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The Impact of Study Abroad on Senior Year Engagement

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Abstract

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Research on the effects of study abroad claims many positive and substantial outcomes in the areas of cognitive, affective, and cultural development. What has not been studied is if these students, upon return from their overseas experiences, were also qualitatively different in terms of their immediate engagement in college. This study uses longitudinal data from the National Survey of Student Engagement and applies experiential learning theory to model the impact of study abroad on seniors' deep learning, diversity experiences, and self-reported gains in college, controlling for the student's responses to these same measures in the first year of college. Results indicate that study abroad participants reported significantly higher levels of engagement in integrative and reflective learning, and stronger gains in personal and social development than those who did not.

The Impact of Study Abroad on Senior Year Engagement

Study abroad is widely believed to be both an academically enriching and a personal life-changing experience. Students who study abroad expect to expand their perspective on world affairs, understand diverse cultures, acquire languages, and gain maturity and self-awareness. Yet, the current movement in higher education which calls for more transparency through evidence-based assessment of learning outcomes extends to the true effectiveness of specific programs such as study abroad (Gray, Murdock, and Stebbins, 2002).

Research on Study Abroad

Research on the effects of study abroad claims many positive and substantial outcomes in the areas of cognitive, affective, and cultural development (e.g., Hadis, 2005; Institute for International Education, 2007). For example, students who studied abroad had measurable personal growth and learning outside the classroom (Ryan & Twibell, 2000; Button, Green, Tengnah, Johansson, & Baker, 2005), increased academic knowledge and language skills (Ryan & Twibell, 2000) and increased levels of cognition (Frisch, 1990). Study abroad has been linked to enhanced international perspectives, global political concerns, and cross-cultural interests (Carlson & Widaman, 1988; Bates, 1997; Ryan & Twibell, 2000), and students consistently rate the experience to have exceeded expectations (Martin, Bradford & Rohrlich, 1995). Ultimately, returning study abroad participants are said to have reformed their identities as Americans (Dolby, 2004; Souders, 2006) in both positive and critical ways (Carlson & Widaman, 1988).

Hadis (2005) used criterion and construct validation to support his retrospective study of the effects of study abroad, and found very positive effects of the study abroad experience on university students, including increased interest in global issues, reading newspapers more often, better skills in other languages, and personal development growth such as independence, social

confidence, sensitivity toward people from other countries, and more interest and self-assurance in continuing global travel.

Carlson and Widaman (1988) conducted a quasi-experimental study of about 300 undergraduate juniors who participated in a year of study abroad at a European university, comparing them with about 520 juniors who remained on the home campus during that period. Using a questionnaire of their own design, their purpose was to detect any changes in international political attitudes, interest in cross-cultural issues, and in cultural cosmopolitanism which they define as an interest in peoples' languages and traditions from other cultures. Results supported their hypothesis – global political concerns, cross-cultural interests, and cultural cosmopolitanism increased for the study abroad group. Those who participated in the study abroad program also reported more positive, yet also more critical views of the United States.

Yet, another thread of literature examines the collegiate experiences of students after they return to the home campus. Such studies focus mainly on difficulties with linguistic, psychological, behavioral, and cultural adjustments upon repatriation – a phenomenon termed “reverse culture shock” (Gaw, 2000). In this respect, the research explores the severity of problems encountered, unmet expectations, and the need for reentry counseling services, preparation programs, and other support networks (Westwood, Lawrence & Paul, 1986; Gaw, 2000; Sicola, 2005; Thompson and Christofi, 2006; Souders, 2006). Ryan and Twibell's longitudinal study collected data before and after the study abroad experience were interested in the stressful situations presented by cultural adaptation that study abroad participants might experience, and the relationship of such stress to the coping and health of the students. They found that stressors related to culture shock was a primary concern of the returning students,

most strongly represented by worries about social isolation and communication (Ryan & Twibell, 2000).

