



Integrating a portfolio of short with long-term international programs in the engineering curriculum

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Abstract

The paper discusses development of a portfolio of various international programs, how they can be effectively integrated into the engineering program, and in what way they prepare students in an ever more intensive and instrumental way for their “capstone year” abroad.

J-term faculty-led travel courses geared towards familiarizing younger engineering students with the history, culture and technology of various countries are important for retaining students in a challenging major and making them enthusiastic about studying, doing research and/or interning abroad for a longer term at a more advanced stage of their studies. We will present J-term courses to Chile, France and Germany and the outcomes of the Sojourn Readiness Assessment tool we used to measure if students made any gains in their preparedness to go abroad.

Summer faculty-led service learning programs are effective modules to keep students’ interest in things international while getting practical experience in applying their technical and language skills and have them engage with a new culture and engineering environment in a protected but intensive way. A summer service learning project in Guatemala will be showcased.

The two short-term modules described above lead up to a year-long study/internship capstone year abroad where students “go it alone” – they can meet the challenge having been prepared technically and linguistically for a long-term stay abroad, first in a group of peers (studying at a partner university), then ultimately taking off on their own to various internship sites in Chile, France, Germany, Mexico, and Spain.

Rationale for short-term, faculty-led winter travel courses

The Open Doors Survey released by the Institute of International Education (IIE)ⁱ in Fall 2014 shows an encouraging 23% increase of U.S. students studying abroad for credit, and a 5.5% growth in engineering students studying abroad. The duration of study abroad is almost equally divided into short-term (winter, summer) and longer term (quarters, semester) but only a tiny percentage (in 2012-13 it was 3.2 %) of all US students studying abroad went for the entire year. A short-term stay abroad is often the only venue for global engagement for engineering students who are concerned about extra costs, efforts and about graduating on time. As a stand-alone activity it is, in and of itself, a valuable opportunity to infuse global citizenry and related cultural learning into the engineering curriculum. At the University of Rhode Island, whose Provost and Vice President of Academic Affairs has made “Global Citizenry” a priority of his Academic Planⁱⁱ, short-term opportunities are becoming increasingly more important in an effort to increase the percentage of students going abroad even if only for a two-week January term.ⁱⁱⁱ The Provost’s recent J-term initiative has seen a growth in travel courses from 8 in 2014 to 18 in 2015 with over a third more students traveling 96>159. URI’s flagship five-year dual Bachelor degree International Engineering Program^{iv} has for over two decades enrolled 25% of its undergraduate engineering population and sent them abroad for an entire year. But for the other 75%, short-term opportunities are very welcome,^v and in a curriculum which integrates STEM &

Humanities education^{vi} a short-term excursion abroad plays a slightly different role since it is the first step in a gradually more intensive trajectory:

For students enrolled in the rigorous IEP and the International Business Program (IBP) it is crucial to get some short-term immersion experience in the country in which they will spend their senior year. This short-term, faculty-led exposure to the country whose language they are studying, will allow them to experience the context of their language and engineering/business studies and provide the opportunity to explore the culture, technology environment and communicate with their budding language skills. Retaining first year engineering students is not an easy task, and any incentive and excitement about their studies and future internship sites one can provide to them will increase the rate of students retained in the program. Accompanying faculty has the time to really get acquainted with the students as advisees. It has been proven that close contact and ample opportunity to talk to an advisor is key in raising the retention rate of engineering first-year students.^{vii} Students feel as part of a cohort, a learning community of some sort, enabling them to make friends with those with whom they will go abroad later on, and to feel comfortable in the foreign environment.

In addition, engineering students' curricula, and especially dual Bachelor degree curricula are jam-packed during the academic year; hence any opportunity to offer courses during the summer or J-term are very much appreciated.^{viii} Students can then really immerse themselves into the language & culture without having to constantly switch their attention from science and math, to language and general education content. In fact, they will experience all of those topics combined within the context of the country they will eventually study and intern in for a year, so they will learn content within context. The German study tours we have conducted in the past have been an instrumental part of keeping German IEP/IBP students excited about the program over a long time. Taking a year of a foreign language is one thing, but it needs a lot more persistence and determination to keep studying the language all the way to the 5th year to complete a second major, so the short-term travel course is of enormous importance in helping engineering stay the course with respect to their challenging global curriculum.^{ix}

