EXPLORING THE INTERNATIONAL KNOWLEDGE OF STUDENTS IN A COLLEGE OF EDUCATION

Doug Jones
College of Education
University of Florida
djonesnd2000@gmail.com

ABSTRACT
Knowledge of important international events and conditions seemingly enables professional personnel to effectively serve multicultural student populations and to guide their growth of global competence. Prior studies found young US adults generally display less knowledge of international issues than their age peers in other industrialized countries, with education majors demonstrating relatively lower knowledge levels compared to their peers in other majors. This study examines the degree of international knowledge displayed by 259 undergraduate education and non-education students. The two groups of students display similar yet low levels of international knowledge. Our findings reinforce the need for continued international education initiatives.
Keywords: international knowledge; international education; undergraduate students; education in the United States

INTRODUCTION

Knowledge of important international events and conditions has become vital to understanding and guiding commercial and professional policies in the 21st Century. The increased demands from government, business, and education sectors for employees who have international knowledge, skills, and experience requires students to be prepared to engage in international work (Council of Chief State School Officers, 2006). From this context, one of the principal roles of educators must be assisting children in the development of their understanding of international affairs. This role requires educators to have working knowledge that gives them the capacity to adequately discuss and transmit globally complex ideas and events (Holm & Farber, 2002). Numerous prominent organizations (American Council on Education, 1997; Committee for Economic Development, 2006; National Association of State Universities & Land-Grant Colleges, 1997) have underscored the importance of preparing students for international roles and called on schools and university leadership to increase international knowledge and expand general internationalization to all levels of education, with the goal to prepare students for further globalization.

International Knowledge in Young US Citizens

Despite this need for international knowledge, young US citizens generally lack international knowledge (Barrows, 1981; Eicher, Piersma, & Wood, 1975; Hayward & Siaya, 2001; Holm & Farber, 2002; Roper ASW, 2002; Roper GfK, 2006). A 1981 survey of 3000 U.S. undergraduate students on 13 global issues found that seniors correctly answered only 51% of the 113 multiple choice items (Barrows, 1981). Students who were males, older, from higher SES families, had higher GPAs, travelled internationally, and read newspapers regularly displayed higher levels of knowledge. The authors concluded that few US undergraduate students have adequate understanding of global issues (Barrows, 1981). This survey was replicated at a large public university in 1985 with similar results (Woyach, 1988).

A 2000 study by the American Council on Education involving approximately 500 US 18 year-olds focused on four international domains each assessed by 15 multiple-choice questions: people and places, political issues and events, economic issues and events, and overall international trends (Hayward & Siaya, 2001). The mean correct response rate remained meager, at approximately 50%. Respondents who had higher levels of education and had travelled internationally displayed higher levels of international knowledge. In 2002 and 2006

the National Geographic Society assessed the international knowledge and geography of representative samples of approximately 500 US young adults ages 18 to 24. The findings again showed that most young American adults display a limited awareness of the world beyond their country. Young adults in other industrialized nations generally performed higher than those in the US (Roper ASW, 2002). For example, 58% of the US respondents knew that the Taliban and al Qaeda movements were based in Afghanistan versus 84% in Great Britain and Sweden, 82% in Italy, 79% in Germany, and 75% in Canada. Respondents who were male, had higher levels of education, had travelled internationally, and obtained news information from the Internet displayed higher levels of knowledge (Roper GfK, 2006).

International knowledge and students in colleges of education

The classroom of the twenty-first century increasingly is affected by globalization (Commission on International Education, 1998). Its student body will become increasingly diverse in ethnicity, language, and developmental levels while requiring more complex forms of knowledge and skills to competently succeed in the globalized society. Educational personnel are responsible for promoting an understanding of global issues to students as well as for encouraging them to understand and accept diversity among their peers-a major goal of multicultural education (Banks, 1993, Merryfield, 1996; Olson, Evans, & Shoenberg, 2007). Today's educators should display a high degree of knowledge and awareness of international constructs to guide their students toward a greater understanding of the world (Commission on International Education, 1998).

During the last two decades, individual teacher educators and numerous organizations (e.g. American Council on Education, 1997; National Council for Accreditation of Teacher Education, 2000; National Education Association, 2010) have responded to these themes by advocating for and supporting efforts to promote international knowledge. Nevertheless, colleges of education reportedly are among the least internationalized units in higher education (Longview Foundation, 2008; Merryfield, 2000; Quezada, 2010; Schneider, 2004). The increased focus on achievement in light of state and federal mandated standards may have narrowed the focus of teacher education programs, thus limiting courses and other experiences needed to prepare internationally knowledgeable, competent teachers (McMurrer, 2007; Zhao, 2010). Furthermore, many education majors do not participate in or become otherwise exposed to international content either in their private lives, through broader university course work, or in overseas study or work opportunities (Mahon, 2010; Merryfield, 2000; Schneider, 2004; Sutton, 1999; Zhao, 2010).