The validity of many of the findings related to study abroad in the literature is called into question by a lack of appropriate and relevant statistical controls. Most of the research used cross-sectional data which inadequately controlled for variables by which students are known to selectively participate in study abroad (Pascarella & Terenzini, 2005). For example study abroad students have more educated parents, are more likely to be enrolled full time, have better grades, and are more likely to major in the arts and humanities and the social sciences than their peers (NSSE, 2007).

Isolating the net effects of a study abroad experience is difficult but can be better estimated using a pre-post research design. For example, unlike the cross-sectional studies mentioned above, the multi-national Study Abroad Evaluation Project (SAEP) collected data in a pre-post design to allow for control of covariates such as age, gender, socio-economic status, academic ability, motives, and past international experience in addition to many structural characteristics of the programs. With these data, researchers found that college juniors who studied abroad reported significant and substantive increases in knowledge of the host countries' culture, politics, and society, but no differences in student attitudes about international cooperation and cross-national interactions (Opper, Teichler, & Carlson, 1990).

What has not been studied is if these students, upon return from their overseas experiences, were also qualitatively different in terms of their immediate engagement and growth in college. For answers, the current study turns to experiential learning theory, upon which study abroad programs are often constructed and assessed (Gray, Murdock, and Stebbins, 2002).

Experiential Learning Theory

According to experiential learning theory (ELT), learning is “the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience” (Kolb, 1984, p. 41). ELT gives subjective experience a central role in learning, unlike other learning theories that stress the roles of cognition and intentional learning behaviors. Kolb and Kolb (2005, p. 194) identified six propositions that accompany ELT:

1. Learning is best viewed as a process, rather than as a set of outcomes.
2. All learning is relearning.
3. Learning requires the resolution of conflicts between different ways of seeing and adapting to the world.
4. Learning is a holistic process of adaptation to the world.
5. Learning results from synergetic transactions between the person and the environment.
6. Learning is the process of creating knowledge.

Kolb’s (1984) four-stage cycle posits that learning starts with (a) concrete experiences which form the basis for (b) reflective observations which are absorbed and refined into (c) abstract concepts, and which are then (d) actively tested in the learner’s environment in order to transform the experience into new knowledge.

Thus, ELT suggests that the presumably powerful experience of study abroad would positively increase subsequent stages of the learning process such as reflection, abstract thinking, and active learning. If this were the case then a spike in these processes may be detectable in the students’ learning behaviors on their home campus upon return from abroad. That’s where engagement comes in.

To some extent the current theory of student engagement (Kuh, 2001) is rooted in ELT, notably the concept of *deep learning* which is gaining attention in the engagement literature

(Nelson Laird, Shoup, & Kuh, 2005). Deep learning, with its emphasis on active, learner-centered environments, relates to and is informed by experiential learning theory. Deep approaches to learning are evident when students genuinely commit to understanding the material by engaging in strategies such as drawing ideas from multiple sources (including the learner's experience), talking about the material with others, breaking down concepts into their basic parts, synthesizing information into more complex wholes, evaluating the quality of information, applying knowledge in real world situations, self-reflection and other-centeredness creating new perspectives (Nelson Laird, Shoup, & Kuh, 2005).

Research Questions

This study seeks to discover whether participation in study abroad is linked with an increased emphasis on deep approaches to learning and diversity experiences after returning to the home campus in the senior year, and also with greater self-reported gains in a variety of desired outcomes of college. Two research questions guide the study. Controlling for relevant student and institutional characteristics, and for the student's pre-study abroad engagement and self-reported gains in the first year of college:

1. Does study abroad have an impact on deep learning activities and diversity experiences in the senior year (after return to the home campus)?
2. Does study abroad have an impact on students' self-reported gains in personal and social development, practical competencies, and general education outcomes in the senior year (after return to the home campus)?