The *Spanish IEP Sustainability Project and Study Tour*, January 2- 18, 2015 in Chile, was funded by a grant which Megan Echevarria (PI) had successfully applied for^x through President Obama's "100,000 Strong in the Americas Initiative," administered by the Partners of the Americas Foundation.^{xi} The Obama administration made it a strategic goal to exchange 100,000 students within the Americas, and in its first round of proposals prioritized Chile and Peru as target countries.^{xii} The tour introduced 7 Spanish IEP students (dual majoring in an engineering discipline & Spanish) to the laboratories of the Pontificia Universidad Catolica de Valparaiso (PUCV), the SIEP's partner university in Chile and gave participants the chance to work as part of an international team on an engineering service-learning project. Under the guidance of Professor Vinka Oyanedel-Craver from URI and Professor Gonzalo Ruiz-Filippi from PUCV, students studied anaerobic energy systems, created portable anaerobic models, and shared them with people in rural communities. Outside the lab, students had the opportunity to visit important sites of cultural and technological interest. Course work was supplemented with excursions led by Spanish IEP director Silke Scholz related to science and technology such as PUCV's biotechnology research center (NBC) and to Geotecnica Ambiental, a geotechnical and environmental engineering company serving the Chilean mining industry. Areas of cultural and literary importance, e.g. Pablo Neruda's homes and the Fonck archeological museum were also

on the agenda. Furthermore, students had the chance to visit a local vineyard, enjoy a sand dune surfing lesson, go horseback riding on the beach, and participate in a practical workshop on preparing Chilean food.

Similar to the Germany and France J-term, these younger students in the International Engineering Program also met up with their more advanced peers who just finished their semester of studies at PUCV and were about to embark on their six-month internships in Chilean companies, e.g. at BASF, the world's leading chemical company, Núcleo Biotecnología Curauma' (NBC), the Puerto Ventanas, the largest bulk cargo port in the Quintero Bay area, and Geotecnica Ambiental. They served as important ambassadors for the tour, able to show off their significantly increased linguistic and cultural proficiency in Spanish/ in the Chilean way of life. As role models they could relate best to the younger SIEPers, advocate for Chile as a site of technology and culture and the site of choice for the younger students' up-coming year abroad. SIEPers can choose between study abroad options in Spain, Mexico and Chile, and it is a difficult undertaking to steer them away from the always preferred Spain and open their mind-sets towards Latin America.^{xiii}

Academics:

The Chile J-term students earned 1-4 URI Credits: 3 credits for *CVE 323: Sustainable Solutions for Developing Communities* – Using Paul Pollack's 2008 book *Out of Poverty* as a starting point for the discussion, it focused on creating awareness about the global challenges our society is facing and how to potentially solve them using appropriate and sustainable technologies. The course cut across many technical and non-technical disciplines.

In addition, students earned credit for *SPA 310: Field Workshop - Cultural visit to Spain or Hispanic America*. In this parallel course students explored the language and culture of Chile and a variety of important cultural products, practices and perspectives in Chile while also taking their Spanish language skills further. They completed a photo-journalistic blog, reacted to others' blog entries and created an audio-visual reflection piece. Learning outcomes included that students be able to identify important cultural products, practices and perspectives with which they have come into direct contact in and around the Valparaíso area, compare specific cultural products, practices and perspectives from Chile to those of their own culture and also to those of other Spanish-speaking cultures that they studied in the past and analyze how specific cultural products, practices and perspectives interrelate.

A 20 item Sojourn Readiness Assessment tool developed by Brent Jesiek from Purdue^{xiv} was administered before and after each tour to evaluate the students' general sense of preparedness for a sojourn abroad to which we added personal data like language class preparation before the trip and in-state/out-of-state ratio. Survey questions were ranked by respondents on a six-point Likert scale ranging from Strongly Agree (6pts.) to Strongly Disagree (1 pt.) Scores for questions #1, 5, 10, 12, 13, 14, and 15 were reverse calculated. The total scoring range was from 20-120. As the Chile SRA table #1 below shows, an increase from an average score of 92 before the sojourn to 98.7 after the trip was reached in overall preparedness. In more detail, the results showed considerable increases in some affective areas, e.g. for #1 (confidence in going abroad), #7 (ability to communicate in the country), in the knowledge area, e.g. #11 and #14 (adequate knowledge about host country and cultural differences) while we recorded a decrease in preparedness for questions #13 (worry about being away from family/friends) and #15 (fear to

