

**AC 2009-728: CULTURAL INTELLIGENCE: ENGINEERING SUCCESS FOR A
FLAT WORLD**

Richard Gash, United States Military Academy

Stephen Ressler, United States Military Academy

Eric Crispino, United States Military Academy

Cultural Intelligence: Engineering Success for a Flat World

Abstract

The civil engineers we educate today will enter a truly global work force. Globalization, resultant from a proliferation of information technology, has increased the likely hood that civil engineers will find themselves working in cross-cultural situations. Success in such environments will require, in addition to classical engineer skills, the ability to work effectively in groups with different and often divergent values, norms, and behaviors. Organizational psychologists have recently defined this ability as "cultural intelligence". As engineering educators, it is important that we understand this emerging idea so we can best prepare our students for the challenges they will face. This paper offers a review of the pertinent literature on the subject of cultural intelligence and offers a discussion of how it pertains to our Body of Knowledge.

Introduction

In 2005, Thomas Friedman declared the world flat¹. As civil engineers, we should have been thrilled. Construction on a flat earth ought to be much easier than construction on a round one! Of course, the renowned American journalist was not referring to a new understanding of geophysics. He was instead seeking to define the surging phenomenon of globalization. He observed that rapid advances in information and communication technologies have leveled, or "flattened", the playing field between traditional economic powers and emerging markets. An entrepreneur in Dakar with a lap-top computer and a satellite internet connection can now seamlessly do business with partners in London, Tokyo, or New York. What does this mean to us as engineers? It means we can expect ever increasing opportunities for cross-cultural cooperation. The surging economies in South America, Africa, and Asia are, and continue to be, coupled to corresponding development booms. Like never before, engineers will be asked to work outside their cultural comfort zones. Be it as expatriate representatives of global firms, members of multi-national design-build teams, or simply local practitioners relying on offshore estimators and detailers, success as engineers in a flat world will require much more than technical skill. It will entail a propensity to work effectively with people who talk, act, and think differently than we do. Leaders in the business world have recently teamed with organizational psychologists to define this unique ability as "cultural intelligence". As educators preparing engineers to enter the global workplace it is imperative that we understand this construct. The purpose of this paper is to do just that: to familiarize the civil engineering education community with the emerging concept of cultural intelligence through a review of pertinent literature and a discussion of how cultural intelligence pertains to our Body of Knowledge².

Intelligence over Awareness

Culture is all around us. Nations, regions, ethnicities, and even corporations all evolve their own unique cultures. In general terms, a group's culture refers to the set of beliefs, values, and behaviors adhered to by its members. The concept of preparing people to work with different cultures is not new. Corporations routinely enlist consultants to conduct cross-cultural training. In the past, the focus of such training has been on cultural awareness. As the word awareness implies, such training primarily involved rote learning about the difference between the students' culture and the target culture. Unfortunately, being "aware" of cross-cultural

differences does not necessarily prepare a person to perform well when faced with those differences. It can, in fact, do just the opposite. Preconceived knowledge of what makes people different can lead to contrived behavior and stereotyping. Given the increased demand for cross-cultural cooperation fueled by the burgeoning globalized world economy of the late Twentieth Century, the time was ripe for a new perspective on cultural education. Thus arose the notion of cultural intelligence.

Psychologists have long known that certain individuals tend to perform better when immersed in foreign cultures than others. Examples of such ideal expatriates include T.E. Lawrence, Britain's famed Lawrence of Arabia³, and Greg Mortensen, founder of the Central Asia Institute⁴. Whether leading a pan-Arab revolt against the Ottoman Empire, or building schools for girls in the remote tribal areas of Afghanistan and Pakistan, both demonstrated an uncanny ability to thrive in cultures far different from their own. Researchers have termed this ability cultural intelligence. Similar to intellectual intelligence, cultural intelligence represents an individual's aptitude for cross-cultural relations. In recent years, psychologists and cultural educators have devoted significant effort to seeking to define, quantify, and ultimately increase cultural intelligence. While their opinions vary, they generally agree that understanding cultural intelligence promises great potential for cross-cultural education.