Methods

Data Source and Sample

The data for this study come from a longitudinal matching of the 2004 and 2007 administrations of NSSE which requires random sampling from the first-year and senior populations of participating baccalaureate institutions. Of the 140 institutions that participated in both years, first-year student respondents from 2004 were matched with senior responses from 2007 using institution-provided student identifiers, creating a panel data file that spanned three years of the students' college enrollment. A total of 7,267 cases were successfully matched, including 6,925 who completed the study abroad question. Of these, 2,311 (33%) of the seniors in 2007 reported having previously done study abroad. Compared to seniors who did not go abroad, study abroad participants were more likely to be female, have earned mostly A grades in college, and to have majored in the arts and humanities and social sciences (Table 1). Study abroad seniors were less likely to be first generation (neither parent attended college), and the two groups did not differ substantially by race or ethnicity, or by age.

Table 1.
Student Characteristics by Study Abroad Participation Status

		Seniors who studied abroad n=2,311 (33%)	Seniors who did not study abroad n=4,614 (67%)	Total n=6,925 (100%)
Female		77%	67%	70%
First generation		6%	14%	11%
Grades	<i>Mostly As</i>	55%	46%	49%
	<i>Mostly Bs</i>	43%	48%	46%
	<i>Mostly Cs</i>	2%	6%	5%
Primary major category	<i>Arts and Humanities</i>	27%	16%	19%
	<i>Biological Sciences</i>	8%	9%	9%
	<i>Business</i>	13%	16%	15%
	<i>Education</i>	5%	10%	8%
	<i>Engineering</i>	1%	5%	3%
	<i>Physical Science</i>	4%	5%	5%
	<i>Professional</i>	3%	7%	6%
	<i>Social Science</i>	26%	18%	21%
Race or ethnicity	<i>African American/Black</i>	2%	3%	3%
	<i>Asian/Pacific Islander</i>	3%	3%	3%
	<i>Caucasian/White</i>	87%	86%	86%
	<i>Hispanic</i>	3%	3%	3%
	<i>Other</i>	6%	5%	5%
Age	20-23	99%	96%	97%
	24 and older	1%	4%	3%

The 140 institutions participating in NSSE 2004 and 2007 and used for the study represented a broad array of institutional types and characteristics. Private institutions were overrepresented at 76% (Table 2), but students were well represented among all Carnegie types with 15% doctoral level institutions, 46% master's level colleges and universities, and 36% baccalaureate colleges. In addition, institutional selectivity ratings (*Barron's*) ranged evenly among the institutions in the data set from the least competitive to the most competitive.

Table 2.

Percent of Institutional Types Represented in the Data

		Percent of Institutions (N=140)
Control	<i>Private</i>	76%
	<i>Public</i>	24%
Institutional type	<i>Doctoral</i>	15%
	<i>Master's</i>	46%
	<i>Baccalaureate</i>	36%
Barron's selectivity	<i>Non/Less Competitive</i>	16%
	<i>Competitive</i>	34%
	<i>Very Competitive</i>	37%
	<i>Highly Competitive</i>	11%
	<i>Most Competitive</i>	2%

Measures

Seven scales derived from NSSE individual items collected during the subjects' senior year in 2007 are used as dependent variables in the study. These include three deep learning scales, a diversity experiences scale, and three self-reported gains scales. Cronbach's alpha reliability coefficients for the seven scales are satisfactory and range from .68 to .85 (See appendixes A and B for component items and reliability coefficients). Identical versions of these scales collected in 2004 when the students were in the first year of college were used as covariates.

Deep learning.

The NSSE survey contains a valid and reliable scale of deep learning (Nelson Laird, Kuh, & Shoup, 2006), of which the component items form a reliable second-order structure of three factors: reflective learning, higher-order learning, and integrative learning (see appendix A). This

study proposes that each of these second-order factors aligns well with the second, third, and fourth stages of Kolb's four-stage cycle that follow the first concrete experiences stage.

The *reflective learning* factor contains three items that center on the students' self-examination of the strengths and weakness of their own views on a topic, how often they tried to understand the perspectives of others, and how often they learned something that changes the way they understood an issue. Reflecting learning as measured by these items aligns with the second experiential learning theory stage of *reflective observations*, by which students internalize and cognitively process what was seen, heard, or felt through concrete experiences such as study abroad. At this stage, students begin to change the way they think about a topic and stretch their understandings to match the views of others that they perceived to be valid and worthwhile.