The lack of focus and support in preparing globally competent and knowledgeable educators may have contributed to low levels of international knowledge in both students and professionals in education. In the aforementioned 1981 survey of 3000 US undergraduate students, education majors displayed the lowest level of international knowledge among the seven major college disciplines surveyed (Barrows, 1981). Education majors were ranked six out of the seven after controlling for the possible confounding effects of grades, standardized test scores, gender, and foreign travel (Torney-Purta, 1982). A 1985 study found pre-service teachers displayed little knowledge of geography (Herman, Hawkins, & Berryman, 1985). In 1996, a study of the levels of knowledge and understanding about Africa found pre-service social studies teachers demonstrated little awareness of basic geopolitical facts about its people, culture, and geography (Osunde, 1996). Similarly, a 2001 study of international knowledge and awareness displayed by approximately 150 pre-service teachers attending a large university education program found very low levels of knowledge, summarized by "…widespread inattention to and ignorance of geopolitical and global realities" (Holm & Farber, 2002, p. 143).

Purpose of this study

Numerous researchers and organizations have demonstrated the need for increased global focus and preparation in international studies, particularly in colleges of education (American Council on Education, 1997; Merryfield, 2000; National Education Association, 2010). The purpose of

this research is to describe the general level of international knowledge displayed by undergraduates who are taking classes in a college of education and to determine whether knowledge displayed by education and non-education majors differ. The content for this knowledge assessment comes from domains commonly found in prior prominent national and international studies. Findings from this study also are compared with data from prior studies assessing similar content.

METHOD

Participants

Data were gathered on 259 undergraduate students enrolled in a large public university in southeastern United States. Within this sample, 40% majored in education and 60% in other academic areas. Participants were predominantly female (92% in education versus 76% in non-education majors), with an average age of 20 years in both groups. Upperclassman (juniors and seniors) represented 63% of education majors and only 30% of non-education majors. Ninety-four percent of education majors were born in the US versus 86% of non-education majors. Five racial/ethnic groups were represented in the overall sample: Anglo-Americans (63%), Hispanics (12%), African-Americans (17%), Asian (5%) and Middle Eastern (.5%). GPAs of 3.0 or above were reported by 90% or education majors and 78% of non-education majors. On average, both education and non-education majors had visited two foreign countries and spoke one foreign language; only 17% spoke that language proficiently. Only six percent in each group had studied abroad. The two student groups were found to differ on gender, college year, race, GPA, and the proportion of students born in the US.

Procedure

The primary investigator recruited undergraduate students in courses in the College of Education. Participants were read and given an informed consent form that included a statement regarding the anonymous and voluntary nature of participation and noted that completion of the questionnaire implied consent. Participants were asked to complete the instrument and return it to the investigator.

Instrument development

An instrument was developed to assess general international knowledge. The instrument was developed using a framework which incorporated structures and domains from previous surveys of international knowledge, thus providing content validity and performance standards for the current study (Barrows, 1981; Holm & Farber, 2002; Roper ASW, 2002; Roper GfK, 2006). The five initial domains of international relations, global demographics, current events, international economics, and geography align with the theoretical framework specified by the American Council on Education (Olsen, Green, & Hill, 2005), Committee for Economic Development (2006), and the National Education Association (2002). Each domain is described briefly below. Several questions were removed in the analyses due to psychometric inconsistencies. Readers are referred to Table 5 for detailed list of questions. Information on the participant's demographic characteristics also was acquired.

Knowledge of international relations

Knowledge of international relations was measured initially by 8 multiple choice items designed to assess the respondent's general awareness and recognition of international affairs and conflict. Questions focus on large international organizations (e.g., the UN and NATO) as well as current areas of international disputes, defense, and nuclear proliferation. Two questions were removed later.

Knowledge of global demographics

Knowledge of global demographic characteristics was assessed through 12 multiple choice questions that focus on international populations, religions, languages, and education.

Knowledge of current events

Knowledge of current events was measured initially by 10 multiple choice questions designed to evaluate the respondent's ability to recognize important names, organizations, and events that

are discussed somewhat frequently in international news. Two questions were removed later.

