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Invited Paper - Does the International Engineering Program Produce Graduates for the Rhode Island Workforce? Assessing Skill Sets and Company Needs

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Sigrid Berka is the Executive Director of the International Engineering Program (IEP) at the University of Rhode Island, and also the Director of the German and the Chinese IEP, responsible for building academic programs with exchange partners abroad, internship placements for IEP's dual degree students, corporate relations and fundraising for the IEP. Bi-annually, the IEP organizes the Colloquium on International Engineering Education. Under Sigrid's leadership, the IEP received NAFSA's Senator Paul Simon Spotlight award for innovative campus internationalization (2011), and the Andrew Heiskell Award for study abroad (2012) by the Institute for International Education. Sigrid serves on the Provost's Global Education Steering Committee. As Managing Director of the MIT-Germany program, she previously developed experiential learning opportunities such as internships and workshops for MIT students in German companies and research institutes for the MIT International Science & Technology Initiatives (MISTI). From 2007-2009, Sigrid served as MIT Delegate for the Global Excellence Initiative (GEI-GEIP), a consortium of the best engineering schools world-wide with the mission to educate the global engineer. Sigrid is a native of Germany and has a Staatsexamen in German Literature, Philosophy, and Education from RWTH Aachen (1986), and a PhD in German Studies from the University of California, Santa Barbara (1990). As Assistant Professor of German Studies at Barnard College and Columbia University (1990-1996), she published a book and numerous articles on German and Austrian writers of the 19th and 20th centuries, and co-authored an intermediate German textbook. As Director of the IEP, her publication topics shifted to the field of international engineering education.

Walter von Reinhart, University of Rhode Island

Walter von Reinhart is an Associate Professor of German at the University of Rhode Island where he is also a Language and Honors advisor in University College; in addition, he has served as the Associate Director of the URI Honors Program from 2006 to 2012. He has developed several interdisciplinary humanities courses for the Honors Program and specialized German language courses with technical content for engineering students. His research interests in applied language pedagogy focus on German for science and technology and business German. His literary research concentrates on utopian and apocalyptic texts and on Exilliteratur. Walter von Reinhart teaches specialized language courses for engineering students and general language courses at all levels. He also teaches German literature and culture courses on topics like Growing up German or German Songwriters from the 60's to the 90's. At the Deutsche Sommerschule am Atlantik, Dr. von Reinhart has taught second-year language courses and business German. He also directs the Deutschband, a German-language rockband that has performed annually at the closing night of the Sommerschule.

Erin Papa, University of Rhode Island

Erin Papa is Coordinator of the University of Rhode Island Chinese Language Flagship Program, having previously held the position of Program Coordinator for the International Engineering Program (IEP). Erin is a graduate of the IEP, having earned a B.S. degree in Civil Engineering and a B.A. in German in 2001. She earned her Master of Education in Teaching English as a Second Language (TESL) from Rhode Island College in 2005 and has taught English as a Second Language in the U.S., China, and Australia. She was the Principal Investigator of the Rhode Island Roadmap to Language Excellence grant and continues to lead that effort while also pursuing her Ph.D. in Education with a focus on bilingual education at URI and Rhode Island College.

Does the International Engineering Program Produce Graduates for the Rhode Island Workforce? Assessing Skill Sets and Company Needs

Abstract and Methodology:

Does the value graduates of the International Engineering Program attribute to the impact of their five-year dual degrees from the University of Rhode Island on the development of their linguistic, cross-cultural and technical skills match the demand Rhode Island businesses have for a trained workforce? The following article presents and evaluates data collected from 114 students who completed the International Engineering Program, which comes with a year-long stay abroad studying and interning in Germany, between 1991 and 2011. The outcome of this analysis is cross-referenced against data collected from a focus group of corporations in the State of Rhode Island who received these graduates,. In order to better understand the overall nature of business needs, especially multilingual demands, a variety of representatives from businesses were interviewed. Interviewees were selected based upon the fiscal impact of their companies on the Rhode Island economy and upon the importance and utility of services provided to the public. All interviewees were emailed the interview questions in advance. The assessment did not attempt to analyze every business entity, and in this sense, should not be considered comprehensive.

