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## Service Learning Across Disciplines and Countries

M. Meral Anitsal

*Tennessee Tech University*, manitsal@tntech.edu

Ismet Anitsal

*Tennessee Tech University*, ianitsal@tntech.edu

Bonita Barger

*Tennessee Tech University*, bbarger@tntech.edu

Ismail Fidan

*Tennessee Tech University*, ifidan@tntech.edu

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# Service Learning Across Disciplines and Countries

M. Meral Anitsal, Tennessee Tech University

manitsal@tntech.edu

Ismet Anitsal, Tennessee Tech University

ianitsal@tntech.edu

Bonita Barger, Tennessee Tech University

bbarger@tntech.edu

Ismail Fidan, Tennessee Tech University

ifidan@tntech

**Abstract** - Moving local civic engagement across national borders has evolved into the concept of International Service Learning, which combines academic study, civic involvement and cultural emersion to give students a deeper, more meaningful global experience. A team of four faculty members from engineering, management and marketing disciplines designed an International Service Learning course (ISL) for a multi-disciplinary learning environment to enhance teamwork, critical thinking and real-world problem-solving capabilities of students in a global market involving the U.S.A. and Turkey. Students and their counterparts innovatively identified a defined business need in Manisa, Turkey, and then engaged in a grassroots civic intervention in the African-American community of Free Hill, Tennessee, U.S.A. The faculty selected four traditional Turkish products unknown in the U.S. market: *Mesir* paste, an herbal candy; *Leblebi*, a roasted/coated chick pea snack; Turkish olive oil; and iced Turkish coffee. This paper's objective is to share the learning experiences resulting from this multi-faceted course.

**Keywords** – critical thinking, international service learning, multi-disciplinary learning, real-world problem-solving, teamwork.

**Relevance to Marketing Educators, Researchers and/or Practitioners** – Integrative approach in higher education is gaining momentum as more colleges and universities attempt to teach business and engineering student teams on project based courses. This paper helps educators plan and execute a course design on new product development as well as service learning to enhance student experience.

## Introduction

Critical thinking and knowledge application are a college education's capstone elements and intended outcomes. While history has recorded multiple venues and environments for learning, the pressures of globalization and industry demand a diverse labor force.

The classic platforms for gaining experience and bridging theory and practice within the academic disciplines have been co-ops, service learning, internships, and practicums. On land or at sea, study-abroad programs or one-to-two week immersion courses offered during the summer or breaks afford students exposure to international cultures and languages. While Universities often feature such programs in their recruitment literature, the research focuses on the learning outcomes and assessment or program design, (Brecht & Robinson, 1993; Vande Berg, Balkum, Scheid, & Whalen, 2004; Coryell, J. E. 2013,).

These venues remain marginal and questionable in many academic circles as a means of enhancing critical thinking, publications, such as Eyler and Giles' (1999) *Where's the Learning in Service-Learning?*, bring validity to the process of civic engagement as a means of cognitive development, problem solving, and learning transfer. In addition, service learning has received increased exposure through the *Michigan Journal of Community Service Learning* and the American Association for Higher Education's eighteen-volume series on service learning in many disciplines. Moving local civic engagement across national borders has evolved into the concept of International Service Learning, which combines academic study, civic involvement and cultural immersion to give students a deeper, more meaningful study- abroad experience. Bringle, Hatcher, Jones, and Sutton (2007) define International Service Learning as

...a structured academic experience in another country in which students (a) participate in an organized service activity that addresses identified community needs; (b) learn from direct interaction and cross-cultural dialogue with others; and (c) reflect on the experience in such a way as to gain a deeper understanding of global and intercultural issues, a broader appreciation of the host country and the discipline, and an enhanced sense of their own responsibilities as citizens, locally and globally.

A team of four faculty members from marketing, management, and engineering designed an International Service Learning course for a multi-disciplinary learning environment to enhance students' critical thinking and real-world problem-solving capabilities in a global market. This course was supported financially by Tennessee Tech University, U.S.A. and Celal Bayar University, Turkey. This paper's objective is to share learning experiences resulting from this multi-faceted course.