have negative experiences). It was the only J-term group which showed that decrease in #15. #13 and # 14 were the lowest scoring questions. The Chile group achieved the highest increase in cultural knowledge compared to the other programs, however still scored the lowest for #14. Since language preparation is a huge part of the IEP, we were surprised to see that in response to #7 students who took beginning language classes below the 200 level were more confident in their abilities to communicate abroad after the trip than students above the 200 level. That may have to do with the fact that beginning foreign language learners see that they can perform basic proficiency functions like ordering food, asking for the way etc. effectively while intermediate/advanced learners see the limits of their skills more dramatically.

Since the in-state/out-of-state ratio at URI is approximately 60/40% we were also curious to see whether any one of the groups felt better prepared for a sojourn but the difference in average score proved to be minimal, see e.g. score for #13 in table 2. Since the IEP attracts a higher percentage of female students than the College of Engineering (25% as opposed to 17%) we also compared male/female scores and found a sizable difference in score for females (3.5) versus male (3.2) e.g. for # 13 shown in table 3.

Table 1 Chile SRA

Student	Spanish Class	In-state/ Out of state																					total score
			1. I am anxious about going abroad.	2. If I need help while abroad, I will know who to contact.	3. While abroad, I know how to keep in touch with my family.	4. I am prepared to go abroad.	5. I question if going abroad was a good decision.	6. I can deal with unexpected challenges while abroad.	7. I will be able to communicate effectively while abroad.	8. The benefits of going abroad outweigh the challenges.	9. I will make the most of my time spent abroad.	10. Thinking about going abroad makes me nervous.	11. I have adequate knowledge about the host country.	12. Adapting to the host country will be difficult for me.	13. I worry about being away from friends and family.	14. I wish I knew more about the culture of the host country.	15. I fear I will have negative experiences while abroad.	16. Going abroad helps support my professional development.	17. My experiences abroad will help me improve and grow as a person.	18. While abroad, I will be able to function effectively in most any situation.	19. I am ready to interact with my foreign peers, colleagues, partners, etc.	20. I have sound reasons for deciding to go abroad.	
S-1	SPA 325	Out	3	5	6	5	6	4	4	6	6	4	4	4	4	2	5	5	5	4	3	5	90
S-2	SPA 104	In	1	5	5	4	4	6	4	5	6	3	5	4	5	1	5	5	6	5	5	4	88
S-3	SPA 205	In	3	5	5	4	6	5	4	6	6	4	5	3	3	2	6	6	6	5	4	6	94
S-4	SPA 206	Out	4	6	5	5	2	5	3	4	6	4	2	3	5	2	4	4	4	3	4	4	79
S-5	SPA 325	Out	4	5	5	4	6	5	4	5	5	5	4	5	2	3	5	6	6	5	5	6	95
S-6	SPA 205	In	6	5	5	6	6	5	4	6	5	6	4	5	4	3	5	5	6	5	5	5	101
S-7	SPA 104	In	3	5	5	5	6	5	5	6	6	3	5	5	4	3	3	6	6	5	5	6	97
Avg scores			3.4	5.1	5.1	4.7	5.1	5.0	4.0	5.4	5.7	4.1	4.1	3.9	2.3	4.7	5.3	5.6	4.6	4.4	5.1	92	
S-1	SPA 325	Out	3	5	6	4	6	4	4	6	6	3	5	4	3	2	4	6	6	3	3	5	88
S-2	SPA 104	In	5	6	4	5	6	6	6	6	6	5	5	6	5	1	5	6	6	5	6	6	106
S-3	SPA 205	In	5	6	5	5	6	5	5	6	6	5	6	2	3	3	5	6	6	5	5	6	101
S-4	SPA 206	Out	5	6	6	6	1	5	4	4	6	4	4	3	5	4	5	4	4	4	4	4	88
S-5	SPA 325	Out	6	6	5	6	6	5	5	6	6	6	6	5	2	6	5	6	6	6	6	6	111
S-6	SPA 205	In	6	5	5	5	6	5	5	6	6	6	5	5	3	3	5	6	5	5	5	5	102
S-7	SPA 104	In	3	5	5	5	6	6	6	6	6	2	4	4	2	3	3	6	6	5	6	6	95
Avg scores			4.7	5.6	5.1	5.1	5.3	5.1	5	5.7	6	4.4	5	4.14	3.29	3.1	4.57	5.7	5.6	4.7	5	98.7	
Avg difference			1.3	0.4	0.0	0.4	0.1	0.1	1.0	0.3	0.3	0.3	0.9	0.0	-0.6	0.9	-0.1	0.4	0.0	0.1	0.6	0.3	6.7

