

# The Importance of Global Construction in a Graduate Construction Program

**Jessica A. Lower, MS and Mark Shaurette, Ph.D.**

Purdue University  
West Lafayette, IN

Awareness of globalization can be found in the media, classrooms, and businesses throughout the world. While the United States is behind in accepting globalization, many other countries are embracing it and are quickly becoming leaders in the global economy. The U.S. construction industry has been slow to recognize the effects of globalization and many construction programs at universities across the United States have been even slower to implement courses that prepare students for work in the global marketplace. By examining globalization's place in higher education as well as the impact that globalization is having on the construction industry, the importance of inclusion of global construction courses in construction management education can be appreciated. A few construction programs have already accepted this new challenge but many more are lagging behind. This paper describes why it is necessary to incorporate global course content at the graduate level that introduces students to the impacts of international language, culture, and technology on construction practice.

**Key Words:** Global Construction, International, Graduate Education, Culture, Globalization

## Introduction

Globalization is a common word in today's language. Many developments over the past several decades have brought globalization to the forefront such as the end of the Cold War and the dot-com bubble (Committee for Economic Development, 2006). This paper will demonstrate that the construction industry has been slow to recognize the effects of globalization, and that many construction programs at universities across the nation have been even slower to implement courses to prepare students for the effects of global construction. It also reflects on the reasons why these courses in global or international construction are vital in a construction graduate program.

## Globalization and Higher Education

"Today's America is, and will continue to be, characterized by ethnic and linguistic diversity" (Committee for Economic Development, 2006). But even with this diverse population, the United States is only home to about 5% of the world population. China and India make up half of the world's population and have grown in recent years in response to globalization. By the year 2030 the developing countries of today will most likely represent 87% of the world's population (Bodapati & Kay, 1998). Countries around the globe have realized the importance of globalization. Americans need to be globally competitive if they want to survive in today's market (Garcia-Saenz, Sanders-Smith, & Longhinos, 2007).

Currently only one in ten students in the United States studies a foreign language (Mehta & Kou, 2005). In higher education 10% of students in four year colleges and 4% of students in two year colleges register for foreign language courses. In high schools the most popular languages are Spanish, German, French, and Latin (Kay, 2001). These languages represent about 11% of the world population (Bodapati & Kay, 1998). Fifty percent of students in higher education take Spanish despite the fact that 22.8% of the world population speaks Mandarin (Garcia-Saenz, et al, 2007). Critical languages such as Chinese (Mandarin), Hindi, Japanese, Korean, Arabic, Russian, and Turkish are studied by less than one percent of college students. Students cannot accept all the blame for the low foreign language enrollment since only 27% of four-year colleges in the United States have a foreign language requirement

for all of their students. Because the students' ability to interact with the global community will determine the strength of the United States' global leadership, the education system in the United States needs to be strengthened by increasing requirements for foreign language skills and cultural awareness (Committee for Economic Development, 2006).

For too long U.S. citizens have had the mentality that if someone wanted to communicate with an American then they should learn English. This short-sighted view has prevented many students from learning important traits that will help them succeed in a global market. As a result, the United States has fallen behind in markets it used to dominate (Garcia-Saenz, et al, 2007). Many American students are overlooked for positions that require cultural awareness because they are not gaining knowledge about other world regions, languages, and cultures that would keep them competitive with students of other nations (Committee for Economic Development, 2006). Terrorist attacks and outsourcing do little to convince the American public that globalization is a good thing. This is why education is so important (Henderson, 2006; Mehta & Kou, 2005).

It has been noted that ignoring globalization will not make it go away. In fact by pretending it does not exist the United States runs the risk of becoming an isolated country with severe threats to its economic prosperity and national security (Committee for Economic Development, 2006). In response to this concern some have suggested that Universities and colleges need to take the leadership role in preparing society for globalization. The educators themselves can play a vital role in developing cultural awareness by developing new methods of transmitting their knowledge (Garcia-Saenz, et al, 2007). By developing international programs and courses, universities can help promote understanding of different cultures, facilitate interconnectedness among the peoples of the world, allow students access to other countries at an affordable costs, and raise the international profile of the participating universities (Mehta & Kou, 2005).

There is some evidence that business leaders are in full support of international curriculums that incorporate foreign language skills, international knowledge, and international experience. Industries have begun to show signs that they realize that projects today are too complex for one company or for one nation's resources. Multicultural teams may be better prepared to handle the fast paced and intricate projects of the future. In order to build these teams successfully, companies depend on employees who have both a broad and sophisticated understanding of the world today (Committee for Economic Development, 2006).

