	8	9	10
7. I have difficulty making new friends at the Academy.	1	2	3	4	5	6	7	8	9	10
8. There is a strong sense of community at the Academy.	1	2	3	4	5	6	7	8	9	10
9. The Academy community encourages me to be an open and sharing individual.	1	2	3	4	5	6	7	8	9	10
10. I get a lot of personal satisfaction from being around other Academy students.	1	2	3	4	5	6	7	8	9	10
11. The Academy fits my educational goals.	1	2	3	4	5	6	7	8	9	10
12. Besides their names, I know something about most Academy students in my grade.	1	2	3	4	5	6	7	8	9	10
13. I would feel comfortable talking to an Academy staff member about a personal question.	1	2	3	4	5	6	7	8	9	10
14. I spend a lot of my free time with other Academy students.	1	2	3	4	5	6	7	8	9	10
15. I enjoy being a part of the Academy community.	1	2	3	4	5	6	7	8	9	10
16. I feel at home at the Academy.	1	2	3	4	5	6	7	8	9	10
17. The Academy staff takes time to get to know me.	1	2	3	4	5	6	7	8	9	10
18. I have made many new friends at the Academy.	1	2	3	4	5	6	7	8	9	10
19. I have a closer sense of community and more personal friendships at the Academy than I did during my 9 th and 10 th grade years.	1	2	3	4	5	6	7	8	9	10
20. I know at least one Academy staff member who seems to understand me very well.	1	2	3	4	5	6	7	8	9	10

Instructions: The next 17 items ask you how well statements describe you. Please indicate your level of agreement for each item by circling the single number that best represents your level of agreement. A response of 1 indicates your lowest level of agreement, that the item does not describe you well at all. A response of 10 indicates your highest level of agreement, that the item describes you perfectly.

	AGREEMENT									
	Low					High				
21. I enjoy trying new things.	1	2	3	4	5	6	7	8	9	10
22. I form opinions about new ideas independently of those around me.	1	2	3	4	5	6	7	8	9	10
23. I am confident with my abilities when challenged with new experiences.	1	2	3	4	5	6	7	8	9	10
24. I feel like I have grown as a result of my experiences at the Academy.	1	2	3	4	5	6	7	8	9	10
25. I actively seek as much information as I can in new situations.	1	2	3	4	5	6	7	8	9	10
26. I enjoy experiencing a new culture.	1	2	3	4	5	6	7	8	9	10
27. I am a more confident person as a result of my experiences at the Academy.	1	2	3	4	5	6	7	8	9	10
28. Speaking to adults has become easier as a result of my experiences at the Academy.	1	2	3	4	5	6	7	8	9	10
29. My Academy friends and I try new things in our leisure time.	1	2	3	4	5	6	7	8	9	10
30. I am more confident when I find myself in new places as a result of my Academy experiences.	1	2	3	4	5	6	7	8	9	10
31. I enjoy looking for experiences that challenge how I think about the world.	1	2	3	4	5	6	7	8	9	10
32. Experiences I have at the Academy make me a more independent person.	1	2	3	4	5	6	7	8	9	10
33. I am confident being myself around most other Academy students.	1	2	3	4	5	6	7	8	9	10
34. The Academy experience has taught me to be a leader.	1	2	3	4	5	6	7	8	9	10
35. Exploring new cultures helps me better understand who I am.	1	2	3	4	5	6	7	8	9	10
36. I never miss the opportunity to have a new experience.	1	2	3	4	5	6	7	8	9	10
37. Experiences I have had at the Academy make me confident in my abilities.	1	2	3	4	5	6	7	8	9	10

Instructions: The next two questions are about your upcoming study abroad program to Costa Rica.

<p>Why did you choose the Costa Rica program? Select as many as apply.</p>	<p><input type="checkbox"/> Cost of the program was right.</p> <p><input type="checkbox"/> Focus/content of this program.</p> <p><input type="checkbox"/> My friends were going on this program.</p> <p><input type="checkbox"/> My parents wanted me to go on this program.</p> <p><input type="checkbox"/> The program has a good reputation.</p> <p><input type="checkbox"/> Other 1: _____</p> <p><input type="checkbox"/> Other 2: _____</p> <p><input type="checkbox"/> Other 3: _____</p>
<p>What do you expect to get out of the Costa Rica program?</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	

APPENDIX B

Posttest Instrument Sample

Instructions: The following three questions will assign a unique code to your responses. This will help the researcher ensure your anonymity.