Knowledge of international economics

Knowledge of international economics was measured initially by 11 multiple choice questions that focus on the importance of petroleum resources, international commerce, poverty, and national competitiveness. Three questions were removed later.

Knowledge of geography

Knowledge of geography was measured by assessing respondent's ability to identify 20 globally influential countries on a world map unmarked except for national boundaries. The respondent was given a numbered list of 20 countries and asked to place the corresponding number on the appropriate location on the map.

Statistical analyses

Data were analyzed in two stages. First stage analyses examined the psychometric characteristics of the newly developed measure of international knowledge. Exploratory factor analysis (EFA) and Pearson correlation were used to provide evidence of its characteristics. The Kuder-Richardson (KR #20) formula was computed to assess internal consistency of the total scores. Descriptive statistics (e.g. means, standard deviations, skewness, and kurtosis) also were examined to understand the score distributions. Results of the first stage analyses are described after first describing the second stage analyses.

Second stage analysis addressed the primary intent of this paper, that is, to examine knowledge of international relations, global demographics, current events, international economics, and geography held by a sample of undergraduate U.S. students. Statistical procedures yielded descriptive statistics on these domains. Multiple regression analysis also was used to determine the influence of demographic factors on the participants' overall international knowledge. T-tests, chi-squares, and univariate analysis of variance were used to examine between-group differences on possibly confounding variables based upon the research literature. Results of the second stage analysis are reported in the results section. SPSS v. 19.0 was used for all analyses.

Exploratory factor analysis (EFA)

Exploratory factor analysis used item parcels to determine the factorial validity of the international knowledge measure. Item parcels instead of individual items were constructed and used to help overcome the problem of diminished variances when relying on data from individual items (Nunnally & Bernstein, 1994). Item parcels are formed by combining items into meaningful groupings that produce larger variances than obtainable from single items (Zwick, 1987). Thirty-four individual items measuring knowledge of international relations, global demographics, current events, and international economics were subjected to item parceling by combining randomly three to four items within each of these domains, resulting in the formation of 9 item parcels. The geography domain was excluded from factor analysis because its item structure (i.e. placing numbers that designate countries on the correct location on a map) differed from that of other items (e.g., 4 to 5 option multiple choice items).

Exploratory factor analysis for the 9 item parcels was conducted using principal component analysis with varimax rotation. The intercorrelation matrix of the item parcels was analyzed using Bartlett's Test of Sphericity (Bartlett, 1954) and the Kaiser–Meyer–Olkin (KMO) statistic (Kaiser, 1974) to ensure the data were suitable for factor analysis. The number of components to be extracted was based on two criteria: Kaiser eigenvalues greater than 1.0 and results from the Cattell's scree test (Schultz & Whitney, 2005). Moreover, the inclusion of item parcels within a factor was based on a communality of .32 or higher for each item parcel retained. A factor loading of .50 or higher was utilized as a criterion for adequate variance of item parcels to a factor (Tabachnick & Fidell, 1996).

The EFA yielded a significant Bartlett's test of sphericity, $\chi^2 (36, N = 259) = 309.52$, $p < .001$. The Kaiser–Meyer–Olkin measure of sampling adequacy (KMO =.78) indicates that the data are satisfactory for factor analysis (Hutcheson & Sofroniou, 1999). Two factors emerged

with eigenvalues above 1.0, accounting for 42% of the variance. Results of the varimax rotation further supported a two-factor model with significant and distinct loadings for all item parcels on their hypothesized factors (Pett, Lackey, & Sullivan, 2003). Factor 1, subsequently labeled geopolitical knowledge, combined the item parcels of international relations and economics, resulting in an eigenvalue of 2.75 and explaining 31% of the variance of international knowledge. Factor loadings ranged from .55 to .78. Factor 2, subsequently labeled global awareness, combined the item parcels on current events and global demographics, resulting in an eigenvalue of 1.07. It explained about 12% of the variance of international knowledge. Factor loadings ranged from .49 to .64. The three-factor model of international knowledge, comprised of the two factors that emerged in the EFA plus geography, is found in Table 1.