Knowledge of globalization offers the potential of benefits across the United States' economy. Students can be offered the opportunity to not only gain knowledge of different countries and cultures, they can also develop global critical thinking skills that will help them become better citizens and employees in a global market. Communities can then build around these individuals with links to international communities and opportunities. Institutions of higher education that avail themselves of this opportunity are likely to expand their research opportunities by working with peers overseas. And finally, the United States as a nation will have the potential to remain competitive by boasting a multilingual and multicultural workforce (Mehta & Kou, 2005).

## **Globalization and the Construction Industry**

Globalization is occurring in different industries in the world today including the construction industry. In 1977, 80% of the construction occurring in the world took place in the United States. According to the U.S. Department of Commerce's Construction Review, 30 years later this number decreased to 20% with the remaining 80% being built overseas (Jackson, 2004; Bodapati & Kay, 1998). Each year Engineering News Record (ENR) publishes a list of the top 225 international construction firms. Only two U.S. firms were listed in the top 20 in 1994. Two years later 48 U.S. firms were on the list. Since then U.S. companies have continuously pursued international opportunities and are now expecting their employees to be more experienced and educated in international business (Jackson, 2004).

With American companies entering the global construction market, many closed markets of the past, such as India, have begun opening their doors to foreign companies. Not only are U.S. companies going overseas, many foreign companies are coming to the United States to perform work. In 1996, these foreign contractors reportedly completed \$14 billion dollars worth of work in the United States (Bodapati & Kay, 1998). In 2004 the top 225 international construction firms collected revenues of \$167.49 billion from projects outside of their home countries. Even if construction students decide to stay in the United States after graduation, those with appropriate global skills have

an increased chance of working for a foreign-owned company (Kay, 2001; Guggemos, Gunderson, Khattab, & Emam, 2006).

American construction companies doing work in the United States are also noticing an influx of foreign-born workers on their jobsites. The total workforce in the United States is comprised of 14.5% foreign-born workers with Hispanics making up the most common group of foreign-born workers. The current Hispanic population in the United States is 13.7% and is expected to increase by almost 200 percent by the year 2050 (Committee for Economic Development). It is not uncommon to see non-English-speaking foremen and superintendents on jobsites in certain areas of the United States (Kay, 2001).

This evidence suggests that graduates of construction programs today are going to have to work with a very diverse workforce. Since a construction firm's primary asset is its people, the expectation for these graduates to give their company a competitive edge will now include international skills (Kramer & Dillard, 2009). Employees will be forced to work outside of their cultural comfort zones and deal with international suppliers, co-workers, and clients (Gash, Ressler, & Crispino, 2009; Eljamal, Pang, & Edington, 2005). "Successful construction project management depends on the ability to collaborate" (Kiisk, 1998). Collaboration on the global level means project managers need global competency, a global mindset, and cultural intelligence (Henderson, 2006; Gash et al, 2009). Construction graduates will need an awareness of global issues and cultural diversity with a focus on skills and abilities that will allow them to adapt to different cultural settings therefore keeping them competitive with their overseas counterparts (Kapli, Wise, Litzinger, & Donahue, 2006; Ellzey, Aanstoos, & Schmidt, 2005).

It has been reported that construction managers that work abroad deal with twice as many issues as their domestic counterparts. In addition to the demands of the project itself, the construction personnel sometimes have to take into account new social, political, economic, and religious practices without offending their host country (Choudhury, 2000). Many times project managers fail because of a cultural differences or ignorance (Kiisk, 1998). Personnel failures overseas are also far more expensive than failures within the United States. Failure rates tend to be in the 25% to 40% range and can cost a company anywhere from \$55,000 to \$85,000 (Kramer & Dillard, 2009). Hiring prepared employees for international assignments is likely to mitigate these risks.

By incorporating global construction into a construction curriculum, students can be exposed to the challenges of an international project and so that they may understand why cultural awareness is so important (Guggemos, et al, 2006). Courses in global construction can benefit the student, the faculty, and the construction industry. By taking related courses students can increase their career potential, make their resume more competitive, and more than likely have an increased salary (Henderson, 2006). "Companies employing professionals on overseas projects typically pay greater salaries than they do for employees working domestically" (Kramer & Dillard, 2009). Faculty can also remain competitive in their fields, be able to advance their own knowledge, and have the opportunity to expand their network of peers. In addition to reduced personnel failure rates, construction companies would not have to spend time or money training the employee, the employee may bring ideas to the table that are outside the box, and the company may be able to move into new markets depending on the cultural knowledge of the employee (Henderson, 2006).

In a few studies, students have evaluated the idea of globalization in relation to their own futures. Most of the feedback is positive because the students see how international education will give them a competitive edge. Eighty percent of the students who graduated between 1970 and 2002 from one of the United State's leading international business schools, the Garvin School for International Management at Thunderbird in Glendale, AZ, believed foreign language skills gave them an advantage in the workplace. Nine out of ten of these same graduates said that their cultural knowledge also gave them a significant competitive edge. A survey of college bound seniors in 1999 showed that three of four students wanted their college to offer courses on international topics and in 2002 over half believed that international knowledge would be important to their careers (Committee for Economic Development, 2006).