13. I worry about being away from friends and family.				
In State	3.33			
Out of State	3.25			
Male	3.20			
Female	3.50			
7. I will be able to communicate effectively while abroad.				
Above 200	4.6			
Below 200	6			

Table #3 Chile SRA scores for questions #13 and #7 and individual groups

Summer program in **Guatemala:**

Another short-term engineering program in Latin America which prepares Spanish IEP students for the year-long stay abroad (and gives regular engineering students the chance to participate in a global activity to hone their technical, cultural and linguistic skills) is the Guatemala summer program which Vinka Oyanedel-Craver has organized for 5 years in a row for students engaged in the URI chapter of “Engineers for a Sustainable World.” 27 students have been going on this educational tour since summer 2009.^{xv}

The activity consists of a year-long preparation phase during which the research taking place on site in Guatemala is planned. During the year the students also perform different fundraising activities and assist their faculty advisor with grant writing to support the trip expenses including supplies and maintenance of equipment. Since their formation the faculty-ESW-students have raised more than \$80K from federal and private foundations as well as support from individuals.

Selection criteria for the team that will be going to Guatemala, are based on contributions to the students’ organizations, participation, as well as professional and personal skills. Spanish IEP students are highly valued amongst their ESW peers, because their language skills are essential for the educational activities that are simultaneously performed alongside the engineering work, and because they can uphold the dialogues with the communities from which they can learn and which they are serving. The selection is also made to promote peer-to-peer mentoring where students with previous travel experience to the community will mentor new students to the organization and also those in lower level classes.

For the past 5 years EWS-URI has been working with the Seeds of Wisdom School in San Mateo, in the highlands of Guatemala to design and construct the region’s first wastewater treatment system. Last summer (2014) the group finished the final construction phase of the design project. This year ESW-URI’s goal is to design and implement a water quality assessment laboratory in San Mateo, Guatemala. This facility will be the first in the whole region potentially providing services to several communities to ensure that their water quality is safe for consumption. The summer service learning program thus ideally complements the winter Chile J-term and is itself an excellent technical and cultural preparation for the senior capstone abroad.

J-Term *FRN 497: France Today: Science, Technology, Business, and Culture*, January 4 - 18, 2015

This faculty-led program was designed for students enrolled in the French branch of the IEP/IBP to give French IEP students a short-term immersion experience in the country in which they will spend their senior year. Course work was supplemented with cultural tours and excursions including the Louvre, the Musée des Arts et Métiers, the Château de Compiègne, Pierrefonds and other famous monuments. Company visits included Schneider Electric, petrochemical giant Total’s corporate headquarters, one of Total’s refineries, the corporate headquarters of Vinci Construction and a construction site of Vinci. Students also met up with their French IEP peers currently studying at UTC and discovered its laboratories.

Academics: To earn three credits for FRN 497, students had to:

- Write a journal/Blog/App
- prepare thoroughly for and create blog/journal follow-up on company site visits and a final report on the impact the trip had on them.
- Create a video highlighting their trip to France.

Students could alternatively earn credits for *LET 151 - Contemporary France* (3 credits), focusing on institutions, traditions and issues in France today by examining French identity and analyzing its foundation.