Table 1. Final three factor international model

Factors	Factor 1	Factor 2	Factor 3
	DEM-P2		
GEOPOL	CVS-P1		
	DEM-P1		
	DEM-P3		
	CVS-P2		
		ECO-P1	
GLOBAW		INR-P2	
		ECO-P2	
		INR-P1	
GEO			GEO-P1

Note: GEOPOL=Geopolitics, GLOBAW=Global Awareness, DEM=Global Demographics, INR=International Relations, CVS=Current Events, ECO=International Economic, GEO=Geography

Descriptive statistics, inter-correlation, and internal consistency of scores

Two hundred fifty-nine participants completed the multiple choice portion of the measure that contributed to the two domains (i.e., geopolitical knowledge and global awareness), 251 participants completed the country identification geography measure, and 248 completed both the multiple choice and the geography measures. Data from all measures were distributed normally. Skewness and kurtosis values of all domain and total scores fall between ±1.00, thus indicating that the distribution of data is very good for psychometric purposes (George & Mallery, 2009). Inter-correlations of domain scores were moderate, ranging from .38 to .44 (an average of .42), suggesting a distinct and unique contribution of each factor. Moreover, the correlations between the domain and total scores are significant, ranging from .70 to .83 (with an average of .78), thus indicating that total score can be considered a valid and reliable estimate of the qualities measured by the five domains. Lastly, an estimate of internal consistency of the total score is moderately high (KR#20 = .76).

Table 2. Descriptive statistics of the domain and total scores of international knowledge

Domains	# of items	Minimum	Maximum	Correct Response Rate	Mean	SD	Skewness	Kurtosis
GEOPOL	14	1	14	62%	8.80	2.28	-0.46	0.40
GEO	20	2	20	58%	11.54	3.76	-0.29	-0.18
GLOBAW	20	1	19	54%	10.95	3.27	-0.29	-0.06

| TOTAL | 54 | 14 | 51 | 58% | 31.41 | 7.37 | -0.08 | -0.34 |

Note: GEOPOL=Geopolitics, GLOBAW=Global Awareness, GEO=Geography, TOTAL =Total International Knowledge Score

Multiple regression analysis

Prior research identified various personal demographic qualities that may be associated with knowledge of international issues and events. The analysis only included demographic variables that have at least a 70% response rate. This study continues this effort by examining the possible impact of age, gender, college year, college major discipline (education and non-education), GPA, travel experience, number of internationally focused courses taken, frequency of international issues discussion in courses, and languages spoken on international knowledge. The test's total score, derived from its 54 items, was used as the dependent variable. Multiple regression analysis was used to determine the association of the above independent predictors. Pearson's correlation coefficients between subtests also were determined to examine relationships between measures. Alpha levels of .05 were established for all analyses

RESULTS

Influence of college major on international knowledge

International knowledge (including individual factors of geopolitical knowledge, geography, and global awareness) of students who majored in education or other areas do not differ, $F (1, 243) = 0.02$, $p > .05$. International knowledge displayed by students majoring in education ($M = 31.50$, $SD = 6.41$) and those in other academic areas ($M = 31.36$, $SD = 7.98$) is comparable. Interactions between demographic qualities (e.g. gender, age, GPA, and class year) and group membership (education vs. non-education majors) are not significant.

Table 3. Summary of college major comparison

Domain	Education Majors (N=103)		Non –Education Majors (N=154)		
	M	SD	M	SD	F
GEOPOL	8.72	1.96	8.84	2.46	.18
GLOBAW	11	3.29	10.96	3.29	.01
GEO	11.76	3.38	11.41	4.01	.53
TOTAL	31.5	6.41	31.36	7.98	.02

Note: GEOPOL=Geopolitics, GLOBAW=Global Awareness, GEO=Geography, TOTAL =Total International Knowledge Score
*$p <.05$, **$p <.01$, ***$p <.001$.

Level of international knowledge

University undergraduate students generally display a broad range of international knowledge (Tables 4 and 5). Their level of knowledge, as reflected in their mean test data, is highest on geopolitical knowledge (62%), followed by geography (58%), and global awareness (54%).

Table 4. Country identification geography questionnaire response rates (N = 251)

Country	Correct Response Rate	Country	Correct Response Rate
U.S.	99%	South Africa	62%
Canada	98%	Japan	58%
Australia	96%	United Kingdom	54%
Mexico	94%	South Korea	37%
Brazil	83%	Indonesia	24%
Cuba	81%	Iran	18%
China	80%	Iraq	16%