What are the last two digits of your permanent home address? (i.e., If your home address were <i>123 Main Street</i> , your response would be <u>2</u> <u>3</u>).	____
What are the last two letters of your mother's maiden name? (i.e., If your mother's maiden name is <i>Smith</i> , your response would be <u>I</u> <u>H</u>).	____
What are the numerical digits for your birth month? (i.e., If your birthday is in January, your response would be <u>0</u> <u>1</u>).	____

Instructions: The 20 statements below are about The Gatton Academy community. Please indicate your level of agreement for each item by circling the single number that best represents your level of agreement. A response of 1 indicates your lowest level of agreement and a response of 10 indicates your highest level of agreement.

	AGREEMENT									
	Low					High				
1. I believe I fit in well with other students at the Academy.	1	2	3	4	5	6	7	8	9	10
2. I like the Academy staff.	1	2	3	4	5	6	7	8	9	10
3. I feel comfortable expressing myself around other Academy students.	1	2	3	4	5	6	7	8	9	10
4. I feel like I am a valued member of the Academy community.	1	2	3	4	5	6	7	8	9	10
5. The Academy staff helps me fit in to the program.	1	2	3	4	5	6	7	8	9	10
6. I know the first names of most students in my grade at the Academy.	1	2	3	4	5	6	7	8	9	10
7. I have difficulty making new friends at the Academy.	1	2	3	4	5	6	7	8	9	10
8. There is a strong sense of community at the Academy.	1	2	3	4	5	6	7	8	9	10
9. The Academy community encourages me to be an open and sharing individual.	1	2	3	4	5	6	7	8	9	10
10. I get a lot of personal satisfaction from being around other Academy students.	1	2	3	4	5	6	7	8	9	10
11. The Academy fits my educational goals.	1	2	3	4	5	6	7	8	9	10
12. Besides their names, I know something about most Academy students in my grade.	1	2	3	4	5	6	7	8	9	10
13. I would feel comfortable talking to an Academy staff member about a personal question.	1	2	3	4	5	6	7	8	9	10
14. I spend a lot of my free time with other Academy students.	1	2	3	4	5	6	7	8	9	10
15. I enjoy being a part of the Academy community.	1	2	3	4	5	6	7	8	9	10
16. I feel at home at the Academy.	1	2	3	4	5	6	7	8	9	10

17. The Academy staff takes time to get to know me.	1	2	3	4	5	6	7	8	9	10
18. I have made many new friends at the Academy.	1	2	3	4	5	6	7	8	9	10
19. I have a closer sense of community and more personal friendships at the Academy than I did during my 9 th and 10 th grade years.	1	2	3	4	5	6	7	8	9	10
20. I know at least one Academy staff member who seems to understand me very well.	1	2	3	4	5	6	7	8	9	10

Instructions: The next 17 items ask you how well statements describe you. Please indicate your level of agreement for each item by circling the single number that best represents your level of agreement. A response of 1 indicates your lowest level of agreement, that the item does not describe you well at all. A response of 10 indicates your highest level of agreement, that the item describes you perfectly.