P. Christopher Earley

In October of 2004, P. Christopher Earley and Elaine Mosakowski, published a watershed article in Harvard Business Review entitled: *Cultural Intelligence*⁵. Although others had previously used the term, the article introduced the idea of cultural intelligence to the mainstream business world. Earley, a well respected London Business School Don, has been active in the field of cross-cultural research for over twenty years. In addition to his scholarship, he has served as an executive consultant for international corporations such as, Cisco, IBM, and General Motors. He currently serves as Dean at the National University of Singapore's Business School⁶. In the article, Earley identifies three sources of cultural intelligence: head, body, and heart. Head, or cognitive cultural intelligence, refers to the ability to glean knowledge of beliefs, customs, and behaviors related to a foreign culture. It can be likened to the cultural awareness of old. Body, or physical cultural intelligence, pertains to the ability to adopt and genuinely apply the actions and mannerisms inherent to a foreign culture. He asserts that how one renders a greeting is much more important than knowing whether to bow, kiss, or shake hands. The final source, heart, refers to the propensity of an individual to overcome the obstacles and setbacks inherent to cross-cultural interaction. This emotional element of cultural intelligence is rooted in an individual's confidence and expectation of success. Earley offers that an individual who demonstrates high cultural intelligence is able to effectively balance all three components. Interestingly, Earley notes that many of these individuals live on the outsides of their own cultures while those who tend to be socially successful among their peers often struggle amongst cultural strangers. The outsiders must constantly work to fit in, thus exercising their cultural intelligence skills, while the insiders may be letting theirs atrophy.

According to Earley, we can work to cultivate our cultural intelligence. The article provides readers a simple method to assess their head, body, and heart. Based on the assessment, he then offers courses of action to target weaknesses. For instance, to someone deficient in physical cultural intelligence, who might find greetings that involve kisses on both cheeks uncomfortable, he suggests acting classes designed to help control physical manifestations of

emotion. To one lacking in cognitive cultural intelligence he offers the drill of reading multiple business case studies and distilling their common principles as a means of developing inductive reasoning. He goes on to stress the importance of constant assessment and reevaluation once immersed in a cross-cultural setting.

Thomas and Inkson

In 2003, David Thomas and Kerr Inkson published *Cultural Intelligence: People Skills for Global Business*⁷. Thomas currently serves as a professor of international management at Simon Fraser University. Prior to entering academia, he rose to the position of vice president at Bank of America. Inkson serves as professor of management at New Zealand's University of Otago. Together they lead an international team seeking to quantify cultural intelligence. Their book targets international business managers. Like Earley, they divide cultural intelligence into three parts: knowledge, mindfulness, and behavior. Their knowledge and behavior are similar to Earley's head and body. Their mindfulness, however, refers to the ability to creatively and reflectively tune in to cross-cultural cues. Thomas and Kerr see the qualities of integrity, openness, and hardiness as being critical to the development of strong cultural intelligence. They encourage those preparing for an expatriate assignment to seek ways to immerse themselves in different cultures before departing, even if the encounters are unrelated to the intended target culture. Be they rock-n-roll concerts, ethnic celebrations, or unfamiliar worship services, these experiences will offer opportunities to practice the skill sets needed to demonstrate high cultural intelligence.

Brooks Peterson

In his book, *Cultural Intelligence: A Guide to Working with People from Other Cultures*⁸, Brooks Peterson offers a third, and slightly unique, perspective on cultural intelligence. Unlike the previous authors, he is not an academic. He is primarily a practitioner. He is the founder and president of Across Cultures, Incorporated, a cross-cultural consulting firm targeting global business leaders⁹. In a manner similar to the previously discussed works, Peterson offers three pillars of cultural intelligence: knowledge, awareness (of one's self and others), and special skills. He differs in that he dismisses efforts to quantify cultural intelligence in manners similar to those used to measure the intelligence quotient or IQ. In doing so, he fears people will be "pegged" by the results and could be given either false confidence or no confidence depending on the scores they achieve. He asserts that either outcome will adversely affect cross-cultural interactions. To him it is more important to understand the nature of cultural intelligence and the means to improve it.

These three works combine to provide a solid understanding of the emerging theory of cultural intelligence. They all recognize that success in cross-cultural cooperation requires much more than a simple awareness of what makes people different. Although their syntax varies, they provide similar constructs of what cultural intelligence entails. They offer those interested in improving their ability to compete in a flat world viable ways to assess and improve their individual cultural intelligence. What does this mean to us as civil engineering educators? The answer can be found by investigating the vision of the future of our profession.