Russia	77%	Sudan	14%
India	74%	Pakistan	12%
France	64%	Afghanistan	12%

Note: No significant differences found between Ed and Non-Ed scores

Table 5. Correct response rates by item

Multiple Choice Question	Correct Answer	All (N=259)	Ed (N=103)	Non-Ed (N=151)
Geopolitical Knowledge				
The country that exports the highest amount of manufactured products	(China)	90%	92%	88%
The only communist country in the Western Hemisphere is*	(Cuba)	89%	94%	85%
The region that is the largest exporter of oil internationally*	(Middle East)	88%	93%	85%
The euro is the common currency in these countries	(European Union)	88%	87%	89%
The country not member of the North American Free Trade Agreement	(Costa Rica)	69%	74%	66%
During the last 60 years, the gap in income between the richest and poorest countries	(has widened)	66%	68%	64%
The country that spends the largest amount of money on its military*	(U.S.)	64%	56%	69%
The country U.S. supports despite negative international political consequences	(Israel)	55%	52%	56%
The country not a NATO member*	(Russia)	51%	42%	56%
The % of the world's oil the U.S. consumes	(25%)	50%	56%	48%
Major reason for inadequate nutrition	(low income)	48%	44%	52%
The two countries that have a longstanding conflict over the Kashmir region	(India and Pakistan)	41%	36%	45%
The % of the U.S. federal budget spent on foreign humanitarian aid	(0.5%)	14%	13%	15%
Global Awareness				

The name of the President of the United States	(Barack Obama)	96%	98%	95%
The region of the world with the highest percentage of its population infected with HIV	(Africa)	95%	97%	93%
The region and country that recently has had widespread deaths due to genocide	(Darfur, Sudan)	86%	89%	84%
The most popular sport worldwide	(Soccer)	83%	86%	81%
The principal language in Latin America	(Spanish)	72%	72%	72%
The country in which Al Qaeda movement originated	(Afghanistan)	68%	69%	69%
The predominant religion in India	(Hinduism)	64%	67%	62%
During the last two years, most immigrants to the U.S. came from	(Latin America)	64%	64%	66%
The religion with the largest number of followers	(Christianity)	62%	59%	63%
The predominant religion in Saudi Arabia	(Islam)	60%	58%	62%
The current sectarian violence between Iraqi citizens is due to the following conflict	(religious groups)	60%	59%	62%
The name of the U.S. Secretary of State	(Hillary Clinton)	56%	53%	58%
A country with a population more than 1 billion	(India)	53%	54%	52%
The approximate world population	(7 billion)	49%	45%	52%
The approximate United States' population	(150 – 350 million)	42%	40%	44%
The language with the highest number of native speakers	(Chinese)	39%	44%	35%
The name of the Prime Minister of Great Britain	(Gordon Brown) [a]	31%	33%	29%
The fastest growing religion	(Islam)	29%	31%	28%
The country with lowest scores from the 2007 Trends in International Mathematics and Science Study	(El Salvador)	24%	24%	25%
The country with the most advanced system of higher education is	(U.S.)	14%	12%	17%
The Secretary General of the United Nations is	(Ban Ki-moon)	10%	8%	12%

Note: *p <.05, **p <.01, ***p <.001.
[a] At the time of the survey.

Geopolitical knowledge
The majority of undergraduates are aware that China exports the highest amount of manufactured products (90%) and that Cuba is the only communist country in the Western Hemisphere (89%). Fewer recognized that Costa Rica is not a member of NAFTA (69%) and that the US spends the largest amount of money on its military (64%). Half (50%) recognize that the US consumes 25% of oil production worldwide while fewest (14%) recognize the percentage of the US federal budget spent on foreign humanitarian aid.

Geography
On a world map, the countries of North America including the US (99%), Canada (98%), and Mexico (94%) were most identifiable. Fewer students identified the location of major countries in East Asia and Europe, namely Japan (58%) and the United Kingdom (54%). Geographic location of Middle East countries was low: Iran (18%), Iraq (16%), Pakistan (12%), and Afghanistan (12%).

Global awareness

Most undergraduate students recognize the name of the US President (96%), that Africa has the highest rates of HIV infection (95%), and that Sudan has had widespread deaths due to genocide (86%). Fewer are aware that Hillary Clinton is US Secretary of State (56%) or of the approximate world population (49%). The name of the Secretary General of the United Nations is least known (10%).

Influence of demographic variables on international knowledge

Results of the multiple regression analysis indicate that the nine demographic variables collectively explains 23% of the variance in overall international knowledge (Adj R^2 = .23), F (9, 226) = 8.80, p < .001. Among these variables, only gender (i.e., being male), the number of foreign countries visited, and grade point average (GPA) significantly influence international knowledge. Multiple regression analyses were performed separately on education and non-education majors; both identify gender, number of foreign countries visited, and GPA as being related to international knowledge.