	AGREEMENT									
	Low					High				
21. I enjoy trying new things.	1	2	3	4	5	6	7	8	9	10
22. I form opinions about new ideas independently of those around me.	1	2	3	4	5	6	7	8	9	10
23. I am confident with my abilities when challenged with new experiences.	1	2	3	4	5	6	7	8	9	10
24. I feel like I have grown as a result of my experiences at the Academy.	1	2	3	4	5	6	7	8	9	10
25. I actively seek as much information as I can in new situations.	1	2	3	4	5	6	7	8	9	10
26. I enjoy experiencing a new culture.	1	2	3	4	5	6	7	8	9	10
27. I am a more confident person as a result of my experiences at the Academy.	1	2	3	4	5	6	7	8	9	10
28. Speaking to adults has become easier as a result of my experiences at the Academy.	1	2	3	4	5	6	7	8	9	10
29. My Academy friends and I try new things in our leisure time.	1	2	3	4	5	6	7	8	9	10
30. I am more confident when I find myself in new places as a result of my Academy experiences.	1	2	3	4	5	6	7	8	9	10
31. I enjoy looking for experiences that challenge how I think about the world.	1	2	3	4	5	6	7	8	9	10
32. Experiences I have at the Academy make me a more independent person.	1	2	3	4	5	6	7	8	9	10
33. I am confident being myself around most other Academy students.	1	2	3	4	5	6	7	8	9	10
34. The Academy experience has taught me to be a leader.	1	2	3	4	5	6	7	8	9	10
35. Exploring new cultures helps me better understand who I am.	1	2	3	4	5	6	7	8	9	10
36. I never miss the opportunity to have a new experience.	1	2	3	4	5	6	7	8	9	10
37. Experiences I have had at the Academy make me confident in my abilities.	1	2	3	4	5	6	7	8	9	10

Instructions: The next 10 items are about the study abroad program to Costa Rica you have just completed. Please indicate your level of agreement for each item by circling the single number that best represents your level of agreement. A response of 1 indicates your lowest level of agreement and a response of 10 indicates your highest level of agreement.

AGREEMENT

	<div style="display: flex; justify-content: space-between; width: 100%;"> Low High </div>									
The Costa Rica program lived up to my expectations.	1	2	3	4	5	6	7	8	9	10
I am glad I selected Costa Rica program.	1	2	3	4	5	6	7	8	9	10
As a result of the Costa Rica program, I feel more confident.	1	2	3	4	5	6	7	8	9	10
The Costa Rica program has added significant value to my Academy experience.	1	2	3	4	5	6	7	8	9	10
I have made new friends as a result of the Costa Rica program.	1	2	3	4	5	6	7	8	9	10
I have grown intellectually as a result of the Costa Rica program.	1	2	3	4	5	6	7	8	9	10
The Costa Rica program has made me more aware of my strengths.	1	2	3	4	5	6	7	8	9	10
I am more connected to the Academy staff as a result of the Costa Rica program.	1	2	3	4	5	6	7	8	9	10
The Costa Rica program has challenged my abilities.	1	2	3	4	5	6	7	8	9	10
I feel more independent as a result of the Costa Rica program.	1	2	3	4	5	6	7	8	9	10

What does the Costa Rica program do well?

What aspect of the Costa Rica program should the Academy expand upon?

What would you change about the Costa Rica program?

APPENDIX C

Informed Consent



Informed Consent

Project Title: Gatton Academy Study Abroad Program Effects on Perceptions of Community Belongingness and Personal Growth and Development

Investigator: Derick B. Strode, Gatton Academy, 270-745-3167

Hello! I'm Derick B. Strode, and I am the Assistant Director of Academic Services at The Gatton Academy. Your son or daughter has been selected to participate in a research project that I am leading that will evaluate The Gatton Academy's 2016 study abroad programs. The purpose of this evaluation is to assess effects of Gatton Academy Study Abroad Programs on participants' sense of belongingness and their personal growth and development. This research is being conducted as a dissertation study in the Educational Leadership Doctoral Program at Western Kentucky University.

1. **Nature of this Project:** This study is designed to determine to what effect Gatton Academy study abroad programs help facilitate feelings of belongingness in the school community, as well as to determine to what effect students feel more confident, independent, self-aware, and curious as a result of studying abroad. The project is directed by Dr. Barbara Burch of the Educational Leadership Doctoral Program.
2. **Explanation of Procedures:** Participants will be responding to three paper-and-pencil surveys. Two of the surveys will be administered before the study abroad program. The third survey will be administered at the conclusion of the study abroad program. Each survey is estimated to take between 15-20 minutes to complete. A Gatton Academy staff person will administer each survey.
3. **Discomfort and Risks:** There are no foreseeable risks associated with this research project and the probability and magnitude of harm or discomfort anticipated in the research is very minimal.
4. **Benefits:** The results from this study may be useful to Gatton Academy students, families, and the school administration to better understand the study abroad programs' effects and to enhance future programs.
5. **Confidentiality:** The responses of all students will be coded to protect confidentiality of all respondents. Data will be reported in the aggregate. Data will be stored in a locked cabinet, and no one except the researcher and the project advisor will have access to them.
6. **Refusal/Withdrawal:** Refusal to participate in this study will have no effect on any future services the student may be entitled to from the University or The Gatton Academy. Anyone who agrees to participate in this study is free to withdraw from the study at any time with no penalty.

