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SERU Consortium Research Paper*

FOSTERING GLOBAL COMPETENCE THROUGH INTERNATIONALIZATION AT AMERICAN RESEARCH UNIVERSITIES

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ABSTRACT

American research universities have recently joined the march for internationalization and now are putting explicit efforts into finding ways to create an international focus. Within a short number of years, their missions have been transformed, incorporating elements of globalization. Universities now declare the importance of preparing students to live and work in a multicultural and global world. They document the increased numbers of international students and faculty on campus and their support for Study Abroad programs that provide first-hand international experience as well as curricular changes. However, there is little research regarding how effective universities have been in achieving their overall goal of internationalization, in particular any assessment of increased student global competency resulting from the undergraduate experience at a major research university. This study begins to fill that gap by investigating the contribution of each of a number of specific globally focused activities offered by these universities to the increased self-assessed global competency of undergraduates. The data are from the spring 2012 administration of the Student Experience in Research University (SERU) Survey that included responses from 33,784 undergraduate students from 15 major American research universities. The study develops a six-item measure of global competency and then uses a four-stage multiple regression model to examine how participation in each of nine globally oriented activities contribute to self-assessed increases in global competency since enrollment at the university. The results indicate the significant relationship of participation in globally oriented activities to increased sense of global competency with the pattern of relationships varying by year in school. For seniors, for example, interaction with students from outside the US in social settings makes the largest contribution to gains in global competence, followed by taking courses with an international focus and study abroad.

Keywords: Research university, Internationalization, Global competence, Student experience, Self-reported learning gains

For at least the last decade higher education system in the USA has moved towards internationalization. Most leaders in higher education understand the necessity of students' preparation to "live and work in the world in which national borders are highly permeable, information travels rapidly, and communities and workplaces are increasingly multicultural and diverse" (Green & Olson, 2003, p. vii). The internationalization of institutions plays an important role in the economic growth of a university and its

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recognition in the worldwide educational arena. According to Knight (1994), internationalization is the process of integrating an international/intercultural dimension into the teaching, research, and service functions of an institution. American universities now implement elements of the internationalization process in their mission statements, articulating as one of their goals the preparation of students for productive and responsible citizenship in a multicultural world (Appendix A).

According to an Open Doors report published by the Institute of International Education in 2015, the results are stunning: from 2009-2010 and 2014–2015 the number of international students in the US increased by 41% and American student participation in study abroad has more than tripled over the past two decades. While these numbers are impressive, they do not automatically translate into actual internationalization of institutions. In other words, the numbers indicate significant growth in areas conducive to internationalization but are not measures of the desired outcome, that is, the actual global competence of students at American universities (Deardorff, 2006).

Rather than seeing international students just as a source of additional income, "the growing pool of these students can serve as an enhancement to the academic environment and productivity of universities" (Zhao & Douglass, 2012, p. 27). Processes underlying cultural gains, not increasing numbers, are key (Almeida et al., 2012), because simply providing lectures on global issues or bringing international students on campus does not internationalize universities. In short, "personal globalization requires active participation in acquiring new social and behavioral patterns that make up an internationalized culture" (Dobbert, 1998, p. 54).

In summary, the 21st century has broken down geographical barriers, bringing different parts of the world closer together and making everyday contacts more diverse. The implicit assumption that defining the university as "a company of scholars engaged in discovering and sharing knowledge, with a responsibility to see that such knowledge is used to improve the human condition" (Keohane, 1993, p. 103) referred to "in service to the nation" now means "in service to the world." There is increased recognition that promoting the importance of diversity in education involves a global context (see Appendix A).

Contemporary research universities have expressed responsibility to prepare students to live and work in a world that is both multicultural and global, but the key is having an **internationalization strategy** to fulfill this responsibility. One such strategy identifies 12 tasks aimed at internationalizing a campus:

1. internationalizing strategic planning;
2. internationalizing curricula;
3. developing study abroad programs;
4. increasing the number of international students on campus;
5. requiring foreign language proficiency;
6. creating international internships;
7. hiring international faculty;
8. incorporating international contribution into the faculty reward system;
9. upgrading senior international officers' reporting relationships;
10. placing senior international officers on key council committees;
11. drawing upon the expertise and experience of immigrant communities; and
12. forging global partnerships (Brustein, 2009).