College of Business and Civic Engagement

According to a recent article in *The Economist* (Anonymous 2011), business education is not considered rigorous enough, and students are not learning useful skills. The author noted that employers are avoiding hiring business graduates and

that in a service-oriented economy, applied experience would better serve students than just a business degree. As noted in the article, employers and academia are questioning business schools' traditional teaching methodology.

As a result, business schools are looking for ways to enhance higher education. Indeed, Nohria (2012) announced a new Harvard MBA program named "Field Immersion Experiences," which focuses on giving students real-world experience, including product-development workshops. As of January 2012, this Harvard MBA program was planning to send students to developing markets abroad to work with multinational or local companies to develop new products and services. The course designers are hoping to enhance management pedagogy and students' learning experiences.

As marketing, management and engineering faculty members, we chose to move students out of their traditional "disciplinary silos of study" into a multi-disciplinary course with a national context. The course also incorporated a service learning component with student and faculty exchanges across industries, countries and cities. As a result, this International Service Learning (ISL) course required students to work in multidisciplinary and multinational teams first to assist a developing country's local entrepreneurs in understanding the U.S. market and then to help the African-American community of Free Hill to renovate/enhance a one-room historic school in Tennessee.

While increasing shareholder value and making a profit are any business college's mantras, altruism and making a difference strongly motivate the millennial generation. The students enthusiastically embraced this project, further reinforcing the research that this generation is open and receptive to altruistic projects characterization suggests: "Millennials, compared to Generation X and prior to that, vote at a rate higher than other generations at their age," says David Smith of the non-profit National Conference on Citizenship. He adds that they volunteer at higher rates than previous generations, too. "Civic trends have always risen with age. This generation is now emerging as being much more involved at a much younger age", he says. ([http://www.usatoday.com/news/education/2010-02-24-millennials24\\_ST\\_N.htm](http://www.usatoday.com/news/education/2010-02-24-millennials24_ST_N.htm))

## History of the Project

This course served as the second offering in a sequence of multi-disciplinary courses moving service learning from a local to global focus. The first course in the sequence was HON 4013- Honors Colloquium: Innovative Green Product Development, co-taught by the co-authors of this paper and a math professor in Spring 2009. The course was sponsored by the Honors Council at Tennessee Tech University and supported by a Quality Enhancement Plan (QEP) grant for Teaching/ Learning Enhancement 2008-2009 funding, entitled "Emerging Green Technologies" with Habitat for Humanity in Cookeville, Tennessee. The course success prompted the creation of this project which incorporated concepts from social entrepreneurship.

The conceptual framework for the integrated ISL course was Dym, Agogino, Eris, Frey, and Leifer (2005) argued that engineering design thinking, is complex, hard to learn and even harder to teach. The most favored model of teaching

incorporates project based approach. Froyd and Ohland (2005) stated that there was an increasing emphasis on interdisciplinary research and education in engineering that requires researchers and learners to build links between distinct disciplines. Projects with research questions embracing both business and engineering aspects are important for the integration as they push students out of comfort zones. As student involvement is an essential component of meaningful learning, educators encourage both engineering and business faculty to incorporate service learning into in-classroom and out-of-classroom activities (Smith, Sheppard, Johnson, and Johnson 2005).

This course was patterned after the TV reality show “The Apprentice,” but no one was “fired.” First, the students were placed into teams containing at least one major from each discipline. Second, the teams were given the task of inventing/designing a new package for a global product and creating a marketing plan. The instructors’ task was to teach students how to manage a team and where to find necessary resources for research and development as well as to keep them on task.

## **Implementation of the Project**

Such an extensive project required lengthy preparations. President of Celal Bayar University, Mehmet Pakdemirli, Ph.D. visited Tennessee Tech University (TTU) in March 2011 and signed a memorandum of understanding between TTU and Celal Bayar University (CBU) in support of the initiative. Small business owners and four Turkish products relevant to the geographic area were identified in Manisa, Turkey. In the Fall semester of 2011, TTU students were recruited for the three credit-hour International Service Learning course. In the Spring 2012 semester, students attended cross-disciplinary, team-based course sessions reviewing various topics, including cultural awareness, Turkish culture, and marketing, management and engineering. In May 2012, 20 TTU students along with their four academic faculty advisors/professors spent 20 days in Turkey at CBU implementing the collaborative goals established between the faculty and local organizations. In June 2012, three Turkish faculty and five Turkish students arrived at TTU in Cookeville, Tennessee, to implement the extension-of-service learning project.