Sometimes students participating in faculty-led programs have the rare occasion to witness history in the making as had this group which happened to be in Compiègne, the location of our French IEP partner university Université de Technologie de Compiègne (UTC) during the January Charlie Hebdo terrorist attacks and the attack on a Jewish supermarket, and then had the opportunity to walk along with French natives during the rallies in solidarity with the victims and with the right to free speech.^{xvi} The mixture of first highly frightening news followed by elating group and solidarity experiences with the French may have contributed to the fact that the French group saw the smallest increases of the three J-term groups overall, but at the same time showed the highest number of increases for questions 1, 5,10, 15 (the questions related to the affective area – anxiety/questioning decision/nervousness/fear about going abroad) and for #18,19 (related to functioning effectively in the foreign environment and the ability to communicate with people in the host country.) Not surprisingly, the largest decrease in confidence was for question #2: who to contact if they need help abroad; other decreases in #3 and 6: keeping in touch with friends and family, and dealing with unexpected changes! As for all programs questions #13 and 14 have the lowest scores. The scores related to #7 (ability to communicate effectively) were high without a strong difference between beginning and intermediate/advanced learners.

F-1	FRN 102	In	3	6	5	5	5	4	5	6	6	3	4	5	5	4	5	6	6	6	6	6	101	Pre
F-2	FRN 204	Out	2	5	6	5	4	5	4	4	6	2	5	3	2	3	3	5	5	4	2	6	81	
F-3	FRN 309	In	2	5	5	4	2	5	4	5	5	2	5	4	2	3	3	5	5	4	3	5	78	
F-4	FRN 309	Out	6	5	5	5	5	5	4	5	5	5	4	5	3	3	4	5	5	4	4	5	92	
Avg scores			3.3	5.3	5.3	4.8	4.0	4.8	4.3	5.0	5.5	3.0	4.5	4.3	3.0	3.3	3.8	5.3	5.3	4.5	3.8	5.5	88	
F-1	FRN 102	In	2	5	5	5	6	6	5	6	6	4	5	5	5	4	5	6	6	6	6	6	104	Post
F-2	FRN 204	Out	5	6	6	6	6	2	3	6	6	5	5	5	4	4	6	6	6	6	5	6	104	
F-3	FRN 309	In	5	2	4	5	3	5	4	5	5	2	4	3	2	4	3	5	4	4	5	5	79	
F-4	FRN 309	Out	6	5	5	5	5	5	5	5	5	5	5	5	3	3	5	5	5	5	5	5	97	
Avg scores			4.5	4.5	5	5.3	5	4.5	4.3	5.5	5.5	4	4.8	4.5	3.5	3.8	4.8	5.5	5.3	5.3	5.3	5.5	96	
Avg difference			1.3	-0.8	-0.3	0.5	1.0	-0.3	0.0	0.5	0.0	1.0	0.3	0.3	0.5	0.5	1.0	0.3	0.0	0.8	1.5	0.0	8.0	

J-Term Ger 497: *Germany Today: Science, Technology & Culture*^{xvii} (Jan 2/6-18, 2015)

While the Chile J-term course combined a real engineering service learning component with technical and cultural explorations, and the France J-term concentrated on company and lab visits with some cultural explorations, the structure of the Germany J-term was different in that it featured an intense four day pre-departure course which served to prepare students in various ways for the up-coming travel component. The trip to Berlin, Hamburg, Braunschweig and Köln was similar to the French course in that students visited companies that could serve as future internship hosts (Daimler, Lufthansa Technik, DESY, the German Electro Synchrotron, IAV, an automotive supplier, VW, and Bayer), research institutes at TU Braunschweig where current German IEPers gave presentations about their institute research, and cultural highlights like visiting the German parliament, attending a German play in the Maxim Gorki theater, a model railway exhibit and a chocolate museum. The 15 students were accompanied by always two out of three faculty (Geithner/Rambur/Berka) and two student chaperones (a 5th year IEP and an IEP alum who had both studied in Germany). 1 credit was given for the pre-departure course; 1 for a video produced in small groups of 4) and 1 for blog entries related to companies, days of the trip and final statement.