Table 6. Summary of the multiple regression analysis predicting international knowledge total score from demographic variables

Predictors	B	SE B	β	T
International Knowledge Total Score N=235				
Age	0.39	0.26	0.11	1.51
Gender	6.72	1.21	0.35	5.56***
College year	-0.02	0.46	0.00	-0.04
College Major (Education and Non-Education)	-0.50	1.01	-0.03	-0.49
Grade Point Average	1.87	0.53	0.21	3.54***
Number of countries visited	1.03	0.24	0.27	4.34***
Number of internationally focused courses	0.60	0.41	0.09	1.46
Frequency of international discussion in courses	0.36	0.59	0.04	0.61
Number of non-English languages spoken	0.91	0.60	0.09	1.52

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

Comparison with previous studies

Comparative levels of knowledge displayed by undergraduate students on three international domains are displayed in Table 7. The use of items common to prior domestic (Roper ASW, 2002; Roper GfK, 2006) and international (Roper ASW, 2002; Roper GfK, 2006) studies allow us to use data from other students as benchmarks and thus to compare the knowledge displayed by education undergraduate students with their domestic and international age peers. Undergraduate students taking courses in colleges of education display a higher level of international knowledge than other young US adults and are similar to age peers in other industrialized nations.

Table 7. Comparison of group domain and total correct response rates

Domains	No. of common items used	Comparison Group		Undergraduate Students [a]	χ^2
Geopolitical	4	US age peers	57%	78%	31.45***
Knowledge	4	International Peers	76%	78%	0.33
Global	4	US age peers	56%	66%	8.00**
Awareness	4	International Peers	63%	66%	1.14

Geography	12	US age peers	56%	70%	13.90***
	9	International Peers	74%	71%	1.12
International Knowledge Total Score	20	US age peers	56%	71%	15.23***
	17	International Peers	72%	71%	0.04

Note: US age peers (N=500), International peers (N=2120). The group response rates per domain represent an average of the correct response rates for all items included in the comparison domain.

[a] The response rates vary slightly for undergraduate students due to the number of items included in the domain comparisons across groups.

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

DISCUSSION

The purpose of this research is to describe the general level of international knowledge displayed by undergraduates who are taking classes in a college of education and to determine whether knowledge displayed by education and non-education majors differ. The level of understanding of international knowledge displayed by undergraduate students is higher than their average US peers and similar to their international peers. The undergraduate students in our sample outperformed nationally representative samples of US 18-24 year-olds on common international knowledge multiple choice and country identification items (Roper ASW, 2002; Roper GfK, 2006). Higher correct response rates were demonstrated on questions pertaining to economics, health, and sports.

Factors related to international knowledge

The main demographic predictors of international knowledge largely support previous research findings (Barrows, 1981; Cogan, Torney-Purta, & Anderson, 1988; Roper GfK, 2006; Torney-Purta, 1982). Being male was found to be the strongest predictor of knowledge followed by having had more international travel and a higher GPA. This study and others (e.g. Barrows, 1981; Cogan, Torney-Purta, & Anderson, 1988) found fluency in a foreign language to be unrelated with international knowledge. Although previous research with large sample sizes demonstrated that college juniors and seniors displayed higher levels of international knowledge than their underclassmen (Barrows, 1981; Cogan, Torney-Purta, & Anderson, 1988; Roper ASW, 2002), the current study did not find this relationship. Also, with regard to their internationally focused university coursework, 54% reported no international coursework experience and only 9% reported taking more than two international courses. This result may support previous findings of minimal internationally focused course requirements, particularly in colleges of education (Lambert, 1989; Quezada, 2010, Schneider, 2004).

Education and non-education majors display similar levels of international knowledge

The level of international knowledge displayed by majors in education and their university peers majoring in other areas was very similar. Thus, these data do not support previous findings of significant differences in international knowledge between education and non-education major undergraduates (Barrows, 1981; Torney-Purta, 1982). Furthermore, few between group differences were apparent at the individual item level. This apparent equality between education and non-education majors may represent an increase in the relative levels of international knowledge of education students.

Significant international knowledge deficiencies remain

Although the results are comparative to their age peers, the undergraduate students displayed a less than desirable level of important international knowledge. The percent of correct items (see Table 5) is lower than may be expected from an educated population,

particularly on multiple choice items that could be answered correctly 20% to 25% of the time by chance. Consistent with previous studies (Holm & Farber, 2002), dramatic knowledge deficiencies were demonstrated in areas of geography, demographics, and world leadership. Knowledge of Middle East geography was extremely low despite continuous wars and media saturation in this region over the last decade. Population estimation also was low, with 55% believing the number of inhabitants of the United States to be over 500 million and 20% believing the number to be above 1 billion. More students identified Vladimir Putin and Ehud Olmert, former prime ministers of Russia and Israel respectively, as the current Secretary General of the United Nations rather than Ban Ki-moon. Over 40% could not identify the predominant religion in arguably the most vital country in the Muslim world, Saudi Arabia. One-third could not locate South Africa on a world map. Almost half of the respondents did not know the name of the current Secretary of State. Somewhat ironically, given their presence in high education, a mere 14% correctly identified the U.S. as having the most advanced system of higher education.