The 25-year old International Engineering Program at the University of Rhode Island was originally designed as a dual-degree program for German and Engineering majors; students received bachelor's degrees in the language, as well as in their engineering discipline. Key components of the program from the beginning were specialized language courses that include instruction in technical German and a six-month professional internship with an engineering company in one of the German-speaking countries.[i] In 1995 an optional semester of study at the *Technische Universität Braunschweig* was added.[ii] The German undergraduate exchange was eventually expanded to include graduate programs in which students simultaneously earn advanced degrees in engineering from the *TU Braunschweig* and the University of Rhode Island at either the master's or the doctoral level.[iii] Inspired by the immediate success of the German program, the University added similar dual degree programs in Engineering with Spanish, French, and most recently Chinese,[iv] which also proved successful. The German program, however, remains the main stay of the IEP programs; it boosts the highest numbers of enrolled students (Table 1). Because the German program also offers the largest homogeneous group of graduates, this article is based on data collected from graduates from the German program.

	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10
German	102	113	118	121	122	128	133	126
Spanish	37	42	45	42	52	51	63	69
French	27	27	27	33	28	27	28	29
Chinese					14	20	29	30
IEP overall	**166**	**182**	**190**	**196**	**216**	**226**	**253**	**254**

Table 1: IEP undergraduate enrollments 2002-2010, compiled from *Facts and Figures*

The survey and method

The information presented here was gathered in two iterations of the IEP alumni survey. The first survey was emailed in 2007 to 163 students who had graduated from the program between 1991 and 2006; 68 graduates responded and completed the survey. An identical survey was sent electronically in 2011 to 63 students who had graduated between 2007 and 2010. These 226 requests for participation yielded 111 completed surveys[v] and a surprisingly high response rate of 49.1%. Compared to the overall number of 291 German IEP graduates between 1990 and 2010, the data still represent the experience of a significant portion (38.1%) of all participants in the program. We are focusing here on findings from the first part of the alumni survey which gathered general population data, such as graduation year, engineering discipline, type of international experience (internship or study-abroad, or both). Participants were then asked to give their personal assessment of the program, specifying the value they attributed to the individual components as opportunities for professional preparation, personal growth, language learning and increasing cross-cultural awareness and skills.

International components and their overall assessment

The IEP requires a significant international experience of all graduates. Students are required to complete a six-month professional internship abroad; if no appropriate placement can be found, students may replace their internship with a semester of study at one of the program's partner universities—albeit with the stipulation that they complete and pass an engineering course taught in the foreign language. This exception, however, is only rarely and reluctantly granted. Of the 111 participants in the survey, only seven (6.3%) did not complete an internship, but instead worked as research assistants at the *Technische Universität Braunschweig*. The overwhelming majority of respondents (93.7%) completed a six-month professional internship abroad; more than four fifths (82.9%) spent a semester studying at the *TU Braunschweig*, and more than three quarters (76.6%) completed both a semester abroad and a professional internship.

The overall satisfaction of IEP graduates with their international experiences was very high, yet IEP graduates seemed to value their internship slightly more than their study-abroad experience: Only one participant indicated that he would probably not want to repeat his internship experience; two participants stated that they would probably not want to repeat their study abroad, and two participants declared that they would definitely not repeat their study abroad experience (Table 2).

If you could, would you repeat …	the IEP program overall	the internship experience	the study abroad experience
definitely	80.9%	82%	71%
probably	14.9%	7%	15%
maybe	4.3%	10%	10%
probably not	0%	1%	2%
definitely not	0%	0%	2%

Table 2: Overall satisfaction with the IEP program and its international components

In general, participants saw the value of their semester abroad predominantly in the opportunity to improve their language skills and as an enriching cultural and personal experience, and less as a preparation for their professional career.

The study-abroad experience

Almost all participants (97%) valued their semester abroad as a personal growth experience; 95% as an opportunity to improve their language skills and to experience a foreign culture; and 88% appreciated the opportunity to make new friends. Participants attributed less value to the study-abroad experience as a preparation for their professional career. Only 65% of participants were absolutely or very satisfied with their semester abroad as preparation for a professional career, and only 51% reported high satisfaction with their experience as an opportunity to learn new engineering skills or to make professional contacts (see Table 3).[vi]

Satisfaction with ……. experience as (rated 4 or 5 on a scale from 1 to 5)	**study abroad**	**internship**
Professional experience		
Preparation for a professional career	64.8	75.7
Opportunity to learn new technical skills	51.2	61.3
Opportunity to apply your engineering skills	n/a	67.1
Opportunity to make professional contacts	50.6	75.5
Additional qualification on résumé	90.9	93.9
Cultural experience		
Language-learning experience	95.5	93.9
Opportunity to experience a foreign culture	95.5	93.2
Opportunity to reflect on U.S. culture	93.1	90.5
Personal experience		
Personal growth experience	96.6	89.2
Opportunity to reflect on career choices	68.2	89.2
Opportunity to make new friends	87.5	88.0