G-1	GER 103	Out	2	5	5	4	5	4	5	5	6	1	5	3	2	3	4	6	6	5	5	5	86
G-2	GER 103	In	4	6	3	5	6	5	4	6	6	3	5	4	3	6	6	6	6	5	6	6	101
G-3	GER 103	Out	3	2	5	5	5	5	3	6	6	3	4	4	5	3	4	6	6	5	5	5	90
G-4	GER 305	In	5	4	6	5	6	5	5	5	5	5	5	6	5	5	5	5	5	5	5	5	102
G-5	GER 111	In	5	2	5	2	6	2	1	6	6	3	2	3	3	2	5	6	6	2	4	6	77
G-6	GER 103	In	4	5	5	5	5	5	5	6	6	4	5	4	5	5	6	5	5	5	5	6	101
G-7	GER 111	In	4	5	6	4	5	3	3	5	6	3	4	4	5	2	5	5	5	2	3	5	84
G-8	GER 205	In	2	5	6	3	5	3	4	5	5	3	3	3	5	3	4	5	5	3	2	5	79
G-9	GER 103	In	3	6	5	5	6	5	3	6	6	5	5	5	5	4	5	6	5	5	5	100	
G-10	GER 102	In	3	5	5	5	6	6	5	6	6	3	5	5	5	2	5	6	6	5	5	95	
G-11	GER 205	Out	2	5	4	4	5	4	4	5	5	5	4	4	3	2	4	6	5	4	5	85	
G-12	GER 111	In	2	3	5	3	4	4	4	5	5	2	4	4	3	3	3	5	6	5	4	6	80
Avg scores			3.3	4.4	5.0	4.2	5.3	4.3	3.8	5.5	5.7	3.3	4.3	4.0	4.1	3.3	4.7	5.6	5.5	4.3	4.5	5.3	90
G-1	GER 103	Out	2	5	5	5	5	5	4	6	6	3	5	3	3	4	5	6	5	4	5	5	91
G-2	GER 103	In	5	6	5	6	6	5	5	6	6	5	6	6	5	6	6	6	6	6	6	6	114
G-3	GER 103	Out	3	3	5	5	5	5	5	6	6	4	5	3	5	3	6	6	5	5	6	94	
G-4	GER 305	In	5	5	6	5	6	5	5	5	5	5	6	6	5	5	5	5	5	5	5	105	
G-5	GER 111	In	5	5	5	5	6	4	4	6	6	5	5	5	5	3	5	6	6	4	5	101	
G-6	GER 103	In	4	5	5	5	6	5	5	6	6	4	5	4	5	5	5	6	6	5	5	103	
G-7	GER 111	In	5	5	5	5	5	4	4	5	5	5	5	4	5	5	5	5	5	4	4	95	
G-8	GER 205	In	4	5	6	5	6	5	5	6	5	3	4	4	5	3	5	5	6	5	5	98	
G-9	GER 103	In	3	6	5	5	6	5	5	6	6	5	5	5	5	3	6	6	5	5	5	102	
G-10	GER 102	In	5	5	5	5	6	5	5	6	5	5	5	5	5	2	5	5	5	5	5	99	
G-11	GER 101	Out	1	6	6	6	5	6	6	6	6	5	4	5	5	5	4	5	5	5	6	102	
G-12	GER 101	In	3	5	5	5	5	5	4	5	5	3	5	4	5	5	5	5	5	5	5	94	
G-13	GER 103	In	1	5	6	6	6	3	3	6	6	1	4	3	5	2	5	6	6	3	4	2	83
Avg scores			3.5	5.1	5.3	5.2	5.6	4.8	4.6	5.8	5.6	4.1	4.9	4.4	4.9	3.9	5.0	5.5	5.5	4.7	4.9	5.2	98.5
Avg difference			0.3	0.7	0.3	1.1	0.3	0.5	0.8	0.3	-0.1	0.7	0.6	0.4	0.8	0.6	0.3	-0.1	0.0	0.4	0.4	-0.1	8.2
G-1	GER 103	Out	6	6	5	5	6	5	4	6	6	4	5	4	2	3	5	6	6	5	4	6	99
G-2	GER 103	In	6	5	6	6	6	5	5	6	6	6	6	6	5	6	6	6	6	4	5	6	113
G-3	GER 103	Out	4	3	5	5	5	5	5	6	6	4	5	5	3	4	4	6	6	5	5	6	97
G-4	GER 305	In	5	5	6	5	6	5	5	6	5	5	5	5	6	5	5	5	5	5	5	104	
G-5	GER 111	In	5	4	5	2	6	4	2	6	6	5	3	4	2	3	5	6	6	2	5	6	87
G-6	GER 103	In	5	5	5	5	6	5	5	5	6	4	5	5	5	4	5	5	5	5	5	100	
G-7	GER 111	In	5	5	5	5	6	3	3	5	5	5	5	4	4	3	4	5	5	2	3	5	87
G-8	GER 205	In	6	5	5	6	6	6	6	6	6	5	5	5	3	3	5	6	6	6	5	6	108
G-9	GER 103	In	4	6	5	5	6	5	5	6	6	5	6	5	4	4	6	6	6	5	5	6	106
G-10	GER 102	In	6	5	6	5	2	6	6	6	6	6	5	5	5	2	6	6	6	6	6	6	107
G-11	GER 101	Out	6	6	6	6	6	6	6	6	6	5	5	6	6	6	6	6	6	6	6	6	117
G-12	GER 103	In	6	6	6	6	6	6	4	6	6	1	6	4	1	4	6	6	6	3	5	4	97
G-13	GER 205	Out	5	5	5	4	6	5	4	6	6	3	4	4	3	2	3	6	6	4	5	6	92
G-14	GER 101	In	4	4	5	4	5	4	4	5	5	4	4	4	4	3	4	4	5	4	5	5	86
G-15	GER 111	In	5	6	6	4	6	5	5	6	6	2	6	5	1	5	1	6	6	6	6	6	99
Avg scores			5.2	5.0	5.4	4.9	5.6	4.9	4.6	5.8	5.8	4.5	4.9	4.7	3.8	3.7	5.0	5.6	5.7	4.4	4.9	5.6	100.0
Avg difference			1.7	-0.1	0.0	-0.3	0.0	0.2	0.0	0.0	0.2	0.4	0.0	0.3	-1.1	-0.2	0.0	0.1	0.3	-0.3	0.0	0.3	1.5