Next, the *higher-order learning* factor contains four items that assess the amount that students analyze experiences and theories, synthesize concepts and experiences into more complex relationships, make judgments about the value of information, and apply learned concepts to practical problems. This scale connects well to the third ELT learning stage of *abstract conceptualization* because it is in that stage that the learner's experiences and reflections are assimilated and distilled into theories from which new conclusions can be drawn.

The third deep learning factor, *integrative learning*, uses five items to measure how often students combine ideas from various sources, employ diverse perspectives in coursework, use ideas from different courses in assignments or class discussions, and discuss course concepts with either faculty members or others outside of class. These items compare favorably to the fourth ELT stage of *active testing*. Indeed they capture several ways by which students test out new theories and abstract concepts – whether in debate with others or by incorporating the new ideas into class assignments and discussions.

Diversity experiences.

NSSE also asks three questions about students' experiences with diversity that are germane to the current study (see appendix A). Specifically two items ask students to report how often they have serious discussions with others who differ from them in terms of their race or ethnic background, and in terms of their religious beliefs, politics, and values. The third item asks student to report how much they are encouraged to have contact with students from diverse backgrounds. In terms of ELT, these items may also be viewed as opportunities for students to *actively test* newly formed abstract concepts because they assess how often students engage with others in meaningful ways that may challenge their understandings of diverse cultures – an important anticipated outcome of study abroad.

Self-reported gains.

Additional NSSE variables used in the current study are three scales which measure self-reported outcomes or gains. These include gains in personal and social development, gains in practical competencies, and gains in general education learning (see appendix B). These scales ask students to estimate the amount they have made progress in an array of learning outcomes and may be used to assess the impact of study abroad on a student's entire educational experience. Gains in personal and social development cover the student's progress in self understanding, developing values and ethics, learning independently, civic awareness, and spirituality. Gains in practical competencies involve making progress in career skills, working with others, using computers and technology, analyzing quantitative problems and solving real world problems. Finally, gains in general education deal with the student's sense of becoming a better writer, speaker, and critical thinker as a result of his or her college experience.

Analysis

Data analysis consisted of seven multivariate OLS regressions to determine the relationships between participating in study abroad and the dependent measures. Models controlled for student and institutional characteristics, including gender, major, parent's education, institutional control, institutional selectivity, and self-reported grades in the first year (Details in appendix C). Each model also controlled for the first-year (2004) version of the dependent variable, thus helping to answer whether any effects of the study abroad experience were due to the possibility of self-selection (i.e., that study abroad programs attract more engaged students or students who are more likely to self-report learning gains), or if the effects are attributable to the academic and experiential nature of the study abroad experience that fosters higher levels of student engagement and gains. As Pascarella (2001) and others point out, the use of self-reported gains as an outcome measure can be improved by controlling for a student's pre-inclinations to report such gains. Finally, the three self-reported gains models also controlled for the student's first year engagement as measured by the full deep learning scale (i.e., all items from the three deep learning subscales combined into a single scale).

All continuous independent and dependent variables were standardized before the analysis, allowing for the unstandardized coefficients to be compared and interpreted as effect sizes (Rosenthal & Rosnow, 1991). The effect size is the proportion of a standard deviation change in the dependent variable as a result of a one-unit change in an independent variable. The larger the effect size the more likely the differences between groups represent performance that warrants serious discussion and, perhaps, intervention. As suggested by Rosenthal and Rosnow (1991), an effect size of less than .10 was considered to be substantively trivial, meaning the

differences are too small to warrant consideration in making policy decisions; effect sizes larger than .10 may have practical importance and were considered worthy of attention.