When viewed against the increased need for international knowledge and awareness due to the accelerating force of globalization, the results of this study are disconcerting. Current and future educators need to possess basic international knowledge in order to adequately prepare students for the demands and opportunities of the global economy and society. Researchers and policy makers stress the need for educational initiatives in teacher preparation and professional development programs that facilitate international understanding. US colleges and universities express the desire to graduate future teachers with abilities and knowledge to incorporate international understanding into their lessons. However, despite this recent attention to internationalization in higher education, teacher preparation programs in US universities remain among the least internationalized. This study contributes to a body of work consistently demonstrating international knowledge deficiencies in future educators and US youth in general. The need for international knowledge initiatives in higher education appears to continue.

Limitations

The study should be interpreted in the context of several qualities that may limit the generalizability of the findings. First, the sample was limited in size and breath. Participants attended the same university. Thus, the sample is less nationally representative than some previous research (Barrows, 1981; Roper ASW, 2002; Roper GfK, 2006). Second, comparisons between education and non-education majors may not have been equitable due to sampling limitations. Third, although the measure constructed for the study demonstrated a statistically promising domain structure and drew from previous measures of international knowledge constructs, its comparison with previous measures and studies may not be equitable. Lastly, comparisons between our participants and domestic and international peers did not control for possibly confounding demographic variables. For example, compared to samples in other groups, our undergraduate students are likely to be more highly educated, a quality associated with higher levels of international knowledge. Thus, although these group comparisons were examined accurately, they may not be equitable.

REFERENCES

American Council on Education. (1997). *Educating for global competency: America's passport to the future.* Washington, DC: Author.

Banks, J. A. (1993). Multicultural education: Historical development, dimensions, and practice. *Review of Research in Education*, *19*, 3-49. doi:10.2307/1167339

Barrows, T. (1981). *College students' knowledge and beliefs: A survey of global understanding.* New Rochelle, N.Y.: Change Magazine Press.

Bartlett, M. S. (1954). A further note on the multiplying factors for various x2 approximations in factor analysis. *Journal of the Royal Statistical Society, 16*, 296−298.

Cogan, J., Torney-Purta, J., & Anderson, D. (1988). Knowledge and attitudes toward global issues: Students in Japan and the United States. *Comparative Education*

Review, 32, 282–297. doi:10.1086/446778

Committee for Economic Development. (2006). *Education for global leadership.* Washington, DC: Author. Retrieved from http://www.ced.org/projects/educ_forlang.shtml

Commission on International Education. (1998). *Educating for global competence: America's passport to the future.* Washington, DC: Author. Retrieved from ERIC database (ED421940).

Council of Chief State School Officers. (2006). *Global education policy statement.* Washington, DC: Author. Retrieved from: http://www.ccsso.org/content/pdfs/ Global%20Education%20FINAL%20lowrez.pdf

Eicher, C. E., Piersma, M. L., & Wood, R. W. (1975). *An investigation of elementary children's perceptions of selected countries of the world: A technical report.* Vermillion, SD: Educational Research and Service Center.

George, D., & Mallery, M. (2009). *SPSS for windows step by step: A simple guide and reference (9th ed.).* Boston, MA: Pearson A & B.

Hayward, F. M., & Siaya, L. M. (2001). *Public experience, attitudes, and knowledge: A report on two national surveys about international education.* Washington, DC: American Council on Education. Retrieved from ERIC database. (ED475087)

Herman, W. L., Hawkins, M., & Berryman, C. (1985). World place name location skills of elementary pre-service teachers. *The Journal of Educational Research, 79,* 33-35.

Heyl, J. D., & McCarty, J. A. (2005). International education and teacher preparation in the US: The looming crisis. *The Journal of Public Affairs, 8,* 100-116.

Holm, G., & Farber, P. (2002). Teaching in the dark: The geopolitical knowledge and global awareness of the next generation of American teachers. *International Studies in Sociology of Education, 12,* 129–144. doi:10.1080/09620210200200087

Hutcheson, G. D., & Sofroniou, N. (1999). *The multivariate social scientist: Introductory statistics using generalized linear models.* Thousand Oaks, CA: Sage.