These tasks are clearly within the realm of research universities and their perceived mission.

A. Existing Research on the Global Competence of Students

Studies on the internationalization of university curricula have found a positive effect on measures of "worldmindedness" (Hett, 1994; O'Leary, 2001) and general international knowledge (Woyach, 1988; Hembroff, Knott, & Keefe, 1990) of students involved in activities with international content. Research conducted in the field of international education shows that students who took more courses with international content, interacted with international students on a deeper level, or studied abroad demonstrated greater foreign language skills and more knowledge of specific regions and countries, attitudes, perceptions, and behaviors (Bennett, 1993; Parsons, 2010; Salisbury et al., 2010; Soria & Troisi, 2014). They became more internationally aware, open, curious, and cooperative. As a result, students acquired the ability to communicate effectively in cross-cultural situations and relate appropriately in a variety of cultural contexts. These characteristics can be summarized in two words—global competence — which is seen as a tool to "equip young people for the culturally diverse and digitally-connected communities where they work and socialize" (Organisation for Economic Co-operation and Development [OECD], 2016, p. 1).

At the same time, research points to a mismatch between the role of higher education institutions and the needs of students and employers (Evers & Rush, 1996). Students have difficulty adjusting to new environments, working in multicultural teams, and communicating effectively with representatives from different countries.

What are universities doing to help their students develop global competence and build cultural understanding and appreciation? Empirical assessment can help educators achieve a better understanding of students' global competence skills, track their development, and specify areas for improvement. The focus of this study is to provide empirical evidence about the global competence component of the internationalization initiative of research universities. Specifically, this study examines the contribution of globally oriented activities offered by these universities as a part of their internationalization strategy in the development of students' global competence. The research questions are as follows:

1. How does the level of global competence of undergraduate students who participated in globally oriented activities (e.g., studied abroad, took a course with an international focus, interacted with non-US students in class) differ from those students who did not?
2. What activities contribute more to the development of undergraduate students' global competence?

B. Theoretical and Conceptual Frameworks

There are many models of global competence but no consensus on the definition of global competence itself. In our study, we adopt the definition presented by the OECD (2016), in which global competence is seen as "the acquisition of in-depth knowledge and understanding of global and intercultural issues; the ability to learn from and live with people from diverse backgrounds; and the attitudes and values necessary to interact respectfully with others" (p.1). The theoretical model for our study is Astin's (1970) Input-Environment-Output Model where "inputs" are students' demographics, background, and experiences prior to college; "environment" describes the experiences of students during college; and "outcomes" entail students' characteristics, knowledge, attitudes, beliefs, and values at the point of graduating from college. In our research, globally oriented activities offered by universities are viewed as a specific component of "environment" and global competence is the educational outcome of interest, one of critical importance in this globalized century.

This conceptual framework suggests that the global competence of undergraduate students is a function of: (a) student characteristics prior to matriculation (global competence skills that students acquired before enrollment; gender, race/ethnicity, socio-economic background), (b) factors in college (year in school, field of study, GPA), and (c) involvement in globally oriented activities/opportunities (friendship with a student from outside US; work with a faculty member on a project with an international/global theme; courses that involve themes related to diversity or global learning; lectures, symposia, workshops or conferences on international/global topics; study abroad practice (Figure 1).

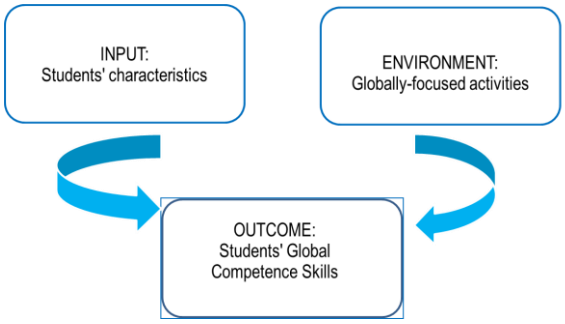

Figure 1 – Conceptual Framework Predicting Development of Students' Global Competence

Past research has demonstrated that there is some relationship with student characteristics and level of global competence. For example, females, older individuals, and minorities tend to have higher levels of global competence than males, younger individuals and non-minorities (Pascarella et al., 1996; Zhai & Scheer, 2004). Our current study both adds the examination of the impact of specific globally oriented activities and looks at **gains** in global competence rather than degree of global competence.