Avg Scores	90.82	100.2	99.81
Avg Difference	-	8.3	0.6
Range	77-102	91-114	86-117

<i>Based on answers from final survey</i>			
13. I worry about being away from friends and family.			
In State	3.64		
Out of State	3.50		
Male	3.50		
Female	3.71		
7. I will be able to communicate effectively while abroad.			
Above 200	5		
Below 200	4.5		

The surprising outcome of the SRA for the Germany group was that most of the confidence increases happened after the preparatory class, not after the trip abroad! It seems that “psyching up” by going abroad online, bonding in class ahead of the trip, preparing tailored vocabulary for the site visits and, of course, the thorough in-class preparation by Anett Geithner let to skyrocketing post pre-departure class scores (average of 100.2/120 from 90.82/120). When this highly excited group then actually landed on site and had to cope with the first cross-cultural differences,^{xviii} reality must have kicked in. As a result, after the trip, the only clear increase was in confidence about going abroad (#1). According to question #1, students felt less anxious about going abroad, but question #4 shows that they also felt less prepared. Question #13 (missing family/friends) had very interesting results. There was a considerable increase in confidence after the pre-departure course (when they still could go home and be in constant touch with family/friends) but a big decrease after the trip abroad, ending even lower than the original score. Perhaps they experienced for the first time what it meant to be away from their loved ones. Questions #13 and 14 were by far the lowest scoring answers. Females scored higher than males on #13 and FL beginners scored slightly higher than more advanced FL learners.

Conclusion:

The data presented above show that the three short-term two week faculty-led travel courses to Chile, France and Germany, which were designed to familiarize younger students in the International Engineering Program with the technology, (corporate) culture and language encountered abroad, served their purposes to prepare students for their senior year of combined studying and interning abroad. They got the three groups excited about their future more intense engagement with the people and culture of their host countries, preparing them affectively and in terms of knowledge about the foreign countries. Participants saw clear benefits and were overall more confident about “going abroad” and “interacting with peers, colleagues, partners in the host country” after the sojourn than before. Average France scores jumped from 88 to 96; Chile scores from 92 to 98.7 and Germany scores from 90 to 100. The data also show that students felt less confident about only one thing: leaving friends and family behind (#13), and that we could improve preparing them in terms of “knowledge about the host country” (#14). The summer service learning excursion to Guatemala represents another, longer and deeper engagement with the host culture and an important inter-mediate step on the way to “going it alone” in senior year.