Table 3: Satisfaction with study-abroad and internship experiences

These assessments were also supported when graduates had the opportunity to comment on their study-abroad experience. Increased understanding of German culture, building personal friendships, experiencing personal growth, and improving language skills are most frequently mentioned as the most positive aspects of the participants' study-abroad experience. Of 67 written comments, nine emphasize significant gains in language skills; 11 participants focus on their personal growth, couched in terms like "the maturing portion," "the ability to function independently," or "to live as an adult." 19 participants list their experience and improved understanding of German culture as the most valuable aspect, and another 17 emphasize the opportunity to travel within Europe.

By the end of their study-abroad experience, 56% of participants reported few or no problems handling city, state, or federal bureaucracies; 17% reported significant problems, and only 2% found doing so still too difficult. Despite some academic problems they disclosed in science and engineering courses, students also reported disproportionate gains in certain skill areas. While only 51.2% of participants were satisfied with their professional preparation while studying abroad, 60.2% nevertheless reported significant gains in their ability to solve complex technical problems. Even more astounding are the 71.5% who gained a significantly better understanding of engineering processes and the 84.1% of participants who acquired a considerably better understanding of professional expectations and conduct.

Compared to their study abroad experience, participants rated their internships higher as a preparation for a professional career, but slightly lower as cultural and personal growth experience (see Table 3). Participants valued their internships less as an opportunity to gain technical hard skills (61.3%), but more as an opportunity to apply their technical skills (67.1%) and to make professional contacts (75.5%). This is also reflected in their written comments. Of the 73 responses describing the most positive aspect of their internship experiences, 30 focus on the ability to experience engineering as it is practiced in a different culture, 14 emphasize that having had the internship experience has helped the participants' job search, and another 13 comments stress the gains in confidence and self-reliance made during the internship. Of course, there are also problems associated with the internships. Of 71 comments discussing the worst aspect of the internship, fifteen have nothing to complain; 18 comments, however, focus on inadequate internship assignments.

Given that alums of the IEP report linguistic and cultural skills to be among the highest perceived gains, is there a match in the skill-set Rhode Island businesses are looking for?[vii]

In 2008, the International Trade Administration reported that exports and world markets sustain thousands of Rhode Island jobs and businesses. Companies who exported goods from Rhode Island totaled 1,468, and of those 1,306 (89 percent) were small and medium-sized enterprises (SMEs) with fewer than 500 employees. SMEs also generated 51 percent of Rhode Island's total exports of merchandise in 2008, the fifth largest share among the states, well above the national average of 31 percent. Likewise, world markets played a key role in in Rhode Island's economic output; export shipments of merchandise in 2010 measured a total of $1.9 billion. The state's largest market was Canada, posting merchandise sales of $591 million in 2010, which constituted 30 percent of the state's total exports); following Canada were Mexico ($136 million), Germany ($118 million), Turkey ($86 million), and China ($78 million).

Because exports and world markets sustain thousands of businesses in Rhode Island, the University of Rhode Island's research team conducted a telephone survey to assess second language needs within small and medium sized businesses (SMEs), and multibillion dollar, multinational corporations (MNCs).

Languages and Proficiency: SME-specific Needs

The majority of SME respondents think that companies who have employees with foreign language abilities have a distinct advantage over those who do not. Although speaking a foreign language is not a requirement for employment in most SMEs in Rhode Island, foreign language abilities can increase efficiency, avoid extra business costs, and expand business productivity.