### *Scope*

Twenty business and engineering students, including two honor students and three MBA students, registered for this International Service Learning course. To satisfy students’ academic needs, the course was cross listed as six special-topics courses: BMGT 4900/6900, MKT 4900/6900, and ENGR 3953/HON ENGR 3953. Two marketing professors, one management professor and one engineering professor taught this uniquely designed International Service Learning course. One marketing professor holds a B.S. in Chemical Engineering and the other a B.S. in Petroleum Engineering; both hold a Ph.D. in Marketing. The management professor holds a Ph.D. in Human Resource Management. The manufacturing professor holds a Ph.D. in Mechanical Engineering.

## *The Course*

The course was announced to students in Fall semester of 2011 as a hands-on, Quality Enhancement Plan (QEP)-focused, project-based, interdisciplinary course covering broad engineering and business topics in marketing, management and manufacturing regarding new product launching and package designing. The course started face-to-face in Spring 2012 with a twenty-day study-abroad component at Celal Bayar University, Turkey. Tennessee Tech University and Celal Bayar University covered all course expenses, including international travel; therefore, students paid only \$750, in addition to the course-registration fee, which was collected before the travel abroad. The course's total budget was more than \$100,000.

As outlined in the syllabus, this was a full cross-disciplinary, university-wide thematic course in which undergraduate and graduate students could be more than interns while doing regular course work. It was open to Engineering, Business and honor students from any discipline at TTU. The deliverables and time schedule were challenging and required full commitment.

Moreover, American students and their Turkish counterparts innovatively approached a defined business need at the local level in Manisa, Turkey, and then engaged in grassroots civic interventions in the African-American community of Free Hill, Tennessee, U.S.A. Students in this course worked in diverse teams comprised of business and engineering students in three different areas as described below:

In marketing, students researched consumers regarding the appeal of Turkish products in the US. Market, then they designed a product's packaging alternatives and developed a global product-launch program. Specifically, they performed a market-opportunity analysis based on macro-environmental forces, supply chain, distribution alternatives, competitors and end users. They also evaluated the alternatives' economic feasibility. Finally, they suggested a launch strategy and tactics with a package design and nutritional label in mind.

In manufacturing, they worked on mock-up or fabrication for real-life practical solutions of the ideas on technical components of product package design. They studied the cost factors involved and the constraints related to process, material, and dimensions. They searched for alternative processes/materials analysis production costs lean and additive manufacturing design for manufacturing process simulation. They also worked with international food engineering counterparts to ensure all requirements of the Food and Drug Administration (FDA) were met and exceeded. In management, they developed and enhanced team-management, leadership and communication skills to successfully complete the complex multidisciplinary project simulating real-world business problems. They mastered time, interpersonal-communication, and project-management skills. Finally, they developed persuasion and presentation skills.

## *Team Projects*

Considering the tight time schedule of a semester-long course, a full-scale new product development cycle was not feasible. To ease time pressure on students and to ensure

that teams would have presentable work at the end of the semester, faculty selected four traditional Turkish products unknown in the US market with the help of CBU Food Engineering faculty. These products (except iced Turkish coffee) are locally produced small-medium size, mostly family owned establishments. Application of recent marketing and management knowledge and packaging technologies would help them to be able to compete globally.

- *Mesir paste*, an herbal candy. This product originated in Manisa with health benefits known since the Ottoman Empire and enjoyed in Turkey.
- *Leblebi*, a roasted/coated chick pea snack. This product has been well known in Turkey for generations. One of the major manufacturing cities of Leblebi is located close to Manisa.
- Turkish extra virgin olive oil. Manisa is one of the major producer cities of Turkish olive oil. Even though olive oil exists in the U.S., due to strong presence of Italian brands, Turkish olive oil is not common in the U.S. market. After initial product tastings, students decided to develop and introduce herb-infused extra- virgin olive oil and olive paste.
- Iced Turkish coffee. This product was suggested by an American businessman working with Turkish companies. The coffee team developed f iced coffee with a robust Turkish coffee taste.