ⁱ Institute of International Education (IIE) Open Doors Survey 2014 available at <http://www.iie.org/en/Research-and-Publications/Open-Doors>

ⁱⁱ The 2010-15 URI Academic Plan can be found at http://web.uri.edu/academic-planning/files/academic_plan_handbook.pdf

ⁱⁱⁱ For an overview of winter J-term courses, related marketing and cost structure, check out <http://web.uri.edu/jterm/>

^{iv} please see www.uri.edu/iep

^v For a short-term course design as a suitable tool to raise engineering student international awareness see also Schubert, Thomas F. Jr. and Jacobitz, Frank G. "Compact International Experiences: Expanding Student International Awareness Through Short-Term Study Abroad Courses With Substantial Engineering Technical Content," *Online Journal for Global Engineering Education*: Vol. 7: Iss. 1, Article1 (2013). Available at: <http://digitalcommons.uri.edu/ojgee/vol7/iss1/1>

^{vi} For the vision and concept of such integration, see Grandin, John and Berka, S. "Reforming Higher Education: The University of Rhode Island International Engineering Program." *ADFL Bulletin*, 43, no. 1 (Fall 2014): 23-44.

^{vii} Vogt, Christine M. "Faculty as Critical Juncture in Student Retention and Performance in Engineering Programs." *Journal of Engineering Education* (January 2008): 27-36, and Bernold, Leonard E., Spurlin, Joni E., Anson, Chris M. "Understanding our Students: A Longitudinal Study of Success and Failure in Engineering with Implications for Increased Retention." *Journal of Engineering Education* (July 2007): 263-74

^{viii} For a comprehensive overview and evaluation of various formats of engineering study abroad programs see Parkinson, Alan "Engineering Study Abroad Programs: Formats, Challenges, Best Practices," *Online Journal for Global Engineering Education*: Vol. 2: Iss. 2, Article 2 (2007). Available at: <http://digitalcommons.uri.edu/ojgee/vol2/iss2/2>

^{ix} See also Berka, Sigrid "Retaining engineering students through a January Term German Immersion Study Tour," *Global Business Languages: Partnerships and Alliances* Vol. 16 (2011): 59-67.

^x The Partners of the America's grant enabled URI to launch an IEP program in Chile, and the J-term to Chile represented one of the four activities sponsored through the grant: <http://www.uri.edu/news/releases/?id=6921>

^{xi} For a description of the 100,000 Strong in the Americas Initiative see <http://www.state.gov/100k/index.htm>

^{xii} Secretary of State John Kerry's announcement at the launch in Washington in January 2014 captures the strategic goals behind the initiatives: <http://web.uri.edu/iep/files/100000-Strong-Launch-1.17.14-APPROVED-FOR-RELEASE.pdf>

^{xiii} According to IIE's Open Doors Survey 2014 the UK, Italy, Spain, France and China are the top 5 study abroad destinations while percentage of students studying in Chile has decreased by 6%.

^{xiv} We used version 2 of the tool; for an effective use of the 3rd version of the tool and related score analysis by its creator, see Jesiek, Brent, Haller, Yating, Thompson, Julia "Advances in Engineering Education Developing Globally Competent Engineering Researchers: Outcomes-Based instructional and Assessment Strategies from the IREE 2010 China Research Abroad Program," *Advances in Engineering Education* Vol. 4 No. 1 WINTER 2014, pp. 1-31., especially pp. 15-16, available at <http://advances.asee.org/wp-content/uploads/vol04/issue01/papers/AEE-13-Jesiek-cor2.pdf>

^{xv} *Innovations*, volume 2, issue 3, summer 2012 pp. 4-5 available at <http://egr.uri.edu/water-ensuring-access-to-the-most-basic-human-right/>

^{xvi} A press release on the URI website captures the strong emotions of the Parisians and our students in their midst, available at <http://www.uri.edu/news/index.php?today=2015-02-10>

^{xvii} The Studienreise Blog created by DAAD Lecturer at URI Anett Geithner and the students, served as an archive to document the concept, sponsor and participant information on all sites visited as well as the students' reflections on individual cities and companies or research labs, available at <https://uristudienreise2015.wordpress.com/>

^{xviii} The shock about having to pay for public toilets, no carbonated water, distances to travel on foot and by public transportation, sporadic internet availability etc. was obvious from some of the comments in the daily blog entries or final statements in our [Studienreise Blog](#).