
AC 2011-2407: COLLECTIVE REVIEW AND ASSESSMENT OF THE INTERNATIONAL EXPERIENCE: RISING SOPHOMORE ABROAD PROGRAM

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Abstract

Developing global leadership in engineering is dependent upon getting students involved in international leadership experiences early in their college career. The Rising Sophomore Abroad Program (RSAP) was implemented at Virginia Tech's College of Engineering to provide a global experience and leadership program for engineering students in their first year with the intention of preparing them for an extended experience, whether it is an internship, study, or faculty lead program abroad. This paper describes some of the ways in which leadership skills and global awareness are developed in this course.

Introduction

The Rising Sophomore Abroad Program (RSAP) was implemented at Virginia Tech's college of engineering to provide a global experience and leadership program for engineering students in their first year with the intention of preparing them for an extended experience, whether it is an internship, study, or faculty lead program abroad. The program has two-parts: an instructor led course and a travel abroad experience. All students are enrolled in a special study class entitled "Global Engineering Practice: Leadership and Culture" This semester-long course facilitates the exchange of knowledge about the topics of global culture, leadership, social and economic aspects of practicing engineering abroad, historical and international aspects of technology, and general international awareness. The culmination of the class is an instructor-led two week travel abroad experience that includes industry visits, university visits, cultural explorations and even some fun. Travel portion costs of RSAP are covered mostly by fees charged to the participating students. Scholarships are provided as needed by funds from the college of engineering dean's office budget and some industry sponsorship.

The multiple goals of the RSAP program include: spark interest in future international experiences such as an internship or studying abroad for a semester; expose engineering students to different cultures and customs in the workplace, school and daily life; attract and retain women by providing interesting social, cultural and art related experiences all connected to engineering and technology; attract culturally disadvantaged students (such as low income minorities), raise them up and level the playing field for them; and broaden the student engineers' horizons to better prepare them as leaders in the global workplace.

The formal goals of the course include the following statements.

Having successfully completed this course, the student will be able to:

- Demonstrate leadership qualities valued in global engineering practice and cultural/professional relationships
- Describe historical linkages and intellectual intersections between advances in art, culture and technical innovation.
- Interact with international colleagues and establish professional contacts with industry/university partners abroad.
- Form and communicate an objective analysis of the design process in a global context in order to enhance usability, influence perception, and increase appeal relative to cultural standards.

At the conclusion of the RSAP travel abroad experience, students will be able to:

- identify and announce properly five basic phrases in the native language of the country visited
- demonstrate an ability to plan, execute, and lead three critical aspects of a study abroad visit
- evaluate their experiences in the study abroad program for improvement in key areas of leadership, communication and cultural awareness.

The focus of this paper is on the steps taken in our effort to engage the students in becoming global leaders and practicing global engineers, as well as our attempts to teach general leadership skills both in the classroom and while traveling abroad. During the four years that the Rising Sophomore Abroad Program has been run, we have collected much empirical data showing students learn leadership by leading. We will discuss our teaching strategies, what was successful, what didn't work and how these strategies translated from the classroom to implementation in the field.

Background

The core goal of RSAP is to mold leaders—not just leaders but global leaders. Leadership is a very complex behavior, its definition and derivation much debated over centuries. According to Bass¹, a number of characteristics or traits distinguish leaders from non-leaders: intelligence, dominance, adaptability, persistence, integrity, socioeconomic status, to name just a few. Bass is one of many who espouse the *trait theory of leadership*.

Others disagree, saying leadership is more complex and situational. Criticism of the trait theory of leadership by Zaccaro² among others, noted that trait theory still:

1. Focuses on a small set of individual attributes such as the Big Five personality traits, to the neglect of cognitive abilities, motives, values, social skills, expertise, and problem-solving skills
2. Fails to consider patterns or integrations of multiple attributes

3. Does not distinguish between those leader attributes that are generally not malleable over time and those that are shaped by, and bound to, situational influences
4. Does not consider how stable leader attributes account for the behavioral diversity necessary for effective leadership

Still other theorists hypothesize that leadership is a genetic trait. There has been some conjecture in the literature by Mintzberg that leadership cannot be taught.³

Additionally, in defining a *global leader* vs. a *leader*, in addition to standard leadership skills, the global leader must also lead, communicate, motivate and engage across barriers of language, culture, time zones, national pride, varied mission, and communication technology. Due to diversity and cultural differences, the leadership style that works in one country may fail in another. Global leadership, while desired, is more difficult to execute by an individual and is subsequently challenging to teach, especially in the classroom. Thus if there is any chance of succeeding in imparting the necessary skills in individuals, it must be done in the field, i.e., while immersed in a different culture, language, etc. Our scheme then, is to perform generalized leadership training experiences and studies in a classroom environment and then provide opportunities to implement what is learned in the classroom in the immersion situation. This is much like the typical engineering curriculum where students first learn of engineering or science principles in the classroom and subsequently practice the theory in the laboratory. Importantly, our scheme also includes mechanisms to measure how successful the classroom experiences have translated into the immersed environment.