Penn State engineering students are aware that business today involves both a global and diverse market. These students wanted to learn about other cultures because they could see how an international course would give them a competitive edge (Kapli, et al, 2006). Construction management students who went on a summer study abroad program in China did not have a strong knowledge of the Chinese construction industry prior to the trip. After the trip the students' knowledge increased along with their global perspectives and personal development. The students

also saw how construction activities in China could impact construction activities in the United States (Lu, Connell, & Wang, 2009). Students participating in surveys at both Colorado State University and Southern Illinois University Edwardsville indicated that knowledge of other cultures was important so that Americans don't offend other cultures (Kiisk, 1998) and that Spanish could be a very useful foreign language for construction managers (Kay, 2001).

Not all opinions and trends in global education are positive. Even though there seems to be support from students and faculty for international education, the students still are not participating in the international programs that are available (Committee for Economic Development, 2006). Many students will not interact or initiate contact with international students unless their grade depends on it (Kiisk, 1998). The construction management students who went to China admitted that they see globalization more in their personal lives than in the United States construction industry (Lu, et al, 2009). Lastly, the students who did not agree that Spanish would be a good language to know in construction may have only said so because they were worried a foreign language requirement may be added to their curriculum (Kay, 2001).

### **Graduate Level Global Construction Course**

While the Committee for Economic Development recommends that international education be incorporated into all levels of education within the U.S. education system; there are some reasons why, as a start, a course on global construction for construction management students would be best suited at the graduate level. Undergraduate students are not at the same level of competence and understanding as graduate students. Not only is this true due to lack of experience but also because "undergraduate students do not always keep up with the current events in the industry" (Lu, et al, 2009). Many graduate students in construction are still working full time while obtaining their degree so they are dealing with issues in construction on a day to day basis. In addition, the undergraduate curriculum has much less flexibility for additional classes. Depending on the rigor level of the course requirements many undergraduate students may not be prepared to make the level of commitment needed for the most beneficial educational experience (Henderson, 2006; Eljamal, et al, 2005).

According to Bodapati & Kay (1998) there are four key areas of strength needed by construction professionals working in the global industry: "a strong technical base, a clear understanding of design, an understanding of the intimate connection between technology and culture, and an understanding of foreign languages and regional studies." It is not likely that these strengths can come from only four years of undergraduate studies. Bodapati & Kay go on to suggest that many companies would like to see ten or more years of experience within the domestic construction industry before they will send an employee overseas. To teach an undergraduate about global construction only to have them wait five to ten years to implement their knowledge is not very practical (Bodapati & Kay, 1998).

### **Current Global Construction Programs and Courses**

Some construction and engineering programs understand the importance of globalization and have already implemented courses and programs on global construction. The University of Michigan has two options in their engineering program. The first, Program in Global Engineering (PGE), is designed for undergraduate students and incorporates foreign language, study abroad, and other cultural elective studies. The second, Engineering Global Leadership (EGL) Honors program, integrates a bachelor's and a master's program and requires a larger commitment than the first program (Eljamal, et al, 2005). The University of Michigan also offers a cross-cultural training model that focus on topics such as globalization of technology, cultures of different regions, United States culture, crossing cultures, and how to learn from another culture (Mazumder, 2009).

Random selections of 25 accredited and candidate construction programs were pulled from the ACCE website to see if they offered a global construction course in their graduate program. Of the 25 programs, 19 had no course offerings related to international construction. Four of the programs; Arizona State, East Carolina University, Texas A&M, and Southern Polytechnic State University all had a course listing for global or international construction. Two programs, Michigan State and the University of Florida, offered entire masters programs based in international construction.

## **Global Construction Course Content and Objectives**

When developing a course in international or global construction, previous authors have suggested that three main topic areas should be included: language, culture, and technology. The challenge for construction professionals who study international construction would then be to infuse these three areas in order to have a successful project (Mazumder, 2009). As mentioned earlier, international construction workers are confronted with more obstacles than on domestic jobs. These workers cannot drop the ball in any one of these three areas (Kramer & Dillard, 2009).

The first suggested area to be included in an international construction course would be language. Intercultural communication is defined as “a process by which two individuals who do not belong to the same culture try to exchange a set of ideas, feelings, symbols and meanings. Since they do not belong to the same culture, it implies that they do not share the same assumptions, beliefs, values or some ways of thinking, feeling, or behaving” (Mazumder, 2009). While being able to speak the same language of another employee is ideal, having a basis of good communication skills is a start (Bodapati & Kay, 1998). Sensitivity to someone else’s language is just as important as being able to speak the words. A global construction course could provide students with language sensitivity skills, translation tools/techniques and patience skills for those who are trying to learn English (Henderson, 2006). This also allows students to learn about multiple countries rather than focusing solely on one foreign language.