C. Data and Methods

Data from the 2012 administration of the Student Experience in Research University (SERU) survey were used to address the research questions. The SERU survey is designed as a comprehensive census online survey that presents a systematic environmental scan of the student experience at major public research-intensive universities. The SERU consortium (https://cshe.berkeley.edu/seru/about-seru) investigates the experience of undergraduate and graduate students in North America and internationally. SERU is located at the Center for Studies in Higher Education at the University of California, Berkeley and the University of Minnesota and includes partnership with the National Research University Higher School of Economics in Moscow, Russia.

At total of 15 US major research universities participated in the SERU survey in 2012. The sample consisted of 33,784 undergraduate students: 13,688 men and 20,096 women aged 17–69 years (men: *M* = 21.2, *SD* = 3.4; women: *M* = 20.8, *SD* = 3.5). To address the research questions, the following statistical procedures were followed:

1. Internal consistency analysis (Cronbach's alpha) to assess the reliability of the items which measure global competence;
2. Principal component analysis (PCA) to create the Global Competence Index; and
3. Blocked Hierarchical Multiple Regression to determine the overall fit of the model and the relative contribution of each predictors to the total variance explained while controlling for potential confounding covariate variables (Appendix B).

A four-stage hierarchical multiple regression was conducted with the gain in global competence (current global competence minus global competence before enrollment) as the dependent variable. Global competence before enrollment was entered at stage one of the regression; background variables (gender, race, mother's education, international student status, transfer student) were entered at stage two; college characteristics, such as major, year in school and GPA, at stage three; and our predictor variables (globally-focused activities) at stage four. In addition to developing the model for all undergraduates, separate models were generated for freshmen, sophomores, juniors, and seniors. We were particularly interested in the results for seniors, given that they, unlike lower-division students, have more complete access to all globally oriented activities (e.g., study abroad). Results for the full model for seniors are presented as Appendix B.

D. Constructing the Global Competence Index

The global competence measure (Cronbach's Alpha = 0.86) was constructed from the following six items for which respondents were asked to "*Please rate your level of proficiency when you began your studies at this campus and now"* using a six-point scale (Very poor, Poor, Fair, Good, Very good, Excellent):

- *Ability to appreciate cultural and global diversity;*
- *Ability to work with people from other cultures;*
- *Comfort working with people from other cultures*;
- *Ability to understand international perspectives (economic, political, social, cultural);*
- *Understanding of the complexities of global issues;*
- *Ability to apply disciplinary knowledge in a global context.*

Three global competency scores were calculated: global competence at time of enrollment, current global competence, and the difference between the two. The difference score provided our measure of gains in self-assessed global competency.
Table 1 shows the detailed description of the outcome, predictor and control variables.

F. Results

Our overall model for the all respondents is statistically significant as are the models for freshmen, sophomores, juniors, and seniors. As seen in Table 2, the initial rating of global competence has a Beta weight of -.49, accounting for 24% of the variance in perceived increased gain in global competence. It is not surprising that the rating of initial global competence has a significant negative relationship with gain in global competence. That is, students who rate themselves as having been low on global competence at entry have higher gain scores than those who rate themselves as having been higher at entry. On the other hand, neither gender nor race is associated with competency gains. Among background factors, only mother's education is a significant predictor in the model: a lower level of mother's education is associated with more change in the global competence developed at university. Overall, background factors do not account for any significant amount of the variance in predicting global competency gain.

