

Impact of Global Curricular Experiences on Student GPA

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Abstract:

Study abroad, foreign exchange, foreign language, and global understanding courses are encouraged within higher education as something that can greatly improve and diversify student's college experiences. However, much of the data on benefits of these activities are limited and the findings are not entirely consistent throughout the literature. In this study, we use a simple fixed effects model within a sample of 47,000 students to understand the impacts that study abroad, foreign exchange, global understanding, and foreign language courses have on student semester and cumulative GPAs. Based on our model, it was found that study abroad/foreign exchange and global understanding courses had positive impacts on student success while the results for foreign language courses were not statistically significant.

Introduction:

Increasingly colleges and universities are seeing their funding linked to student performance. This link may be direct; for public universities state appropriations formulas include metrics for student success such as graduation rates and retention. For both public and private universities, student performance can impact their reputation and ability to sustain and grow their enrollments and thus tuition revenues. While student success is a goal of higher education, it is becoming increasingly critical to meet target metrics to sustain the institution's fiscal health.

One strategy has been to enhance students' contact with faculty outside of the traditional classroom experiences. These interactions have improved students' attitudes toward college, increased academic achievement, and enhanced enrollment persistence (Pascarella, 1980). More recently, many universities have adopted and implemented high impact practices (HIPs) such as first-year experiences, learning communities, writing intensive courses, collaborative projects, research, diversity and global learning, capstone courses, and experiential learning to improve student retention, engagement. These practices enhance "deep approaches" to learning and critical thinking (Kuh and Schnieder, 2008). In a review of HIPs, Gonyea et al. (2008) and Kuh and Kinzie (2018) found that there are complementary and reinforcing effects on student performance resulting from different types of learning experiences; they recommend students participate in at least two types of HIPs during their college experience. Gonyea et al. (2008) found that engagement in these activities had positive results on grades as well as persistence in obtaining their degree. Brownell and Swaner (2008) summarize several research projects that find positive impacts of first-year experiences, learning communities, research, and service learning on student persistence and grade point averages (GPAs).

However, despite the promoted benefits associated with these high impact practices, there are some inconsistent findings within the literature on just how impactful these experiences are. Zilvinskis (2019) focused specifically on the impacts of undergraduate research, internships, and

capstone projects. Only one of which, internships, were found to be positively correlated with GPA. Similarly, Johnson and Stage (2018) studied the effect of first-year seminars, core curricula, learning communities, writing-intensive courses, collaborative assignments, undergraduate research, diversity/global learning experiences, service learning, internships, and capstones or senior projects, effect on 4 and 6 year graduation rates and found that only student research positively impacted graduation rates and student internships actually had a negative correlation with graduation rates. All other variables were ineffective or weakly correlated to graduation rates. Due to the inconsistent findings within the literature, this study is focused specifically on the impacts of global curricular experiences on student performance.

Study Abroad:

Kuh and Kinzie (2018) assert that studying abroad is “transformative and life changing” for undergraduates. These transformations can be quantified in terms of improved critical thinking skills, cognitive development (Gurin et al. 2002; Pascarella et al. 2014) and enhanced intercultural competency (Salisbury et al. 2013), relative to peers who do not study abroad. Salisbury (2013) also found evidence that studying abroad provides an educational benefit regardless of the student’s background, educational aspirations, or college experiences.

Important measurements for overall institutional success such as student GPA also have benefits related to study abroad. In a small sample study, McMahan (2015) found that study abroad experiences positively affected student’s GPA upon returning to campus. In a similar study performed at Shippensburg University, Holoviak (2009) found that study abroad was positively correlated with cumulative GPA in those who participated. Ingraham and Peterson (2004) confirm that GPAs upon graduation were higher for study abroad participants relative to their peers. At Old Dominion University, Xu (2004) found that study-abroad participants took more credit hours, had a higher average college GPA, and had improved graduation rates compared to the domestic students.

While these findings reinforce the positive “transformative” experience of study abroad for students, other studies do not contain overwhelming positive benefits to study abroad on student performance. For example, Kuh and Schneider (2008) and Kilgo (2015) found only weak evidence of the impacts of study abroad on student performance in terms critical thinking, moral reasoning, and intercultural effectiveness. Finley (2011) reported only “comparatively small impact(s)” for study abroad on gains in their general education as well as gains in personal and social development, compared to other high impact practices. Similarly, Johnson and Stage (2018) found that that benefits from high-impact practices, including study abroad, were not evident in institutional graduation rates or grade point average.