CEO Andrew Corsini from Supfina, a North Kingstown, Rhode Island company whose exports have grown to constitute 60% of Supfina's business world-wide, reports:

> *There are extra business costs for not having linguistic and cultural skills readily available. When we are not able to ask the right questions to find out what the customer's specific needs are, this costs us money. In addition, when the language is a barrier and our technical sales force is not able to explain a machine tool and how it works to a customer, this customer will come back to us with a broken tool, and demand to get reimbursed. This causes higher warranty costs, on the one hand, and customer dissatisfaction on the other. In contrast, if our engineers' foreign language skills are put to use, those employees can help foster the bonding process between our parent company in Germany, and our facility in Quonset. That is why I have hired so many graduates of the German International Engineering Program; having people who speak the native language really helps improve communications and synergy between company cultures.*

Rhode Island second language needs are most prominent in SMEs where the company employees interface with foreign customers and suppliers on a regular basis. Although a number of businesses use translation services or interpreters for these language needs, companies have also emphasized the importance of local employees to be able to translate foreign-language negotiations between parties into business-specific applications. For instance, although a translator is capable of direct translation, he or she may not "know the language of business," or may not have enough of a vested self-interest with the company to work out language gaps and/or to specifically translate complex details or technicalities pertinent to the particular business. Therefore, it is extremely important that current employees understand the complexities of cultural exchanges and foreign language translations.

Depending on the nature of the business, Rhode Island SMEs expressed the growing need for employees not necessarily to master a foreign language, but to be able to understand different language and cultural nuances. Matthew Zimmerman from FarSounder Inc., a Rhode Island company based in Warwick that sells security navigation systems to just about any country that has a coast, observed, "there is always a difference between what is said, and how it is said." According to our findings, most SME interviewees agree that certain languages cannot always be directly translated, and that employees who have had language and culture training understand how to swim **with** the cultural tide as opposed to struggle against it in vain.

Rhode Island SME's language needs are highly dependent on the nature of the particular business and whether or not it is operating locally or internationally. Internationally, Rhode Island exports to over 208 different destinations worldwide. The top five international business language needs in Rhode Island are French, Chinese, German, Spanish, and Polish, with Italian and Russian following close behind. Nevertheless, almost 90% of the business respondents stated that there were no specific hiring policies in place to increase cultural and linguistic competencies within the organization. This is mainly because most of the candidates they interview do not have the language proficiency needed to effectively handle a business transaction, interface with foreign governments or build new markets. Unfortunately, because of this lack of proficiency, the greater part of the interviewed companies outsourced language service needs to translation services, native and heritage speakers, and localization firms.

However, the other 10% indicated a very strong demand for foreign languages and aggressively seek out employees with those skills.

Languages and Proficiency: MNC-Specific Needs

In Rhode Island, MNCs are spearheading their language and proficiency needs by focusing more on multilingual capability at the upper management level in areas such as transaction processing, network integration, infrastructure development, and government contracting. A good example is GTECH, one of the world's largest commercial lottery operators and market leader in the Italian gaming industry with €2.3 billion in revenue and 7,700 employees in approximately 60 countries. Angela Wiczek, GTECH's Director of Corporate Communicationsreports that the company relies heavily on upper-level managers to deliver superior multilingual performance in spoken communication, reading and writing.

> *"Our information exchange consists of business exchange, technology, laws, policies, and regulations. We, often times, work in global teams and interface with foreign customers and/or distributors to try to build new markets in areas where we think our products will thrive. We also have people in the field monitoring the political climate in many countries in order to help with our primary goals and objectives, especially, on issues surrounding privatization. This amount of foreign exchange on a daily basis requires that all of our upper-level employees have multilingual capabilities."*

All MNCs agreed that multilingual capability is required from their top management level employees if they are to be competitive in today's global economy.[viii] They also commented on the fact that if an employee speaks two or three, or five different languages, it gives them more flexibility to move employees in and out of different markets with a shorter transition period. The challenge they face, however, is finding a cadre of people that can fit this model. Many people are afraid of being sent abroad because they have not had the opportunity to develop their cultural and language skills; therefore they feel unprepared and do not think that they can handle a posting abroad. This forces MNCs to hire foreign nationals for their management posts abroad, thereby decreasing job opportunities for local Rhode Islanders.

All MNCs see learning a foreign language and developing cross-cultural skills as a gateway to building relationships and translating shared values, which can result in efficient and effective business practices. However, with respect to linguistic training and foreign language capabilities we found two opposing views of how to meet challenges of the global market place. The first relies on English being the predominant business language in the world; companies with this view do not see the need to train employees in foreign languages or to hire multi-lingual talent. For their overseas facility's management they rely on hiring local managers throughout the world. A representative of this view, Kathleen McPhee, Director, Talent Management, APC Schneider Electric of West Kingstown, a global leader in energy and data center management, explains that,

> *"English is the most important language for international business today, that is not to say that that will not change, but as our companies expands internationally we have been much more focused on the transference of our corporate values than foreign language acquisition."*