Classroom Training for Leadership

We have observed that leadership is not easy to teach but rather that students can be molded through leadership experiences. Leadership, in other words, can be developed. To that end, we had experts on leadership/management lecture in class. We assigned the students scholarly readings on leadership. We implemented leadership development activities. The activities we designed were meant to help them to identify their personal strengths and weaknesses as well as strengths and weaknesses in others, communicate better, be adaptive, and open to new experiences.

Leadership experts came from across campus, the College of Engineering administration, from the Business College, from the university administration, and from the Sociology department. We also drew practicing international experts on global business from among our alumni to speak to the students. Some of the practicing experts helped us to locate international industry visits and some even accompanied us on parts of our international travel experience. Each emphasized a slightly different aspect of leadership. They told us their personal history of success and how they developed their skills. Most importantly their presence and their lectures helped to supply the emphasis on how essential it is to strive to acquire global leadership skills.

Lecture by current leaders and experts on leadership were meant to lay the groundwork for students to build their own leadership skills. While individuals may evolve a competence for leadership without receiving any formal training or framework, we feel that classroom lecture discussions and exercises help to speed the students' skill development process and help to keep

them from repeating mistakes made by those who have come before. Importantly, with this more formal background students can quickly discern good leadership practices from bad. Anecdotally we also observe that the minimal exposure to the formal study of leadership that we are able to give the students in this course leads many of them to take more extensive course on leadership in their later years of schooling.

In addition to the lectures, we assigned team projects as a method by which to actively develop leadership and collaborative skills. In addition to developing the characteristics enumerated above, group work helps cultivate leadership skills by making it expedient to identify and utilize the strengths of the team members—a key attribute of a leader.

The first team project given the students in the classroom is to research the places (including the towns, cultural sites, prices, currency, the industries to be visited and the entertaining opportunities) they will be visiting while overseas. This assignment has two benefits: it educates them about where they will be going and utilizes teamwork as a vehicle for developing leadership skill. Additionally, the assignment requires them to present their work to the classroom as a group. Again, group skills are reinforced, but also since these are freshmen, this is one of the first times that they are required to communicate in front of a group of their peers. Additionally, many studies have shown that working in groups helps build leadership skills. Below are examples of the destination assignment as well as the industry visit assignments:

RSAP 2010—Destination Presentations

Your group will be the local experts for the locale you have been assigned. Use all the resources at your disposal to give the class a real taste of the place and sufficient background so that they will be functional visitors. It is your job to sell the destination: persuade the class that they must go there! At the barest of minimums, please include in your presentation:

1. Information about the country and town: maps (local and regional), language, population, currency, short history, culture notable landmarks, train/bus schedules.
2. Places to visit:
 - a. Must sees—include information like when are they closed, how much is the entrance fee, how hard is it to get to, what is of significance, what can be skipped.
 - b. Unusual attractions or facts (related to engineering, if possible), perhaps the historical perspective or how this site or its people played in to advancing science or engineering.

Each group will have approximately 15 minutes for their presentation.

RSAP 2010 – Industry Presentations

During the travel portion of the class, you will have the opportunity to visit and tour three different companies:

1. ABB Group - Heidelberg, Germany
2. Audi - Ingolstadt, Germany
3. Alstom Transportation - Paris, France

Our visits may include presentations by employees of the company, as well as facility tours. Visits will last approximately a half day. Students will have an opportunity to ask questions throughout the visit and it is important that you do ask questions to show an interest in what you are seeing as well as to get a better understanding of the corporate culture at this facility. In order to ask educated questions, you must be familiar with the company prior to the visit. Therefore, for your assigned industry presentation, please research and present on the following:

1. Mission and vision of the company
2. History/general overview
3. Important facts and/or recent news (include any awards that the company has won)
- 4.
5. Size of the company, market sectors and products/services offered
6. Locations
7. Key employees (President, CEO, etc.)
8. Information about the business/working environment
9. Possible career opportunities, as well as internship opportunities
10. Interesting technology, products or projects the company is working on
11. If possible, identify commonalities between courses that are taught at our home institution and the engineering that must go into producing the products made at the visited industrial site.

Essentially, you need to become an “expert” about the company in order to educate your fellow classmates. Please include any other information that you feel is important.

Each group will have approximately 15 minutes for their presentation.

The student presentations were well-done. Their talks included many maps, statistics, and overall a general enthusiasm for the places and industries to be visited. While standing in the classroom of our university, we thought this activity quite successful. The students also passed the test of having someone who taught in the English department observe their communication skills and subsequently remark on how thorough, well-written, and well-spoken the presentations turned out. Students observed that these destination and industrial presentations, done as team projects, were beneficial to them for a number of reasons: working as a team helps the students learn their strengths and weaknesses, hone their communication skill, practice collaboration, and generally get to know the other members of the class with whom they will spend the travel abroad portion of the class.