You understand also that it is not possible to identify all potential risks in an experimental procedure, and you believe that reasonable safeguards have been taken to minimize both the known and potential but unknown risks.

OPT OUT option

If you would prefer that your student not participate, please sign below and return to Derick B. Strode either in person or at derick.strode@wku.edu within five business days receiving this form. You only need to return this form if the student will be opting out.

Printed Name of Student: _____

Printed Name of Guardian: _____

Signature of Guardian: _____ **Date:** _____



THE DATED APPROVAL ON THIS CONSENT FORM INDICATES THAT
THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY
THE WESTERN KENTUCKY UNIVERSITY INSTITUTIONAL REVIEW BOARD
Paul Mooney, Human Protections Administrator
TELEPHONE: (270) 745-2129

WKU IRB# 16-176
Approval - 11/23/2015
End Date - 11/1/2016
Full Board
Original - 11/23/2015

APPENDIX D

Informed Assent



Informed Assent

Project Title: Gatton Academy Study Abroad Program Effects on Perceptions of Community Belongingness and Personal Growth and Development

Investigator: Derick B. Strode, Gatton Academy, 270-745-3167

Hello! You are being asked to participate in a research project that I am leading that will evaluate The Gatton Academy's 2016 study abroad programs. This research is being conducted as a dissertation study in the Educational Leadership Doctoral Program at Western Kentucky University.

1. **Nature of this Project:** This study is designed to determine to what effect Gatton Academy study abroad programs help facilitate feelings of belongingness in the school community, as well as to determine to what effect students feel more confident, independent, self-aware, and curious as a result of studying abroad. The project is directed by Dr. Barbara Burch of the Educational Leadership Doctoral Program.
2. **Explanation of Procedures:** Participants will be responding to three paper-and-pencil surveys. Two of the surveys will be administered before the study abroad program. The third survey will be administered at the conclusion of the study abroad program. Each survey is estimated to take between 15-20 minutes to complete. A Gatton Academy staff person will administer each survey.
3. **Discomfort and Risks:** There are no foreseeable risks associated with this research project and the probability and magnitude of harm or discomfort anticipated in the research is very minimal.
4. **Benefits:** The results from this study may be useful to Gatton Academy students, families, and the school administration to better understand the study abroad programs' effects and to enhance future programs.
5. **Confidentiality:** The responses of all students will be coded to protect confidentiality of all respondents. Data will be reported in the aggregate. Data will be stored in a locked cabinet, and no one except the researcher and project advisor will have access to them.
6. **Refusal/Withdrawal:** Refusal to participate in this study will have no effect on any future services you may be entitled to from the University or The Gatton Academy. Anyone who agrees to participate in this study is free to withdraw from the study at any time with no penalty.

You understand also that it is not possible to identify all potential risks in an experimental procedure, and you believe that reasonable safeguards have been taken to minimize both the known and potential but unknown risks.

I, _____ (Print), understand that my parents/guardians have given permission for me to participate in a study concerning Gatton Academy Study Abroad Program Effects on Perceptions of Community Belongingness and Personal Growth and Development, under the direction of Derick B. Strode.

Signature _____ Date _____

THE DATED APPROVAL ON THIS CONSENT FORM INDICATES THAT
THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY
THE WESTERN KENTUCKY UNIVERSITY INSTITUTIONAL REVIEW BOARD
Paul Mooney, Human Protections Administrator
TELEPHONE: (270) 745-2129



WKU IRB# 16-176
Approval - 11/23/2015
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Full Board
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