The second view recognizes that today's around-the-clock business transactions are increasingly and most efficiently done with a multilingual management and work force on board. In a report entitled, "Educating Engineers as Global Citizens: A Call for Action," from the National Summit Meeting on the Globalization of Engineering Education[ix], former IEP Director John Grandin summarized a keynote address given by Al Verrecchia, Chairman of the Board, and recently retired CEO of Hasbro, a multinational toy and board game company that does business in over 140 countries worldwide including China, Russia, Brazil, Mexico, and Korea. In his speech Verrecchia explains that innovation used to be local, but has now gone global: There was a time when Hasbro did everything in Rhode Island and when communications could be achieved by simply walking across the street. Today, however, Hasbro is dependent on the ability of global teams from the U.S., Europe, and Asia to work together smoothly and efficiently in order to remain ahead of its competitors. Hasbro first went to the Far East for low labor costs and more competitive manufacturing, but this advantage has in the meantime become a given for all players in the field. Today, Hasbro must be active globally in search of the best talent and the best ideas, meaning that much of the company's innovation now evolves outside of Rhode Island and the United States, in collaboration with designers and engineers from a variety of different national and cultural backgrounds. Communication is thus paramount, says Verrecchia.

> *"…we increasingly rely on collaborative development in which we partner with technology leaders and providers around the globe to take advantage of the best available expertise. Managing and leading this global tech network is no easy task and having the language skills and cultural knowledge is critical…Today a critical success factor is the ability to collaborate and communicate with a large network of technology providers, inventors, vendors, manufacturers and peers worldwide. An ability to lead multi-national teams through challenging problems and a willingness to conduct late night conference calls with partners in all parts of the globe is essential."*

Verrecchia cites specific examples:

> *"The Far East engineering team is a vital bridge between our U.S. engineering and design staffs and our vendors. They take concepts from our U.S. and European design teams as well as outside inventors and transform them into more detailed and specific products. They work with the vendor community on the detailed execution and communicate what we want to do and why. They help shape the actual features and attributes of a product and make necessary changes when manufacturing problems arise. They also help the U.S. teams understand the demands and constraints of the vendor community. Ultimately, they serve as a critical link in the process."*

Although Rhode Island MNCs do not have any specific hiring strategies that directly relate to recruitment based on foreign language ability, anyone who knows a foreign language or culture is at a definite advantage. Findings from the survey also indicate that the University of Rhode Island's International Engineering Program (IEP) has been influential in the development of a more attractive workforce in Rhode Island. College graduates who combine a Bachelor of Science degree in an engineering discipline with a Bachelor of Arts in a foreign language and have spent a year abroad studying for a semester and interning for six months with a company abroad are very valuable assets to any MNC, that would prefer to hire locally whenever possible.

Rhode Island MNCs, such as Hasbro, or MNCs in neighboring states who draw a large portion of their work force from Rhode Island, such as Sensata Technologies in Massachusetts or Pratt & Whitney in Connecticut, recruit bilingual graduates from the IEP to use them as ambassadors between their headquarters in the US and their subsidiaries in China and Germany. Some parents of New England-based companies are abroad, as is the case for Hexagon Metrology (Sweden), MTU (Germany), APC Schneider Electric (France), or Toray Plastics (Japan). Hiring needs may also be determined by the headquarter's international subsidiaries; hence Hexagon's strategy is to hire Chinese and German speaking engineering graduates to use them as intermediaries between its R&D labs in Rhode Island and Wetzlar, Germany, and its manufacturing site in Qingdao, China. MTU's strategy is to hire German speaking IEP graduates because they need them to translate the demands of US companies, such as Pratt & Whitney, for whom they serve as supplier, and watch over exact specifications, translating back and forth from the metric system to the Anglo-American system of inches and yards.

Cultural Competency

Cultural Competency is the ability of individuals and organizations to communicate effectively in cross-cultural situations and environments where different cultural beliefs and behaviors can be substantial. Kathleen McPhee from Schneider Electric, a Rhode Island company that builds products for service and support for ways to monitor security with140,000 employees globally and 1500 employees in the U.S., explains that,

> *"People who are able to understand what works and what does not work in different cultural settings and people who have cross-cultural sensitivity, who have the crucial flexibility and can do things in different ways will be the people that are the most valuable to our company."*

Moreover, President and CEO Angus Taylor from Hexagon Metrology, a company that exports and imports coordinated precision measurement machines world-wide states that, "Some of my best employees are engineers who are 'emotionally intelligent.' They have teaching experience, have traveled abroad, and are able to speak a foreign language." The greater part of the MNCs interviewed agrees that cultural competency is taught through foreign language learning and that it cultivates a set of competencies in people which enables them to not only identify the differences in cultural patterns, but "to socialize with your counterpart. Employees who are able to intersperse cultural knowledge (i.e. books, music, family, and events) into the conversation are highly effective and they gain a lot of credibility, trust, and respect.." That, at least, is one of the advantages of cross-cultural competency according to Tom Dougherty from Nortek Inc., a 2.1 billion dollar company with 35/40 employees in Rhode Island and 10,000 employees world-wide.