Cultural Intelligence and the Body of Knowledge

In 2006, the American Society of Civil Engineers (ASCE) assembled a summit of prominent civil engineers from across the world. Their aim was to chart a new way forward for our profession. The product of their collaboration became the society's *Vision for Civil Engineering in 2025*¹⁰ (referred to hereafter as the *Vision*). This *Vision* foresees the demands of globalization requiring civil engineers to assume a greater role as leaders in society. Looming issues such as population growth, competition over depleted resources, and ever-increasing urbanization will require engineers to develop innovative solutions. Right now we are educating these engineers. In response to the *Vision*, ASCE released in 2008 an updated version of their Body of Knowledge (BOK2). The BOK2 outlined twenty-four outcomes desired for the entry of civil engineers into professional practice. Depicted in Table 1, these outcomes embody the civil engineer of 2025. They define the knowledge, skills, and attitudes required to fulfill the *Vision*. Many, those marked with two asterisks, are directly relevant to cultural intelligence. Others, marked with one, are areas that may play a more peripheral role. Foundational outcomes 3 and 4, pertaining to study of the humanities and social sciences during undergraduate education, offer chances for young civil engineers to develop their cultural intelligence skill sets. Those who possess high levels of cultural intelligence will find distinct advantages while working within the purview of professional outcomes, 16, 18, 19, 20, and 21. Put simply, such individuals will be ready to engineer in the flat world.

BOK2 Outcomes	CQ?
<i>Foundational</i>	
1. Mathematics	
2. Natural sciences	
3. Humanities	**
4. Social sciences	**
<i>Technical</i>	
5. Materials science	
6. Mechanics	
7. Experiments	
8. Problem recognition and solving	
9. Design	
10. Sustainability	*
11. Contemp. issues & hist. perspectives	*
12. Risk and uncertainty	
13. Project management	
14. Breadth in civil engineering areas	*
15. Technical specialization	
<i>Professional</i>	
16. Communication	**
17. Public policy	*
18. Business and public administration	**
19. Globalization	**
20. Leadership	**
21. Teamwork	**
22. Attitudes	*
23. Lifelong learning	*
24. Professional and ethical responsibility	*

The Way Ahead

An understanding of cultural intelligence is vital to us as twenty-first century engineering educators. Globalization will demand that our students, the engineers of 2025, will increasingly find themselves in situations requiring cross-cultural cooperation. Knowledge of the attributes, skills, and behaviors that contribute to cultural intelligence can help us as we mentor and guide our students. We can help them make choices that will prepare them for the global workplace. Study abroad programs and extra-curricular activities such as Engineers Without Borders offer great opportunities to cultivate cultural intelligence. Our campuses themselves are also full of diversity. Great engineering education institutions attract faculty and students from around the world. Meetings of professional organizations such as the National Society of Black Engineers and periodic intentional ethnic observances afford occasions to experience other cultures without leaving campus. Furthermore, an understanding of cultural intelligence will better arm us to

serve as academic counselors and advisors to our students. When our programs allow, we can coach our students to tailor their electives to help overcome any weaknesses they may have. Thus, helping our students improve their cultural intelligence need not involve major additions to our already overloaded curricula. Instead, it is simply a matter of leveraging what is already all around us.

As a theory, cultural intelligence is still in its infancy. As such, opportunities for further research partnered with organizational psychologists and other experts are abundant. As assessment methods improve we can investigate how the cultural intelligence of engineers compares to that of other student populations. We can explore correlations between cultural intelligence and learning styles or even teaching styles. The more we comprehend, the better we will be able to prepare our students for the challenges that they will face.

Conclusion

Globalization is rapidly changing our world. As a result, the engineers we educate today will find themselves increasingly exposed to cross-cultural cooperation. Whether as expatriates, members of multi-national teams, or interfaces with outsourcing, engineers who are able to successfully interact with cultures other than their own will find themselves at a marked advantage over those who cannot. Through a basic understanding of the theory of cultural intelligence, we, as engineering educators, can help our students prepare to enter the burgeoning global workplace. We are responsible for our students' education...an education that must prepare them to engineer in a flat world.

Notes:

1. Friedman, Thomas. *The World is Flat, 3.0: A Brief History of the Twenty-First Century*, (Picador, 2007)
2. *Civil Engineering Body of Knowledge for the Twenty-First Century: Preparing the Civil Engineer for the Future*, v.2, (American Society of Civil Engineers, 2008)
3. Lawrence, T.E. *Seven Pillars of Wisdom: A Triumph*, (Harmondsworth, 1962)
4. Mortensen, Greg and David Relin. *Three Cups of Tea: One Man's Mission to Promote Peace-One School at a Time*, (New York, 2007)
5. Earley, P. Christopher and Elaine Mosakowski. *Cultural Intelligence*, in Harvard Business Review, Volume 82, Number 10, October 2004
6. www.neuro.jhmi.edu/profiles/pdf/EarleyCV.PDF
7. Thomas, David C. and Kerr Inkson. *Cultural Intelligence: People Skills for Global Business*, (Berret-Kohler, 2003)
8. Peterson, Brooks. *Cultural Intelligence: A Guide to Working with People from Other Cultures*, (Intercultural, 2004)
9. www.acrosscultures.com/about.html
10. content.asce.org/files/pdf/TheVisionforCivilEngineeringin2025_ASCE.pdf