Limitations

This study is limited by the matching process used to create the panel data. Because the process selected students in their first year in 2004 who were enrolled at the same institution in their senior year in 2007, many nontraditional students (e.g., part-time, transfer, older) were excluded. Only institutions that participated in NSSE 2004 and 2007 were eligible, thus limiting the potential pool of institutions and students available for matching. The matching process favored institutions that had higher NSSE response rates and that enrolled more traditional students, so students from smaller and private institutions were more likely to be matched in the data. Finally, because very large institutions were more likely to sample a portion of their students, the likelihood of sampling the same students in 2004 and 2007 was limited. For these reasons, generalizations to all students attending four year colleges should be made with caution.

Results

Table 3 reports means, standard deviations, and reliability statistics calculated from the current data set for the seven scales used in the analysis. Statistics are presented for both the covariates from the students in 2004 when they were first-year students, and for the dependent measures from the same students as seniors in 2007. As a general pattern, the means for all seven variables for student abroad participants are higher than for non-participants in both the first and senior years. That is, study abroad participants were more engaged than their peers and were more inclined report making progress in their college learning and development, providing evidence in addition to the student characteristics reported in Table 1 that students who study

abroad are selectively different from those who do not. This provides support for entering the first year version of the variables into each model as a control.

Table 3.
Descriptive Statistics of Deep Learning, Diversity, and Gains Scales for the First and Senior Years, by Study Abroad Status

	<i>No. Items</i>	<i>Study Abroad Status</i>	<u>First Year (2004)</u>				<u>Senior Year (2007)</u>			
			<i>N</i>	<i>Mean</i>	<i>SEM</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SEM</i>	<i>SD</i>
Reflective learning	3	done	1972	67.6	.51	22.6	2308	65.5	.46	22.2
		not done	3823	61.3	.39	23.9	4612	58.7	.35	23.4
Higher-order learning	4	done	2307	70.0	.42	20.3	2310	74.8	.40	19.3
		not done	4604	66.7	.32	21.4	4614	71.6	.31	21.1
Integrative learning	5	done	2309	57.0	.38	18.1	2311	66.3	.37	17.6
		not done	4611	52.6	.26	17.9	4613	60.0	.27	18.6
Diversity experiences	3	done	2307	60.2	.51	24.3	2308	62.3	.47	22.8
		not done	4600	56.0	.36	24.1	4611	55.8	.35	24.0
Gains in personal & social development	7	done	2254	52.5	.46	21.9	2281	58.9	.46	22.0
		not done	4441	49.8	.33	22.0	4511	53.4	.35	23.4
Gains in practical competencies	5	done	2256	56.5	.45	21.2	2288	67.4	.42	20.3
		not done	4445	58.5	.31	20.9	4532	68.5	.31	21.0
Gains in general education	4	done	2256	72.3	.44	20.7	2288	79.8	.39	18.7
		not done	4448	69.0	.32	21.3	4532	74.8	.31	20.9

Results for the deep learning and diversity experiences scales are reported in Table 4 and for the gains models in Table 5. As expected, in all models the variables from the first-year of college which correspond to the dependent measures in the senior year had large, significant effects, thus validating their inclusion as important covariates. Of the student and institutional covariates, major field of study had the strongest effects within the models. For example, relative to business majors, both arts and humanities and social sciences majors were more likely to

engage in integrative and reflective learning approaches in the senior year, and also to participate in diversity experiences. On the other hand, both were also much less likely to report gains in practical competencies. Conversely, engineering majors were significantly less likely, relative to business majors, to engage in deep approaches to learning and diversity experiences and were also less likely to believe they had made progress in personal/social development and general education learning. The two institutional variables, attending a private institution and institutional selectivity, had little meaningful impact in the models, although attending a private institution potentially had a small relationship with students' gains in personal and social development and general education learning. In general, being male was negatively associated with the dependent variables, although the effects were either non-trivial or nonsignificant.