Table 1. Outcome Variable, Predictor Variables, Controlling Variables and Scales

	Variables	Scales
Outcome	Index of global competence	One-factor score solution on the global competence change score
Predictors	Global competence at time of enrollment	Factor score
	Develop a friendship with a student from outside the US	Never; Rarely; Occasionally; Somewhat often; Often; Very often
	Work with a faculty member on a project with an international/global theme	Never; Rarely; Occasionally; Somewhat often; Often; Very often
	Interacted with students from outside the US in class (e.g., through section discussions, study groups or class projects)	Never; Rarely; Occasionally; Somewhat often; Often; Very often
	Interacted with students from outside the US in social settings	Never; Rarely; Occasionally; Somewhat often; Often; Very often
	Enrolled in a course with an international/global focus	No; Yes, doing now or have done
	Study abroad, including summer study abroad	No; Yes, doing now or have done
	Attended a performance with an international/global focus	Never; Rarely; Occasionally; Somewhat often; Often; Very often
	Obtained a certificate/minor/major with an international/global theme	No; Yes, doing now or have done
	Attended lectures, symposia, workshops, or conferences on international/global topics	Never; Rarely; Occasionally; Somewhat often; Often; Very often
Confounders	Gender	Female; Male
	Year of study	Freshman, Sophomore, Junior, Senior
	GPA	From 0 to 4
	Selected fields of study	Engineering; Social Science; Business; Biology Sciences; Arts; Psychology
	Race	White, Asian, Hispanic, African American, Pacific Islander, American Indian
	Transfer student	Yes; No
	International student	Yes; No
	Mother's education level (high level degree)	Yes; No

Table 2. Prior Global Competence and Background Variables: All Respondents

Variables	Beta	Significance
Prior Global Competence	**-.49**	**.001**
White	.00	ns
International	.01	ns
Asian	.01	ns
Latino	.00	ns
African American	-.00	ns
Transfer	.00	ns
Mother's Education	**-.04**	**.001**
Gender	.00	ns

ns – non-significant

Table 3. Adding Selected Majors, Year in School, and GPA: All Respondents

Variables	Beta	Significance
Engineering	**-.07**	**.001**
Social Science	**.07**	**.001**
Business	**.03**	**.002**
Biology	**-.05**	**.001**
Physical Sciences	**-.06**	**.001**
Arts	-.02	ns
Psychology	.00	ns
Year in School	**.18**	**.001**
College GPA	-.01	ns

ns – non-significant

The results for the college experience (Table 3) show, there is a significant association between fields of study and gains in global competence for the overall model: social science and business students show more gain, while engineering, physical science, and biology students show less gain. As expected, year in school is significant: the longer students are in school, the higher their gains. On the other hand, college GPA has no relationship to global competence gains. Overall, global college experience variables account for 3% of the variance in global competency gain.

The nine globally oriented activities added to the last stage of the model explain an additional 12% of the variance. As seen in Table 4, in the overall model eight of the nine activities relate to positive change in global competency; taking courses with an international focus stands out as the most significant predictor.

Table 4. Adding the Globally Oriented Activities: All Respondents

Variables	Beta	Significance
Study abroad	**.08**	**.001**
Course with international focus	**.13**	**.001**
Certificate/Minor/Major international focus	**.02**	**.02**
Interacted non-US students in class	**.06**	**.001**
Interacted non-US students social settings	**.07**	**.001**
Developed a friendship with non-US student	**.08**	**.001**
Worked with faculty on int. theme project	-.01	ns
Attended lectures, etc. on int./global topics	**.09**	**.001**
Attended performance with int./global focus	**.05**	**.001**

Table 5 shows how the impact of globally oriented activities on change in global competence varies by year in school for the Freshman, Sophomore, Junior, and Senior models separately. As the numbers in Table 5 demonstrate, courses and lectures with an international focus are significant across all years, study abroad only in the junior and senior years, and, interestingly, interaction with non-US students in classroom settings in the first two years only but interaction with non-US students in social settings after the first year.

