Operations Reality Show:
An Experiential Service Learning and Storytelling Project
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Innovative Summary

Service learning (SL) presents perhaps the most effective teaching tool for contemporary management curriculum (Papamarcos, 2005). At its core, SL is about creating opportunities for students to apply theories they learn in the classroom to real-world problems and real-world needs. Through the involvement of business communities, SL and the associated educational experience provide a partial solution to the problem of narrowness in business education and provide students with valuable academic, practical, and introspective knowledge (Godfrey, Illes, & Berry, 2005; Papamarcos, 2005). The project described herein extends student learning beyond classroom context by complementing traditional educational tertiary instructional techniques with an experiential SL approach. Specifically, teams from my classes worked with local communities to analyze their business processes and to illustrate specific operations management concepts with the aid of innovative technologies. For most of the students, the project experience was enjoyable and helped them to improve their understanding of course materials. For me, the experience was an extremely rewarding challenge. This article summarizes the scope and steps for this project, shares practical tips and project examples, and concludes with a discussion on the effectiveness of the project.

Key words: Service learning; Storytelling; Instructional technique; Operations management
Introduction

Operations management is a curricular topic that exhibits an interesting dichotomy. Upon entering the core of a degree program, students perhaps feel like that they know the least about operations management among traditional business disciplines. As they start to pick up operations topics, students quickly realize that they already have a wealth of useful and interesting experience with business operations, such as co-producing processes by claiming luggage, by customizing orders, and by making a deposit. However, the intensive analytical approach undertaken by most operations textbooks may quickly obscure such a self-reflection. When I began teaching operations management to several sections of undergraduates, I followed traditional course delivery by giving lecture, exams, and problem-solving assignments. Given that operations management deals with a number of tactical planning decisions, the class had to go over a number of equations for topics such as inventory control, SPC, forecasting, and MRP. Student opinion of the course was favorable as the course structure was clearly laid out and the assessment plans were straightforward. However, they felt overwhelmed by mathematical calculations and somehow lost sights of the practical aspect of operations, which is embedded in the daily practice of business organizations.

To make Operations Management a hands-on, experiential course for students, I started to create a multi-year SL project, which was lately named as “Operations Reality Show”, to support and extend classroom learning activities. Compared with traditional student projects, Operations Reality Show is innovative in its SL nature. The project encourages collaboration in a semi-controlled environment and allows teams to gain real-world experiences by working with local communities, to draw links between theoretical concepts and themselves through role play, to develop and refine communication and interpersonal skills via team collaborations, and to strengthen their community lives by increasing awareness of social responsibilities. The project is
also innovative by using a storytelling approach. Specifically, students were asked to build on their collective understanding of course materials and SL experiences to act out business applications of chosen operations concepts in a series of 4-5 minutes episodes. Compared with regular slides-based presentations, storytelling is innovative in its nature and can serve as a better channel to illustrate the intended concepts while emphasizing their relevance to real-world business situations (Sampson, 2000).

Since the launch of this SL project in 2008, over 10 sections and 350 undergraduate students have participated in this teaching endeavor. While this project was mainly developed around operations management topics, it can be further extended to other business disciplines such as organizational behavior, marketing, and information systems.

**Literature**

*Service Learning (SL)*

The idea of SL can be found as far back to as the 1920s. Earlier advocates of service (Hatch, 1923; Rugg, 1923) believe it to be a way to cultivate democracy through civics education. Although service continues to be used for political and social purposes, it has been used to promote experience-based academic and affective learning (Jacoby, 1996; Johnson & Notah, 1999). SL pedagogies have garnered widespread acceptance in higher education because they build on the experiential learning concept by facilitating an organic connection between education and personal experience (Dewey, 1938; Godfrey, et al., 2005). As a cross-disciplinary and widely applied teaching method, SL has numerous definitions and is associated with a variety of applications. In general, it can be described as a method that “provides students with opportunities to use newly acquired skills and knowledge in real-life situations in their own communities; and that is integrated into the
students' academic curriculum or provides structured time for the student to think, talk, or write about what the student did and saw during the actual service activity” (Waterman, 1997).