Still, net of these and the other salient student and institutional variables described above, participation in study abroad was significantly and positively linked with deep approaches to learning, diversity experiences (Table 4), and with two of the three self-reported gains scales in the senior year (Table 5). Of the three deep learning subscales, study abroad had a significant ($p < .001$), non-trivial, positive relationship with integrative learning and reflective learning with effect sizes of .16 and .13 respectively. Study abroad had a significant ($p < .05$) but trivial effect (.05) on higher order learning. Study abroad also had a significant ($p < .001$), non-trivial, positive relationship with diversity experiences. Table 5 shows that study abroad had a significant ($p < .001$), non-trivial, positive effect on personal and social development. Study abroad also had significant ($p < .01$) effect on general education learning, but the magnitude of the effect size (.08) suggests that the effect was trivial. Finally, the net relationship of participation in study abroad with self-reported gains in practical competencies was nonsignificant.

Table 4.
Effects of Study Abroad on Deep Learning and Diversity Experiences in the Senior Year

<i>Independent Variables</i>	<i>Dependent Variables</i>							
	<i>Deep Learning Subscales</i>							
	Higher-Order Learning		Integrative Learning		Reflective Learning		Diversity Experiences	
	<i>Unstd. B</i>	<i>sig</i>	<i>Unstd. B</i>	<i>sig</i>	<i>Unstd. B</i>	<i>sig</i>	<i>Unstd. B</i>	<i>sig</i>
(constant)	-.06		-.15		-.15		-.15	
DV in first year (2004) ¹	.32	***	.43	***	.36	***	.42	***
Male	-.10	***	-.07	**	.04		-.01	
Parental education	.02		.04	**	.04	**	.01	
Private institution	.03		.01		-.04		.00	
Institutional selectivity	.04	**	.01		.02		.00	
First year (2004) self-reported grades	.03	**	.01		.03	*	.00	
Arts and humanities	.02		.19	***	.26	***	.17	***
Biological sciences	.10	*	.05		.03		.08	
Senior year (2007) major	.03		.12	**	.12	*	.09	
(<i>ref. grp.: Business</i>)								
Engineering	.11		-.27	***	-.15	*	-.20	**
Physical sciences	.00		-.13	*	-.04		-.11	
Professional	.33	***	.18	***	.20	**	.04	
Social sciences	.14	***	.29	***	.25	***	.25	***
Other	-.15	***	.01		.01		.04	
Study abroad participation	.05	*	.16	***	.13	***	.15	***
	R ²	.13		.25		.18		.22

* p<.05, ** p<.01, *** p<.001

¹ Each model entered the first-year student version of the dependent variable from 2004 as a covariate. For example, the model regressing on senior higher-order learning (2007 data) included the students' first-year higher-order learning from 2004.

Table 5.
Effects of Study Abroad on Self-Reported Gains in the Senior Year

<i>Independent Variables</i>	<i>Dependent Variables: Self-Reported Gains Scales</i>					
	Personal/ Social Development		Practical Competencies		General Education Learning	
	<i>Unstd. B</i>	<i>sig</i>	<i>Unstd. B</i>	<i>sig</i>	<i>Unstd. B</i>	<i>sig</i>
(constant)	-.15		.24		-.09	
DV in first year (2004) ¹	.38	***	.33	***	.29	***
First-year (2004) deep learning ²	.09	***	.09	***	.14	***
Male	-.06	*	-.07	**	-.10	***
Parental education	.00		-.01		-.01	
Private institution	.10	**	.01		.11	***
Institutional selectivity	.00		.00		.03	*
First year (2004) self-reported grades	.00		.00		.02	*
Arts and humanities	.05		-.54	***	.06	
Biological sciences	-.02		-.22	***	.00	
Education	.08		-.14	**	-.07	
Senior year (2007) major (<i>ref. grp.: Business</i>)	-.22	***	.17	*	-.21	**
Physical sciences	-.13	*	-.15	**	-.11	
Professional	.20	***	.05		-.02	
Social sciences	.12	**	-.38	***	.08	*
Other	.02		-.26	***	-.07	
Study abroad participation	.12		.03		.08	
	***		***		**	
	R ²		.22		.20	
					.18	

* p<.05, ** p<.01, *** p<.001

¹ Each model included the first-year student version of the dependent variable from 2004 as a covariate. For example, the model regressing on senior self-reported gains in personal/social development (2007 data) included students' first-year gains in personal/social development reported in 2004.