These examples were but two of the exercises used to develop leadership skills and provide the background experience necessary for a successful immersion. Details of other exercises are described <http://www.eng.vt.edu/international>

In the Field Leadership Experiences

Once we were abroad, it became quite clear that not all the leadership exercises done in the classroom were totally successful. There was no investiture on the students' part for some individuals. Once we were abroad, they seemed to have no memory of the vast amounts of information presented in the course. For example, in class we do a language segment to make sure that everyone knows the barest of phrases so they can say hello and thank you while abroad. The students apparently did not pay attention for this exercise. They seemed embarrassed to be asked to repeat simple phrases aloud. There was no engagement. They did the usual student thing: am I going to be graded on it? No? Never mind. The classroom presentations about the places we were to see seemed to have been forgotten by some. Our preparation, done in a void, was rather meaningless. With no practical application, they saw no use for the information.

Then reality hits them as they attempt to navigate in another country: they can't read the signs; they can't ask a simple question; they become irritated when someone invades their personal space as is done so often outside the U.S.; they panic when an unfamiliar type of breakfast is served to them. Suddenly, they are ready to learn.

From the failure of the in-class portion of our course to produce long-lasting results, and observing behaviors of the first year participants while on-travel, we determined that for the second class offering there needed to be concrete enhancement of the student leadership skills, especially while in the travel portion of our course. Subsequently, we began exercises to highlight some cultural differences -- to encourage them to interact with the local people and rewarded them for outgoing behavior.

The first team project implemented to improve these skills was a photo scavenger hunt. Each group was given a list of local landmarks and random places (like the post office) which they had to find and appear in a picture in front of the location. They had to ask someone local person to take the picture for them because everyone in the student group had to be in the photos. A sample of some of the scavenger hunt entries are:

- Find the 100 year old **Witch's Tower**—look scared in the photo
- Find the **Lion Fountain**—act like you are having a drink from it in the photo
- Find a **Post Office**—pose doing a cheerleading stunt in the photo

The makeup of the scavenger hunt had the students interact with the local people. The group had to communicate with the local person, not only to get them to take their photo, but also to inform them why they were doing such seemingly crazy behavior. They were forced to learn some local landmarks and customs. The students had to work together to accomplish their goal. Each group prepared a slide show to present to the rest of the class and based on student voting a prize for the best picture presentation was awarded. This scavenger hunt was thoroughly

enjoyed by the students. They learned a lot about themselves, others in their group and all the members of the group as a whole. They met locals, learned how to interact with them, and got a bit of an understanding of the cultural mores of the region as they tried to explain why they were there and what they were doing. Most of all they learned about teamwork and they practiced leadership. Additional proof of the impact of this exercise is the fact that it is generally the most talked about experience not only on the long airplane ride home, but also in subsequent annual re-unions of the RSAP participants.

To further accomplish our goal of honing their leadership skills, we assigned them to work in teams (as usual!) to be the actual planner and arrangement-maker for one day of the trip. Each group was responsible for planning all activities. Factors they needed to consider: was the outing feasible, cost-and time-wise; would the students in the group be open to the experience; what learning would take place. The chaperones stepped back and let the students figure out the details such as what train to catch, where it leaves from and how to get to the station; how much will the train cost, what time the group has to leave to get to the train, and why we might want to go there, etc. This was no chalkboard exercise. Some serious learning took place as they learned to lead. They had to prepare: research times, talk to the desk clerk or railway agent, ask people on the street for information and directions. They had to communicate with the members of their group and make sure that everyone in the entire group was aware of the plan. They had to be flexible and adjust their agenda based on incidents and accidents. They had to be conscientious. They had to execute their plans and actually get the group to and from the activity. These are all the traits that the literature says make a leader. If the group leaders for the day fail in any part of their leadership role (such as communication or organization), the rest of the group would let them know their shortcomings. Yes, they did learn a lot from this task. Not only could they lead better after their first experience, but they also became better group participants once they knew how difficult it is to lead a group of 25 people in an unfamiliar setting.

One of the beneficial side effects of the leader for day exercise was a whole different attitude toward traveling in unfamiliar territory. The students were much more observant, patient and interested in their surroundings. In other words, they were engaged and learning to be leaders.

Conclusions

The overall experience and effects of the RSAP program were measured in several ways. First, students were surveyed before the start of the classroom portion of the course and their attitudes, experiences, and ambitions were recorded as a baseline. After the travel, the assessment was repeated and compared to the baseline to identify changes. Additionally, the impressions held by the chaperones and course instructors were recorded to identify changes in student behavior and attitudes. Finally, the students are being monitored to record their subsequent international experiences and find out whether or not they have followed up on the course by engaging in a more extensive international experience. This paper has reviewed one aspect of the program dealing with an attempt to impart leadership skills during the program.

We have taken several steps in our attempt mold the students into global leaders, both in the classroom and while traveling abroad. We find that students learn leadership by leading and that this program offers them the opportunity of practicing leadership skills in both classroom exercises as well as in field experiences.

References

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