### *Teams*

Each team consisted of five students (about 2 undergraduate engineering, 2 business and 1 graduate student) and a faculty member. Faculty identified the first team member. Then, students used a sports team formation approach to form their teams from a pool of classmates. Team formation activity started with faculty selecting one engineering student for each team to ensure equal representation of engineering talent. Those students acted as team captains for the first task and selected their business partners from the pool. Next, two team members came together and selected their third member. This process continued until teams have 5 members from each talent area. The first team to pick a member became the last team to pick the next member. Once teams were formed, project topics were distributed with lottery. Later, teams assigned team captains based on talent at different stages of their progress. The Myers-Briggs Type Indicator was used to identify team members' strengths and weaknesses. Students distributed work assignments within the teams based the Myers-Briggs findings.

Each team's task was to develop a marketing strategy promoting Turkish products to the US market. To do so , they determined consumer reactions to and preferences for products, design and prototype packaging as well as selected material

and designed labels; cases; and in the case of the coffee project, a whole new product. They also developed a business plan, including financial outlook and advertising materials, to introduce the product to the US marketplace.

### *Course Delivery and Active Learning Approaches*

The course was designed as a problem and inquiry based learning approach. There was no adopted course book, but students were given a list of reading materials and books that were needed at different stages of product design topics ranging from team, time management, to new product development. Guest speakers from industry were invited at relevant stages of the project. Each faculty mentored one team. At the same time all faculty gave mini lectures on their expertise areas to all teams throughout the spring semester. Students also kept project journals summarizing major tasks, deliverables, and findings. These journals provided an infrastructure for reflection essays at the end of the course. Faculty did bi-weekly progress checks via in class discussions and teleconferences.

Teams were to meet pre-assigned deadlines regarding proposal preparation, data collection from secondary sources, market opportunity analysis, US consumer preference research, and feasibility study of alternative packaging materials. Project proposals were assessed based on measurability, feasibility, profitability and overall fit to the lifestyles and expectations of US customers and other stakeholders. This feedback was given before the travel abroad stage of the course.

Students learned marketing, management and manufacturing concepts during the Spring 2012 International Service Learning course. Classes were held twice a week. During the semester, students started working on the assigned tasks. Two food-engineering students and a faculty member from Celal Bayar University have also supported the project deliverables. This hybrid course was offered through the Desire-to-Learn (D2L) electronic course-management system, enabling members of both universities to access course materials, discussion boards, emails and assessment links. To gather more information about Turkish products from U.S. consumers, one beta testing avenue was organized during Tennessee Tech University's Windows of the World (WOW) Festival. Samples were purchased from Turkish sources and distributed. Qualitative and quantitative data were collected from festival visitors.

The course had a required two-and-a-half week hands-on, on-site component at Celal Bayar University in Manisa, Turkey. Student teams traveled from May 14 to June 2 in Turkey, where they had the opportunity of experiencing the culture, market, product, production and specific details. In Manisa, teams conducted on-site visits and investigated production and cost structures. These visits gave students opportunities to meet small business owners, who had very limited access to international markets; and understand their work environments. Providing information on how to enter international markets, understanding rules and regulations, consumer profiles and how to compete in such an environment were extremely valuable for these businesses. Communications initiated with these visits were later supported further with full project presentations. These interactions were the first half of the international service learning component of this course.

Other activities for students in Manisa were working in food technology laboratories of the CBU to finalize packaging material alternative selections by testing materials, shelf life, and suitability to FDA labeling requirements together with their CBU counterparts. The teams compiled their work into a final report and presented it to four faculty members, a group of external judges composed of CBU faculty and external audience of small business owners, students and local press. Although students worked throughout the week days, special sight-seeing activities were designed for them during weekends. These activities helped them to immerse themselves into local culture.