Due to the inconsistent findings within the literature on study abroad effects on student performance, this study identifies impacts of study abroad experiences on the GPAs of East

Carolina University (ECU) students. By applying regression analysis, we control for demographic attributes and other academic factors to better attribute observable changes in student performance to study abroad. ECU is a good case study because it has both study abroad and International Virtual Exchange courses that create a suite of globalization curricular experiences for students.

International Virtual Exchange:

International Virtual Exchange (IVE) is a practice that allows students to engage and collaborate with other students from across the world all from their home institution. Virtual Exchange includes technology-enabled, peer education programs that connect geographically separated students around common topics and/or projects with the support of educators or facilitators.

At East Carolina University, IVE courses are characterized by their use of a discipline-based platform (e.g. humanities, social sciences, health, business, and communications) to incorporate to explore issues through a global perspective. The suite of IVE courses offered at ECU are called global understanding (GU) courses. Students develop their global understanding and cultural competencies by virtually connecting students in different countries for discussions and group problem-solving. Typically, these courses fulfil global diversity requirements within the ECU general education curriculum. Students are connected through the IVE program to students work through assigned projects, interact with peers in other countries, and collaborate to overcome logistical barriers and cultural differences. ECU has been offering IVE courses since 2005. Each year, 30-40 IVE courses are offered at ECU that connect over 400 students around the world. In 2016 the university received the NAFSA Senator Paul Simon Spotlight Award for Campus Internationalization for its work in this area. Including IVE participation in our study expands the concept of curricular globalization as an HIP technique to improve student performance, measured as post-experience GPA.

Institutional Context:

In many ways ECU is a typical, midsized public university. Since the 1996-97 school year ECU began instituted Cultural diversity requirement. In the 2012-2013 academic year they separated it into 3-hour global diversity requirement as well as a 3-hour domestic diversity requirement for all undergraduate students. These global diversity credits can be earned by taking courses with globalization content, by completing a study abroad program, or by taking an international virtual exchange course. The ECU study abroad courses are similar to other universities and include courses with a 2 to 6-week travel component within the Spring, Summer, or Fall semesters. Over the Fall of 2008 to the Fall of 2020 period, 3,219 students completed at least one study abroad course, within our sample 6.8% of the first-time, full-time (FTFT) freshmen entering ECU completed a study abroad course at some point in their academic careers. This is slightly lower than the national average of 10.7% of students who study abroad at some point during their college experience nationally (National Center for Education Statistics, 2012). While

the main focus of this paper is on study abroad and IVE, we also include the effects of taking foreign language courses and foreign exchange participation due to the fact that they are both associated international education and interaction.

Data:

In this study, we analyze the effect of study abroad/foreign exchange, foreign language, and global understanding courses on students' grade point average (GPA). Our study focuses on first-time, full-time freshmen (FTFT freshmen). Our case study is East Carolina University (ECU), which is considered a moderate-sized, public university with an average annual undergraduate enrollment of 12,180 students who matriculated as FTFT freshman over the sample period from 2008 to 2020. The data in our study includes 365,424 observations of roughly 47,000 FTFT freshmen entering ECU. Approximately 8,800 (18.7%) of these students participate in foreign language at some point during their college career. The participation rates for other international activities of interest are lower at roughly 7% for foreign exchange/study abroad and for global understanding. The dataset begins with new freshman entering in the Fall 2008 semester, and new students are added to the sample as they enroll in subsequent semesters. Students leave the sample upon graduation or termination of enrollment. Importantly, our panel dataset includes a longitudinal student identifier that allows us to track individual students over the course of their college career at ECU. The descriptive statistics for the sample are reported in Table 1.

Our main covariates of interest are indicator variables for participation in study abroad/foreign exchange, foreign language, and global understanding. These indicator variables are equal to 1 during the semester that students participate in the international activities and each subsequent semester of the student's enrollment. For example, consider an ECU student whose college career spans a total of eight semesters and who studies abroad during the fifth semester. Within the data set the study abroad indicator will be 0 for the four semesters prior to their study abroad experience and equal 1 for each semester following their study abroad experience. The indicator variables generally follow the same pattern as participation rates. For example, 14.9% of our student-semester observations are of individuals who have completed a foreign language course, 4.9% completed a global understanding course, and 3.9% studied abroad or completed a term-length foreign exchange program.