Table 5. Beta Weights for Globally Oriented Activities Predicting Global Competence: Freshmen, Sophomores, Juniors, Seniors, All Respondents

Variables	Freshman	Sophomore	Junior	Senior	All
Study abroad	.03	.04	**.10**	**.12**	**.08**
Course with international focus	**.11**	**.12**	**.12**	**.13**	**.13**
Certificate/Minor/Major with international focus	-.01	-.01	.03	**.06**	**.02**
Interacted with non-US students in class	**.11**	**.08**	.01	.02	**.06**
Interacted with non-US students in social settings	-.02	**.10**	**.08**	**.15**	**.07**
Developed a friendship with non-US student	**.13**	.04	**.11**	.03	**.08**
Worked with faculty on international theme project	-.04	-.02	-.05	**.06**	-.01
Attended lectures, etc. on international/global topics	**.14**	**.09**	**.07**	**.08**	**.09**
Attended performance with international/global focus	.05	**.07**	**.08**	.05	**.05**
OVERALL ADJUSTED R^2	R^2 = .272	R^2 = .342	R^2 = .377	R^2 = .410	R^2 = .416
GLOBAL ACTIVITIES ΔR^2	ΔR^2 = .10	ΔR^2 = .10	ΔR^2 = .10	ΔR^2 = .16	ΔR^2 = .11

It is important to note that these findings are limited to self-assessed gains in global competency for SERU survey respondents aggregated across fifteen major public research universities. The current study does not address the question of the impact of different types of higher education institutions on increases in global competency or of college attendance itself. Differences among the fifteen participating institutions in the SERU survey are not considered. The current study focuses on gains in global competency, not global competency per se as an outcome. For the latter, the model derived presumably would be different, i.e., input variables might have more weight.

G. Conclusion

The prevailing view in higher education research is that self-reported learning gains lack validity (Porter, 2013). However, there is evidence that SERU survey method using self-anchored then and now comparisons (retrospective pretest ratings) does provide valid indirect measures of learning outcomes (Thomson & Douglass, 2009; Thomson, 2017). The current study extends this approach to examining gains in self-assessed global competence among undergraduates at research universities.

Using our measure of self-assessed global competence and a four-stage multiple regression design, we successfully identify specific undergraduate experiences that contribute to increased competence among all enrolled undergraduates and by year in school. These experiences include taking courses with an international focus, study abroad, and interaction with students from outside the US in social settings. The latter is the strongest factor for seniors. Among all respondents fields of study and year in school are also associated with gains in global competency. At the same time, we have to keep in mind that our model only explains a modest amount of the variance in the gain in self-assessed global competency and that there are unmeasured factors that account for the majority of the variance.

Nonetheless, our research findings should encourage administrators and faculty to consider and continue to evaluate the avenues available to increase the global competence of current undergraduates. These findings confirm three broad avenues. First, as anticipated, study abroad experience contributes to increased global competence, but study abroad is not possible or likely for all students. Second, the strategy of research universities to enroll more international students is a good one in terms of developing global competence of domestic students. Opportunities to interact with international students in the classroom and even more importantly in non-academic social settings contribute to the development of global competence and can foster enthusiasm, not only of students but faculty and administrative staff as well. Third, developing and encouraging, if not requiring, participation in multicultural and inclusive curricula should serve to introduce all students (not just those with study abroad opportunities or face-to-face interaction with international students) to the demands of an increasingly multinational world and develop skills students need to operate in an international context (Haigh, 2002). As American research universities continue on the march to internationalization on the institutional level, the need to assess and encourage the multiple pathways to individual student global competence remains paramount.

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Appendix A. Examples of Missions of US Major Research Universities