The second stage of the endeavor involved Turkish faculty and students working together with their American counterparts on a civic engagement, service learning project in the African America community of Free Hill in Tennessee (Free Hill Community 2012). The goal was to add value to and “make a difference” in the ongoing project. CBU students and faculty who actively participated in the first component of the ISL course visited US in June. An objective of their visit was to expose Turkish students to local community and build goodwill among them and US students.

In one-day work session, the local black community, minority students worked together with their Celal Bayar and Tennessee Tech University counterparts to landscape the surroundings and clean the restoration site of a historically important building. Over 35 individuals representing various countries, religions, national origins, occupations, and races converged in this common effort. The initiative captured the White House Interfaith initiative’s attention and was presented in Washington DC later (White House 2012). The two-phase initiative’s timing is noteworthy as the counterpart relationship was formed in May 2012 in Turkey and strengthened by this common endeavor in June 2012 in the U.S.

### *Method of Assessment*

Faculty assessed student performance based on multiple individual and team measures. The first measure was the project proposal in which students identified detailed questions that they answered in their final project reports. The second measurement was an oral presentation for judges from both universities and a local audience. The third measurement was the final written report, averaging 35-40 pages, which included details of their finished work. The last measurement item was an individual reflection paper in which each student reflected on his/her experiences and evaluated themselves, team members, and other course mates.

Students also evaluated the course based on pre- and post- surveys that the QEP Director provided. The surveys included questions modeled on several items from the National Survey of Student Engagement (NSSE) that relate to critical thinking, real-world problem solving, service learning and service to the community.

## **Evaluation of the Project**

In the pre-test, ISL students were asked to describe their progress on various objectives

in a typical class setting. On the post-test they were asked about their progress on those objectives in the current ISL class. Although all 20 students have completed the pre-test, the number of the students completing the post-test was only fourteen due to graduation and summer travel, as the posttest was done after grading.

In the pre-test (Questions 1-19), students were asked: “Please think about your previous educational experience when you answer the questions. For each of the learning objectives listed, describe the amount of progress you made in a typical course.” Choices ranged from No Progress (1) to Exceptional Progress (5). For questions 20-22, students were asked: “Please indicate your level of agreement with each of the questions for a typical course in your previous educational experience.” Choices ranged from Strongly Disagree (1) to Strongly Agree (6).

Table 1  
Pre- and Post-Assessment data received from the ISL course students

<i>Item</i>	<i>Pre Mean</i>	<i>Post Mean</i>	<i>Mean Change</i>	<i>T- test</i>	<i>df</i>	<i>Sig (2-tailed)</i>
1. Separate factual information from inferences.	3.14	3.71	-.571	-1.963	13	.071
2. Identify inappropriate conclusions.	3.14	3.64	-.500	-1.836	13	.089
3. Understand the limitations of correlational data.	3.14	4.07	-.929	-3.242	13	.006
4. Identify evidence that might support or contradict a theory or hypothesis.	3.43	4.07	-.643	-2.590	13	.022
5. Identify new information that is needed to draw conclusions.	3.36	4.14	-.786	-3.294	13	.006
6. Separate relevant from irrelevant information.	3.57	4.14	-.571	-1.847	13	.088
7. Learn and apply new information.	3.57	4.14	-.571	-1.421	13	.179
8. Interpret numerical relationships in graphs.	3.29	3.43	-.143	-.380	13	.710
9. Use mathematical skills to solve real-world problems.	3.29	2.93	.357	1.000	13	.336
10. Analyze and integrate information from separate sources to solve a complex problem.	3.29	4.07	-.786	-2.621	13	.021
11. Recognize how new information might change the solution to a problem.	3.36	4.00	-.643	-2.386	13	.033
12. Communicate effectively.	3.79	4.07	-.286	-.888	13	.391
13. Think critically.	3.57	4.07	-.500	-1.713	13	.110
14. Think creatively.	3.57	4.00	-.429	-1.385	13	.189
15. Solve real-world problems.	3.14	4.29	-1.143	-3.472	13	.004
16. Effectively learn on your own.	3.50	4.14	-.643	-1.883	13	.082
17. Analyze and critically evaluate other perspectives.	3.50	4.36	-.857	-2.197	13	.047
18. Make effective decisions.	3.50	4.07	-.571	-1.847	13	.088
19. Work effectively with others as a member of a team.	3.50	4.29	-.786	-2.242	13	.043
20. The typical course you have taken has mainly emphasized memorizing information.	4.50	2.21	2.286	4.947	13	.000