While SL can take different formats, it applies only to projects that are imbedded in a theoretical foundation, with clear learning objectives, activities, and reflective components (Brower, 2011; Kenworthy-U’Ren & Peterson, 2005). Through SL projects, students can engage in the wider community to extend their learning experiences beyond a purely classroom-based learning context. From an experiential learning perspective, SL provides both concrete experiences and reflective opportunities and therefore students are more likely to be responsive to SL experiences regardless of their learning styles (Kenworthy-U’Ren, 2000; Kolb, 1984). Research also suggests that SL is a valuable teaching tool and has a positive effect on students’ practical skill development, course performance, moral development, leadership development, and sense of social responsibility (Astin & Sax, 1998; Kenworthy-U’Ren & Peterson, 2005; Lester, et al., 2005; Still & Clayton, 2004).

The practice of SL can be summarized as four discrete yet interrelated learning cyclical processes of experiential learning (Kenworthy-U’Ren & Peterson, 2005; Kolb, 1984). In SL projects, the first part of the cycle is experience, where students start interacting with contexts and environment outside of classroom. Such experience is then processed through reflection, where they start to reflect critically on their service experiences. Reflective processing compels students to the next part of cycle, thinking. Here, students start to draw connections between their reflections and integrate their thoughts of service experiences as a stimulus for learning, development, and change. Finally, the learning experience is translated into action – students proceed to test the reality of their newly created ideas and knowledge. The four cyclical processes exemplify students’ learning experiences through SL projects.

*Storytelling*
Storytelling as a folk art and performance has been around since the dawn of time (Taylor, Fisher, & Dufresne, 2002). It is the art of using language, vocalization, and physical movement and gesture to reveal the elements and images of a story to a specific, live audience (National Storytelling Association). It is also a pedagogical technique that has been used by the world's greatest teachers including Aesop, Plato, and Confucius (Short & Ketchen, 2005).

As a matter of art rather than science, management practice is generally different from what is specified in manual or what is taught in classrooms (Barnard, 1938). Rather it is captured and promulgated by stories told by community members (Crossan, Lane, & White, 1999). Hence, storytelling has been considered as a useful tool to bring an aesthetic perspective to management practice (Taylor, et al., 2002). It is a significant part of the learning process and reflects the complexity of actual practice rather than the abstractions taught in the classroom. As stories evolve, richer understanding of the phenomenon is developed, and new integrated approaches to solving problems are created (Crossan, et al., 1999).

Stories can be “told” in different formats, either through traditional ways of writing and drawing or through digital media such as podcasts or videos. While each format has its own merits, video has considerable promise in classrooms because it is consistent with major trends in both pedagogy and content (Velleman & Moore, 1996). Compared with other formats, video offers many opportunities to create powerful metaphorical images and visual portrays of abstract theories and concepts (Champoux, 1999). In spatial learning tasks, such as those involve quantitative modeling techniques, videos can also help learners understand the relationships between parameters (Li, Santhanam, & Carswell, 2009). From a dual-coding theory perspective, presenting information in multiple methods such as video and text lead to different cognitive processes, which can result in better memory and recall of information (Pavio, 1986).
**Innovative Features**

When a student understands, she should be able to explain, interpret, apply, see in perspective, demonstrate empathy, and reveal self-knowledge (Henderson & Gornik, 2007). However many of these ways to see if a student understands are not normally used in the classroom. Although in-class exercises such as case studies and games can lead to useful discussion, they only “simulate” real situations and therefore do not capture the “see in perspective”.

In this project, students were asked to act out business applications of certain operations concepts in 4-5 minutes episodes. Through the project experience, teams from my classes analyze operational processes of certain profit/nonprofit business units, conduct research on intended concepts, identify the connection between such concepts and business operations, create a scenario to showcase the connection, act out their ideas, and then produce the episodes. The project utilizes students’ individual talents and promotes transfer of learning through establishing connections with previous knowledge (Sousa, 2001).