The comparative data analysis presented above shows a strong correlation between the perceived high value graduates of the International Engineering Program attribute to the linguistic and cultural skills they developed during their year-long study and work stay abroad, and the skill-set in demand by small, medium and large businesses in Rhode Island. Although we exclusively surveyed alums of the German IEP, the results can be viewed as representative of the other IEP programs as well. Hence it can be concluded that IEP graduates who command a second or third language in addition to English, who are cross-culturally aware and competent, and have had a

chance to apply their technical skills in a real-world international scenario come with optimal preparation for the Rhode Island work force.

[i] For information about the special language courses developed for engineering students, see Von Reinhart, Walter, "German for Science and Technology: Teaching Strategies for Beginning Students," *Die Unterrichtspraxis/Teaching German* 34.2 (2001) pp. 119-32; and Rarick, Damon O., "The Student Centered Classroom Made Real: Transforming Student Presentations in an Advanced Course on Technical German," *Die Unterrichtspraxis/Teaching German* 43.1 (2010), pp. 61-69.

[ii] For a more detailed description of the International Engineering Program, its components and its history, see Grandin, John, *Merging Languages and Engineering: Partnering Across the Disciplines*: Morgan Claypool. Series on Global Engineering (2013) http://dx.doi.org/10.2200/S00466ED1V01Y201301GES003; and also Berka, Sigrid and Groll, Eckhard (guest editors), "Bridging the Languages with Engineering (2011-2013): In Honor of John M. Grandin," *Online Journal for Global Engineering Education*, Volume 6, Issue 1 (2011)

[iii] For more information about the IEP dual degree graduate programs, see Berka, Sigrid (2011) "The University of Rhode Island Graduate Dual Degree Program with the Technical University of Braunschweig – Its Added Value, Synergies, and Gains for Engineering Students," *Online Journal for Global Engineering Education*: Vol. 6: Iss. 1, Article 5. Available at: http://digitalcommons.uri.edu/ojgee/vol6/iss1/5

[iv] Initially the Chinese program offered a bachelor's degree in Engineering with a minor in Asian Studies. A B.A. in Chinese was approved in 2011, and the first dual degree recipients in Chinese and Engineering graduated in May 2012.

[v] Electronic contact information was available only for 226 out of a total of 291 graduates between 1990 and 2010.

[vi] There are two possible explanations for this phenomenon. It is quite likely that the 76% or participants who completed both a semester abroad and an internship attributed relatively more value to their internship as preparation for their professional career. Another reason may lie in the linguistic capabilities of the students. 51% of all respondents felt that they were either totally or very unprepared to discuss academic or technical topics with professors, and only 11% considered themselves adequately prepared. Consequently not all students completed or passed their engineering courses.

[vii] For a full report about our assessment of the demand for multilingual and multicultural skills in the Rhode Island workforce, see Papa, Erin; Berka, Sigrid; Brownell, Winifred; Butler, Robyn, Crocker, Colin, *2011 U.S. Language Summit: Rhode Island Roadmap to Language Excellence: University of Rhode Island Preliminary Report* (December 2011)

[viii] This finding matches a 2011 Forbes Insights report on *Reducing the Impact of Language Barriers.* Copyright Forbes 2011. Accessed 11/15/2011 at www.forbes.com/forbesinsights

[ix] John M. Grandin and E. Daniel Hirleman, *Educating Engineers as Global Citizens: A Call for Action. A Report of the National Summit Meeting on the Globalization of Engineering Education.* Newport, Rhode Island November 5-6, 2008. This NSF summit report can be downloaded at: http://digitalcommons.uri.edu/cgi/viewcontent.cgi?article=1020&context=ojgeehttp://digitalcommons.uri.edu/cgi/viewcontent.cgi?article=1020&context=ojgee