Culture would probably take up the largest section of the global construction course curriculum. Gaining an in-depth understanding of every culture in the world is not feasible, but gaining cultural awareness and sensitivity is. Common traits such as “eye contact in many cultures is considered to show defiance and eyes are quickly shifted away, but in the West, it is an act of confidence and sincerity” could encompass understanding of many different cultures (Mazumder, 2009). Areas of culture that can be addressed include the economic environment, labor conditions, social environment, politics, beliefs, values, and behaviors (Choudhury, 2000; Bodapati & Kay, 1998; Gash, et al, 2009). Learning about other cultures helps student develop interpersonal skills, tolerance, diplomacy, multicultural perspectives, and openness to change (Eljamal, et al, 2005; Garcia-Saenz, et al, 2007).

Lastly, technology needs to be studied from a global perspective in an international or global construction course. Different areas of the world use different technologies in their construction practices (Bodapati & Kay, 1998). Especially in lesser developed countries, items such as infrastructure, service industries, and material shortages all pose new problems that are taken for granted in the United States (Kramer & Dillard, 2009). Tool sets for different countries such as collaboration tools and computer programs as well as guidance for tool selection can be addressed (Henderson, 2006). Overall, however, professional skills and core leadership competencies will outshine technical skills when it comes to working in the global market (Kapli, et al, 2006).

Keeping these three areas of study in mind, the following objectives could be established for a global construction course. Students should be able to demonstrate globalized technical knowledge, be adaptable to a new environment, have improved communication skills, have an awareness of relevant factors in a global economy and have an increased disposition to work in a global economy (Henderson, 2006). In addition, students should learn about foreign education systems and business practices, have the capacity to accept other cultures, have a better self-knowledge and knowledge of their own culture, and above all, have the competitive edge in the global construction market (Mazumder, 2009).

## **Available Teaching Resources**

Due to the fact that there are not many global construction courses in existence, there also are not many teaching resources available. A quick textbook search for “Global Construction” or “International Construction” on Amazon.com or Google books will yield results in the thousands in each search. However, these results include a wide variety of topics including sales, marketing, law, codes, and even more specific areas like concrete and fire safety. If an instructor is looking for the optimal textbook with a wide variety of information for a course on Global Construction, many of these texts would be excluded. Publication dates for these textbooks also range from as early as 1986 through new texts coming available in 2010. Since the global economy has been changing rapidly in recent

years many of these texts are simply out of date. A selection of the texts listed below includes both timely relevance and a broader information base.

Table 1

*Texts on Global Construction*

<b>Title</b>	<b>Author</b>	<b>Year of Publication</b>	<b>Publisher</b>
Global Engineering and Construction	J. K. Yates	2007	John Wiley & Sons, Inc.
International Construction Contract Management	D. B. Morgan	2005	Ashgate Pub Co
Construction Innovation and Global Competitiveness	B. O. Uwakweh & I. A. Minkarah	2003	CRC Press
Strategic Management Applied to International Construction	R. Howes & J. H. M. Tah	2003	Thomas Telford
International Construction	M. Mawhinney	2001	Wiley-Blackwell
Strategic Management in Construction	D. A. Langford & S. Male	2001	Blackwell Science, Ltd.
Construction & Culture: a Built Environment	D. E. Mulligan & K. Knutson	2000	Stipes Publishing
The Future of International Construction	R. Bon & D. Crosthwaite	2000	Thomas Telford

As with other courses, supplemental materials may be added to strengthen the content of the course. One option would be to pull current articles from reputable construction and business magazines that showcase current events in the global economy and the global construction industry. This would be particularly relevant if the course is using a text with an older publication date. These articles will allow the course to remain as current as possible. Articles could also be pulled from academic journals and conference proceedings. Articles of this nature may provide case studies demonstrating how international projects have either succeeded or failed and why. Journal articles may also provide past data and trends within the global construction industry. Searching databases such as Engineering Village would allow an instructor to find relevant articles.

## Conclusion

Globalization within the construction industry is ongoing and is expected to become more prominent in the future. As construction professionals begin to realize the opportunities that international construction brings, they will be looking for courses and programs to develop their global knowledge. While some construction management programs have implemented global or international courses or masters programs, there are still many construction schools that have not responded to the needs of the expanding global construction industry. Developing global construction courses in international language, culture, and technology will provide these construction professionals with the knowledge they need to work in an international market. This knowledge along with building experience in the domestic construction industry will allow construction professionals to advance their careers and achieve a competitive advantage over their peers. This paper is intended to promote discussion and encourage an educational response to this growing need. This discussion will help to establish a more detailed curriculum for future international construction courses. The next step in response to this demonstration of need for an international construction course in construction management graduate programs is to begin to develop and offer global construction courses at universities throughout the United States.

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