² This deep learning scale includes all twelve items included in the three second-order factors. See Appendix A.

Discussion and Implications

Results indicate that those who participated in a study abroad program reported significantly higher levels of engagement in two forms of deep learning – integrative and reflective learning – and in diversity experiences. Study abroad participants also reported more gains in personal and social development than their peers. The study finds that though statistically significant, students who studied abroad engaged only a trivial amount more in

higher order learning activities and reported trivial increases in general education learning. Finally, students who studied abroad were not statistically different from their peers in making progress in practical competencies.

Thus, studying abroad not only has an impact on aspects of students' development in general as claimed by the literature, but also influences their learning behaviors and processes upon their return as students during the senior year. The positive findings for study abroad are especially heartening given the methodological approach of controlling for student and institutional characteristics, as well as the students' pre-experience engagement behaviors and inclinations to report gains after the first year of college. The study shows that students with higher grades, better educated parents, and stronger engagement in the first year of college are more likely to participate in study abroad, but above and beyond these selection effects, those who studied abroad made greater gains in their post-study abroad engagement in the senior year than those who did not study abroad. In fact, the addition of the statistical controls established a somewhat high bar for findings of statistical significance and effect size. In survey studies about the whole college experience such as NSSE, it is often difficult to isolate the impact on student outcomes of a single type of experience. Though two-thirds of the sample in the current study did not participate in a study abroad program, it is possible that they engaged in other learning opportunities and special programs that had a positive influence on their behaviors and gains as students by the senior year. This is an affirmative result for administrators of study abroad programs, who continue to make the case for the importance their programs and for expanding the number of students who have opportunities to participate.

This study has several implications for research and practice in higher education:

1. Faculty should create opportunities for students to share their past experiences, such as having completed a semester or a year of study abroad, so that they can utilize the student's experience in their course work and integrate the student's observations and reflections into class discussions and assignments. Not only will the study abroad student benefit from the additional reflections and integration of past experiences into their coursework, but other students may benefit from hearing their stories as well. This may also be a venue to mitigate the stresses of lingering "reverse culture shock" the student may be experiencing.
2. Study abroad program administrators should take steps to communicate the needs of returning study abroad participants with faculty and advisors who are likely to receive them in their classrooms and offices. Faculty and advisors may need help understanding the challenges faced by the returning study abroad student, but could also be made aware of the positive learning opportunities not only for these returning students, but also for their classroom and meeting environments.
3. Experiential learning theory is an apt framework by which to study high-impact forms of engagement such as study abroad. Indeed, aspects of student engagement measured by NSSE aligned well with the four stages of ELT from concrete experience of studying abroad, to reflective observations about the student's own views and the views of others, to abstract conceptualization where the student engages in higher-order mental activities, to active experimentation by which the student puts new information to use, integrates ideas into coursework, and engages with diverse others cross-culturally.

4. This study demonstrated an effective use of longitudinal data collected by NSSE to apply it to the assessment of the impact of one type of experience. The first-year NSSE data served as the baseline measure and the senior year NSSE data supplied the dependent or outcome measures in a quasi-experimental pre/post design. Analyses of this type answer the call from the some critics (e.g., Astin & Lee, 2003) who protest the overreaching use of cross-sectional studies to infer causality or directional effects on a particular phenomenon.

Conclusion

This study provides welcome news to advocates of study abroad who continue to seek evidence in support of the real outcomes of their programs, and also results that may help them shape their international programs and services in the future. Controlling for student and institutional characteristics, the study used a large data set from students enrolled at 140 institutions that participated in the National Survey of Student Engagement to model the effects of study abroad participation on engagement in the senior year of college, and on the students' self-reported gains. Using experiential learning theory as a framework for the study, results show that students who studied abroad continued through the experiential learning cycle after their return to the home campus. They engaged more in reflective observation and abstract conceptualization as measured by corresponding NSSE factors of reflective learning, integrative learning, and diversity experiences. The students were also significantly higher in terms of the active experimentation stage of ELT, as measured by the higher-order learning factor, but this effect is probably trivial. Finally, study abroad was again confirmed to have positive outcomes as measured by students' self-reported gains in personal and social development.