Lambert, R. D. (1989). *International studies and the undergraduate.* Washington, DC: American Council of Education.

Longview Foundation (2008). *Teacher preparation for the global age: The imperative for change.* Silver Springs, MD: Author.

Mahon, J. (2010). Fact or fiction? Analyzing institutional barriers and individual responsibility to advance the internationalization of teacher education. *Teaching Education, 21,* 7-18. doi: 10.1080/10476210903466893

McMurrer, J. (2007). *Choices, changes, and challenges: Curriculum and instruction in the NCLB era.* Washington, DC: Center on Education Policy.

Merryfield, M. (1996). *Making connections between multicultural and global education.* Washington, DC: American Association of Colleges for Teacher Education.

Merryfield, M. (2000). Why aren't teachers prepared to teach for diversity, equity and global connectedness? *Teaching and Teacher Education, 16,* 429- 443. doi: 10.1016/S0742-051X(00)00004-4

McKibben, B. (2000). A special moment in history. In P. O'Meara, H. Mehlinger, & M. Krain (Eds.), *Globalization and the challenges of a new century* (pp. 383–405). Bloomington, IN: Indiana University Press.

National Association of State Universities and Land-Grant Colleges (1997). *The global university for the twenty-first century: A strategic plan.* Washington, DC: Author.

National Council for Accreditation of Teacher Education. (2000). *Professional standards for the accreditation of schools, colleges, and departments of education.* Washington, DC: Author.

National Education Association. (2010). *Global competence is a 21st century imperative.* NEA policy brief. Washington, DC: Author. Retrieved from http://hin.nea.org/assets/docs/HE/PB28A_Global_Competence11.pdf

Nunnally, J. C., & Bernstein, L. H. (1994). *Psychometric theory (3rd ed.).* New York, NY: McGraw-Hill.

Olson, C., Evans, R., & Shoenberg, R. F. (2007). *At home in the world: Bridging the gap between internationalization and multicultural education.* American Council on Education Washington, DC.

Olson, C. L, Green, M. F., & Hill, B. A. (2005). *Building a strategic framework for comprehensive internationalization.* Washington, DC: American Council on Education.

Osunde, E. (1996). Persisting and common stereotypes in U.S. students' knowledge of Africa: A study of pre-service social studies teachers. *Social Studies, 87,* 119-124.

Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). *Making sense of factor analysis: The use of factor analysis for instrument development in health care research.* Thousand Oaks, CA: Sage.

Quezada, R. L. (2010). Internationalization of teacher education: Creating global competent teachers and teacher educators for the 21st century. *Teaching Education, 21*, 1-5.

Roper ASW (2002). *National geographic Roper 2002 global geographic literacy survey*. Washington, DC: National Geographic Society. Retrieved from http://www.nationalgeographic.com/geosurvey/download/RoperSurvey.pdf

Roper GfK (2006). *National geographic Roper public affairs 2006 global geographic literacy survey*. Washington, DC: National Geographic Society. Retrieved from http://www.nationalgeographic.com/roper2006/pdf/FINALReport2006GeogLitsurvey.pdf

Schneider, A. I. (2004). What can be done to internationalize teacher training? A research report on the undergraduate training of secondary school teachers. *International Studies Perspectives*, *5*, 316-320. doi:10.1111/j.1528-3577.2004.00176.x

Sutton, M. (1999). Fostering global awareness in teacher education programs. *Michigan and Ohio Journal of Teacher Education*, *12*, 234-256.

Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics (3rd ed.)*. New York, NY: HarperCollins College.

Torney-Purta, J. (1982). The global awareness survey: Implications for teacher education. *Theory into Practice, 21,* 200–205. doi:10.1080/00405848209543006

Woyache, R. B. (1988). *Understanding the global arena: A report on the Ohio State University global awareness survey*. Columbus, OH: Ohio State University.

Zhao, Y (2010). Preparing globally competent teachers: A new imperative for teacher education. *Journal of Teacher Education*, *61*, 422-431.

Zhao. Y., Lin, L., & Hoge, J. D. (2007). Establishing the need for cross-cultural and global issues research. *The International Education Journal, 8,* 139–150.

Zwick, R. (1987). Assessment of dimensionality of year 15 reading data. In A.E. Beaton (Ed.), *Implementing the new design: The NAEP 1983-1984 technical report* (pp. 245–284). Princeton, NJ: Educational Testing Service.