University	Mission Statement
University of California Los Angeles	UCLA's primary purpose as a public research university is the creation, dissemination, preservation and application of knowledge for the betterment of our global society. To fulfill this mission, UCLA is committed to academic freedom in its fullest terms: We value open access to information, free and lively debate conducted with mutual respect for individuals, and freedom from intolerance. In all of our pursuits, we strive at once for excellence and diversity, recognizing that openness and inclusion produce true quality.
University of Southern California	The central mission of the university of Southern California is the development of human beings and society as a whole through the cultivation and enrichment of the human mind and spirit. USC is pluralistic, welcoming outstanding men and women of every race, creed and background. We are a global institution in a global center, attracting more international students over the years than any other American university.
University of Minnesota	The University of Minnesota, founded in the belief that understanding enriches all people, is dedicated to the advancement of learning and the search for truth; to the sharing of this knowledge through education for a diverse community; and to the application of this knowledge to benefit the people of the state, the nation, and the world.
Rutgers University	RU works to create an environment of inclusion which respects and affirms the inherent dignity, value, and uniqueness of all individuals, communities and perspectives. Our practices reflect awareness and understanding of the complexity of identity and the increasing interconnectedness of our world.
University of Maryland, College Park	The mission of the University of Maryland, College Park is to provide excellence in teaching, research, and service. The University educates students and advances knowledge in areas of importance to the State, the nation, and the world.
Kansas State University	The mission of Kansas State University is to foster excellent teaching, research, and service that develop a highly skilled and educated citizenry necessary to advancing the well-being of Kansas, the nation, and the international community. The university embraces diversity, encourages engagement, and is committed to the discovery of knowledge, the education of undergraduate and graduate students, and improvement in the quality of life and standard of living of those we serve.

Appendix B. Summary of Blocked Hierarchical Multiple Regression Analysis for Variables Predicting Increased Global Competence: SENIORS

VARIABLES	STEP 1		STEP 2		STEP 3		STEP 4 Full Model	
	B	β	B	β	B	β	B	β
Initial global skills								
Intercept	***2.89(.13)		***3.01(.179)		***2.79(.300)		***2.75(.245)	
Global competence prior to enrollment	-.104(.006)	-.470***	-.104(.005)	-.469***	-.104(.005)	-.468***	-121(.005)	-.546***
Background characteristics								
International			.04(.14)	.007	-.004(.14)	-.001	.014(.12)	.002
White			.037(.06)	.016	.018(.061)	.008	.006(.054)	.002
Asian			.081(.07)	.032	.055(.07)	.021	.01(.062)	.039
Latino			.021(.09)	.006	.045(.09)	.013	.05(.077)	.014
African-American			.13(.02)	.019	.095(.17)	.014	.028(.15)	.004
Transfer			-.069(.33)	-.005	-.139(.32)	-.011	.078(.029)	.006
Mother's education			-.02(.02)	-.033	-.03 (.016)	-.047	-.04(0.14)	-.068**
Gender			-.039(.06)	-.017	-.006(.057)	-.003	-.058(.051)	-.026
College characteristics								
Engineering					.073	-.073**	-.110(0.87)	-.032
Social Sciences					.310(.085)	.100***	.200(.077)	.065**
Business					.082(.11)	.019	.112(.099)	.026
Biology					-.292(.08)	-.099***	-.110(.073)	-.037
Physical Science					-.386(.13)	-.073**	-.177(.12)	-.034
Arts					-.061(.135)	-.011	-.047(.12)	-.009
Psychology					-.093(.109)	-.022	.028(.097)	.007
GPA					.085(.063)	.033	-.094(.057)	-.037
Globally-oriented activities								
Enrolled in a course that involve themes related to diversity or global learning							.295 (.053)	.134***
Study abroad, including summer study abroad							.319 (.063)	.121***
Interacted with students from outside the U.S. in class							.015 (.026)	.020
Interacted with students from outside the U.S. in social settings							.115 (.034)	.149***
Developed a friendship with a student from outside the U.S.							.020 (.03)	.028
Worked with a faculty member on a project with an international/global theme							.048 (.02)	.059*
Obtained a certificate/minor/major with an international/global theme							.208 (.085)	.059*
Attended lectures, workshops or conferences on international/global topics							.061 (.026)	.077*
Attended a performance with an international/global focus							.044 (.025)	.054
Summary	Adj. R^2 =.22		Adj. R^2 = .22 ΔR^2 = 0		Adj. R^2 = .25 ΔR^2 = .03		Adj. R^2 = .41 ΔR^2 = .16	

***p ≤ 0.001, **p ≤ 0.01,*p ≤ 0.05; Selecting only cases for which Year = 2008.