<i>Item</i>	<i>Pre Mean</i>	<i>Post Mean</i>	<i>Mean Change</i>	<i>T- test</i>	<i>df</i>	<i>Sig (2-tailed)</i>
21. The typical course you have taken has involved students in active learning rather than solely depending on lectures.	4.00	5.57	-1.571	-5.078	13	.000
22. The typical course you have taken has encouraged you to get involved in improving your community.	3.36	4.36	-1.000	-2.082	13	.058

Bold and italics indicate significant differences at  $\alpha=0.05$

In the post-test, the response options were the same, but the instructions were changed to read: “For the following learning objectives we would like you to evaluate your experience with this class or project. Describe the amount of progress you made on each objective” and “Please indicate your level of agreement with each of the questions as they relate to this course or project.” As can be seen from Table 1, the results of the survey instrument indicate that ISL students showed significant improvements on skills development in key QEP components.

## Discussion

From student perspective, this course pushed all majors out of their comfort zones. They recognized the importance of synchronizing engineering and business efforts to develop a unique offering that provides value to customers and a unique strategy marketing products. They have to take whole supply chain into consideration. Initial solutions come from management silos without consulting other stakeholders. As they gained experience from market and supply chain they quickly recognized the need to redesign their offerings.

This become a real project for them within cultural, historical and people context. Instead of relying on memorized information, they learned how to write hypothesis, test and retest them with searching new information. They recognized the value of searching, analyzing and integrating information until they successfully solve the real-world problem. The reliability and accuracy of their solution were tested in front of judges and local audience and get immediate feedback about the appeal of their suggestions.

Throughout this process, they learned to work in teams even though they did not agree with each other on every issue. They learned how to be mentally open other perspectives and critically evaluate them. Initially each had a tendency to stick to their individual ideas, and try to convince others to buy them. This inclination caused various personality clashes among individuals. Later, ideas become hypotheses to be tested; could be supported or refuted by evidence.

All these changes in student learning were observed by four faculty, who mentored and help students to resolve many issues coming out during the long semester. They were also mentioned in QEP pre and post experience surveys by students. To achieve such maturity in students in such a short time is a desired outcome as stated in many business and engineering education studies in the literature.

From faculty perspective, International Service Learning course was

complex, and required meticulous planning and organizing, extra time and effort from faculty. The significant gains of students out of this project were apparent. External stakeholders also benefited from student efforts. Furthermore, students' level of achievement far exceeded basic levels of Bloom's taxonomy. Their efforts of introducing unknown products to the US consumers can be classified as synthesis, defined as designing experiments, devices, processes and products.

Administratively, such projects require long term commitment from universities as well as creative approaches to course credit hours, and release times. This course requires more than regular 15 weeks per semester with travel. Students were taking other courses as well as this one and could not travel within the semester. Other practical issues may cause trouble such as which school was going to house the course, how students and faculty from other universities have access to hosting university's electronic course management system for collaboration purposes.

Providing and organizing resources for communication, travel, external client management support are essential for the success of such projects. Faculty is already carrying heavy load of teaching such a demanding course; expecting them to find and organize flow of funds would not be fair and would be a deterrent from starting such projects.

External clients, especially alumni, will benefit from the efforts of students significantly. They will be willing to contribute with funds and organizing visits. Students may also find their first positions as an employee in clients' organizations (which happened to one of the students in this project shortly after the completion of it). However, traditional management of university centric alumni relations approach that restricts faculty-alumni interactions will kill such real-life problem solving projects before even they can be formed.

## **Summary**

Business schools are being called upon to enhance critical thinking through hands-on projects. A two- phase initiative between two universities responded to this call. Creating a platform facilitating cross-border teams to work together on service projects and social entrepreneurial efforts not only reinforces the Millennials' social responsibility in the Millennials but also creates relationships transcending race, religion, gender and national-origin differences. One of our team members captured the spirit of these endeavors in saying, "We are all members of the human race."

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