Our data set also includes covariates such as whether or not students lived on campus, were first generation college students, were Pell grant recipients, were members of Greek life, were student athletes, or were members of the honors college. We included the on-campus factor in our Table 1 due to its statistical significance and the fact that 87% of our sample of students lived on campus at some point in their academic career. ECU has a general requirement that all freshman students live on campus for at least one year. According to Table 1, around 29% of the student observations from our panel were on campus residencies which suggests that most students live

on campus during their freshman year to satisfy institutional requirements, but subsequently move to off-campus housing in later semesters.

We measure two forms of GPA in this study. The first, cumulative GPA is the total GPA as measured through the current semester and includes all classes the student has received credit at ECU up to that point. Our second measure, semester GPA, is simply the GPA calculated for each student based only on the classes taken during a given semester. The semester GPA is our preferred measure as it better captures the immediate impacts of these global curricular experiences on student performance. For example, we may find a small impact on cumulative GPA if students are participating in international activities during semesters late in their academic career, but semester GPA will not be affected by such timing of study.

Although not reported in Table 1, ECU is a diverse campus with 59% of the FTFT freshmen female, 70% White, 15% Black or African American, 4% Hispanic/Latino, and the remaining 11% belonging to other race/ethnicity categories. Incoming freshman have on average an SAT score of 1047, a 3.675 high school GPA, and 61% graduate within 6 years. The following section describes our empirical methods used to analyze the data and presents statistical results of those analyses.

Empirical Model and Results:

To estimate the effect of study abroad and global understanding courses have on academic success (GPA), which is on a scale from 0 to 4. We first estimate the following student fixed effects model:

$$GPA_{i,t} = a + \beta_1 * GU_{i,t} + \beta_2 * FL_{i,t} + \beta_3 * ABEX_{i,t} + \beta_4 * OC_{i,t} + M_{i,t} + I_i + T_t + \varepsilon_{i,t} \quad (1)$$

In equation 1, GPA for student i at time t is estimated to be a function of participation in several international activities including, (GU) global understanding courses, (FL) foreign language course, (ABEX) which is the combination of study abroad and foreign exchange courses. These variables measuring participation are indicator variables equal to 1 during the semester of participation and each semester thereafter. $OC_{i,t}$ is an indicator variable equal to one if the student resides on campus during a given semester. As such, the key coefficients of interest are β_1 , β_2 , and β_3 , measuring the impact of GU, FL, and ABEX courses on student grade point average. The estimated coefficient for OC is also of interest, but we are hesitant to interpret β_4 as a causal impact of campus residency on GPA. Recall from the discussion in the data section, most students reside on campus as freshmen during which time they are taking relatively easier introductory courses. The regression also includes a full set of student (I_i), semester (T_t), and Major ($M_{i,t}$) fixed effects to control for time-invariant student characteristics (race, gender, pell eligibility, etc), differing time trends in international study, and majors assuming that different majors are heterogeneous in terms of rigor. Finally, equation (1) includes a random

error term, $\varepsilon_{i,t}$, clustered at the student level to control for inter-temporal correlation within students.

Table 2 presents the results from the model in equation 1 using the full set of all possible counterfactual control observations. Note that ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively. From column 1 and 2, the combination of study abroad and foreign exchange increases cumulative GPA by 0.034 points which is roughly 1.2%, and this effect is statistically significant at 1% level. Semester GPA is increased by 0.071 points (2.4%). These findings demonstrate that study abroad/foreign exchange experiences are positively correlated with student performance.

Global understanding course increased cumulative GPA 0.018 points (0.60%) and resulted in a 0.028 increase in semester GPA on average across semesters following the completion of the course. Cumulative GPA results were significant at the 1% level while semester results were significant at the 5% level. The 95% confidence interval of semester GPA for global understanding are calculated directly from Table 2 using the estimated beta coefficient and standard error (beta +/- 1.96*std. error) as .006 to 0.054.