This study is important because of the strength of the data set used to establish the outcomes and because it uses a longitudinal design to account for the known selection bias among study abroad participants. Faculty members and others working closely with students upon their return from a study abroad experiences may seize the opportunity to maximize learning through classroom strategies and assignments that offer reflection, integration, and active testing of new ideas. Benefits would extend both to the returning students and for their classroom peers who can also gain from their new observations and insights.

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Appendix A: NSSE Deep Learning and Diversity Scales and Reliability Coefficients

Reflective learning (Cronbach's $\alpha=.80$)

During the current school year, about how often have you ... (very often, often, sometimes, never)

1. Examined the strengths and weaknesses of your own views on a topic or issue
2. Tried to better understand someone else's views by imagining how an issue looks from his or her perspective
3. Learned something that changed the way you understand an issue or concept

Higher order learning (Cronbach's $\alpha=.80$)

During the current school year, how much has your coursework emphasized... (very much, quite a bit, some, very little)

1. Analyzing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components
2. Synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships
3. Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions
4. Applying theories or concepts to practical problems or in new situations

Integrative learning (Cronbach's $\alpha=.72$)

During the current school year, about how often have you ... (very often, often, sometimes, never)

1. Worked on a paper or project that required integrating ideas or information from various sources
2. Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments
3. Put together ideas or concepts from different courses when completing assignments or during class discussions
4. Discussed ideas from your readings or classes with faculty members outside of class
5. Discussed ideas from your readings or classes with others outside of class (students, family members, coworkers, etc.)

Diversity experiences (Cronbach's $\alpha=.68$)

During the current school year, about how often have you ... (very often, often, sometimes, never)

1. Had serious conversations with students of a different race or ethnicity than your own
2. Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values

To what extent does your institution emphasize the following ... (very much, quite a bit, some, very little)

3. Encouraging contact among students from different economic, social, and racial or ethnic backgrounds

Appendix B: NSSE Gains Scales and Reliability Coefficients

To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in... (very much, quite a bit, some, very little)

Gains in Personal and Social Development (Cronbach's $\alpha=.85$)

1. Developing a personal code of values and ethics
2. Understanding people of other racial and ethnic backgrounds
3. Understanding yourself
4. Learning effectively on your own
5. Developing a deepened sense of spirituality
6. Contributing to the welfare of your community
7. Voting in local, state (provincial), or national (federal) elections

Gains in Practical Competence (Cronbach's $\alpha=.78$)

1. Acquiring job or work-related knowledge and skills
2. Working effectively with others
3. Using computing and information technology
4. Analyzing quantitative problems
5. Solving complex real world problems

Gains in General Education (Cronbach's $\alpha=.82$)

1. Writing clearly and effectively
2. Speaking clearly and effectively
3. Acquiring a broad general education
4. Thinking critically and analytically

Appendix C. Control Variables Used in Regression Models

Name	Description
Gender	1 = Male; 0 = Female
Parents' Education	Continuous variable, calculated as the sum of mother's and father's years of higher education. Standardized before entering.
Major	Arts and Humanities, Biological Sciences, Business, Education, Engineering, Physical Science, Professional, Social Science, Other/Undecided (reference group = Business), dummy coded 0 = not in group, 1 = in group and entered with business left out as the reference group.
Grades	Continuous variable, self-reported letter grades. Scale ranging from 1 = C- or lower to 8 = A. Standardized before entering.
Institutional control	0 =Public; 1 = Private
Institutional selectivity	Continuous, Barron's selectivity rating of each institution, ranging from most competitive=6 to noncompetitive=1. Standardized before entering.