Foreign Language participation only accounted for a 0.008 point increase in cumulative GPA and had a slightly negative effect of a 0.005 point decrease on semester GPA following foreign language participation. The only statistically significant impact was on cumulative GPA at the 5% level. Based on the magnitude of these effects and inconsistencies regarding statistical significance it appears that foreign language has a weak correlation with student performance. On campus residency is associated with a 0.018 point increase in cumulative GPA and a 0.087 point increase in semester GPA. Both effects are significant at the 1% level indicating that living on campus does have a positive correlation with student success.

Columns 3 and 4 of Table 2 test the sensitivity of our regression results to alternative functional forms by using the log of our GPA variables as the dependent variable. Because we are taking the log of the dependent variable, the estimated coefficients in columns 3 and 4 can be directly interpreted as the percentage impacts of the respective covariates on GPA. In general, these percentage impacts are roughly comparable to the percentage impacts from the linear models (as evaluated at the mean GPA from Table 1). For example, study abroad/exchange is estimated to increase cumulative GPA by 1.1% and semester GPA by 1.9% and the effects are statistically significant at the 1% level. Recall, the linear model predicted a 1.2% and 2.4% increase in cumulative and semester GPA, respectively. We do, however, see some differences in terms of statistical significance for the log-linear models compared to the linear models. Specifically, in global understanding courses effect on semester GPA and foreign language courses on cumulative GPA. Where there is a decrease in statistical significance from the 1% level in cumulative GPA from global understanding to only a 5% level of significance of with the log-

linear model, while semester GPA has no statistical significance in the log-linear model. The effects of foreign language courses are statistically indistinguishable from zero in our log-linear results.

In sum, the findings from our regression analyses, indicate that international activities such as study abroad/foreign exchange and global understand courses were positively impactful on student GPA. Alternatively, foreign language was found to have relatively limited effects on student performance.

Discussion and Conclusion:

Colleges and universities around the globe are making many critical decisions regarding funding, programming, and planning to positively impact student success. How well university students perform can impact tuition revenue, and government funding which, in turn, impacts the overall fiscal health of the institution. Thus, strategic investments in high impact practices are important both to the student experiences and the fiscal position of the university.

In this paper, we construct a simple empirical framework that studies the effect of high impact practices, such as study abroad/foreign exchange and global understanding courses, on student performance as measured by GPA. To measure the impacts of study abroad/foreign exchange and global understanding courses we utilize a fixed effects model. This estimation strategy measures the within-student changes in semester and cumulative GPAs of students who participated in any of the three academic formats. The evaluated semester and cumulative GPAs indicate that there are statistically significant results that show a positive correlation between study abroad/foreign exchange on both students cumulative and semester GPA. While the global understanding courses showed a positive correlation with student success the results were not as statistically significant. Foreign language courses had little to no impact on student GPA and the results were not found to be statistically significant.

Table 1: Summary Statistics

Variable	Variable Name	Mean	Std Dev
abexpost	Post Study Abroad and Foreign Exchange	0.0388	(0.193)
gupost	Post Global Understanding	0.0490	(0.216)
flpost	Post Foreign Language	0.149	(0.356)
oncampus	Resides on campus	0.290	(0.454)
gpa_cum	Cumulative GPA	2.947	(0.622)
gpa_sem	Semester GPA	2.988	(0.840)

Table 2: Impact of Study Abroad, Global Understanding, Foreign Language, and Foreign Exchange on Student GPA

VARIABLES	gpa_cum	gpa_sem	lngpa_cum	lngpa_sem
Post Study Abroad and Foreign Exchange	.0344***	0.0708***	0.0105***	0.0193***
	(0.00423)	(0.00839)	(0.00157)	(0.00317)
Post Global Understanding	0.0178***	0.0284**	0.00558**	0.00792
	(0.00617)	(0.0112)	(0.00262)	(0.00486)
Post Foreign Language	0.00840**	-0.00451	0.00263	-0.00372
	(0.00414)	(0.00778)	(0.00175)	(0.00335)
Resides on Campus	0.0182***	0.0872***	0.00567***	0.0405***
	(0.00173)	(0.00403)	(0.000763)	(0.00179)
Number of Observations	368,173	365,424	367,679	360,138
R2	0.903	0.571	0.890	0.522
Number of Students	47,180	47,127	46,982	46,279

Statistical Significance at the 10%, 5%, and 1% level are represented by *, **, and ***, respectively

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