Two components are critical to the success of the project: 1) a thorough understanding of the intended concept, and 2) a clear illustration of the concept in a well-defined business scenario. These two components, in combination with innovative features of SL & storytelling, can ideally address the deficit as I mentioned earlier by bridging operations concepts with real business practices. From a course design perspective, the project can keep students interest in the theories and concepts under discussion with a visual anchor and help them develop their analytical skills in applying what they are learning (Champoux, 1999; Velleman & Moore, 1996). In addition, it can also serve an economical substitute for field trips by bringing operations scenarios into the classroom (Sampson, 2000).
Project Implementation

The project is multi-faceted, detail-oriented, time-sensitive and requires on-going individual and collaborative team efforts. As they go through the semester, teams are required to meet to brainstorm deliverables and solve problems and issues on a weekly basis. They are also required to turn in memos, scripts, storyboard, logs, and videos at various times during the project as well as at the end of the project. Figure 1 shows a simplified WBS structure for the project.

< Insert Figure 1 about Here>

Starting from the first week of the class, students will be split into different teams of size 4 or 5 to brainstorm possible topics for the project and to identify potential local businesses for conducting the project. As they finalize topics by the second week, they will need to assign members to different roles (e.g., director, script writer, researcher, and camera operator). Each role includes up to four job responsibilities. For instance, the director will be responsible for 1) representing and leading the team working on the project (e.g., collects and submits documents, communicates with external consultants), 2) working with script composer to create the scenes on storyboard, 3) directing the execution of the storyboard, and 4) working as an actor in the video. As they move through the semester, they learn some basics to translate their ideas into scripts and storyboards. Meanwhile, they are making progress researching on the chosen topics, analyzing the operational processes of local business organizations, and identifying the connection between abstract concepts and management practice. After revising project scopes based on several rounds of feedbacks, they will finalize their documents and move from pre-production to production stage in week 7. In the production stage, teams will learn basics on filming and movie editing. They will rehearse the scene at the chosen business locations, shoot raw footage, and bring raw footage for critiques by week 9. Hiring a TA or video assistant is extremely helpful during the production stage, who can provide
assistance to equipment maintenance, camcorder presets (e.g., white balance, ratio, mic), Q&As. In
the rest weeks, teams will import, edit, and stream raw footage based on the project guideline. Their
final projects (e.g., videos) will be posted on several sites including Youtube to facilitate other cross-
class collaboration efforts.

**Project Outcomes and Benefits**

Figure 2 provides an overview of different topics that have been studied by my classes. Overall, student teams have shown increasing interests in topics such as inventory control, process analysis, service operations, scheduling, and forecasting. Other topics including quality, logistics, queuing, and facility location have also received some interests. Table 1 summarizes the course evaluation data that illustrates both the motivation and the success of the project. In general, the course structure, subject, instructor, section size, textbook, and even exam formats remained consistent in the 5-year period of 2007-2011. Student perception of major evaluation criteria including course quality, effectiveness, professional growth, and technology now rests comfortably above the mean. The average grade for the course also increased from B-/C+ to A-/B+. The table also includes a customized set of questions on the project. Students overwhelmingly indicated that the project helped them tackle unfamiliar problems and improve team working skills. The majority of the students said that they learned valuable experience in improving their communication skills. Most of the students also indicated that the project helped them to a certain extent to develop their problem-solving and analytical skills. Along the same line, the table also includes some of students’ comments to the project.

< Insert Figure 2 about Here>

< Insert Table 1 about Here>
Perhaps another way of illustrating the project’s impact is by way of example. Students in my operations management classes have engaged in over 60 projects for clients including retailers, manufacturers, governments, healthcare organizations, refineries, small businesses, churches, and schools. Through SL experiences, students deepen their understanding of management concepts and develop the ability to reflect critically on these experiences under the guidance of a faculty mentor.

_Gulf Coastal Container_

“[During the project] my team and I worked heavily with a local company that deals with the supply and transport of Intermodal ISO shipping & storage containers…this project has given me an experience that gone beyond what I ever imagined … not only was I able to exit the course with an educated understanding of operations, I was able to utilize the knowledge that I acquired to analyze real operational processes.” (Formal communication, Joshua O. Bush, production and service operations student, Spring 2009)

Mr. Bush, together with other four members of his team, worked on a project titled “Application of logistics & facility location” with a Gulf Coastal Container company. The team analyzed the logistics behind the company’s relocation and demonstrated how the company’s distribution process accommodates the flow of customized commercial containers from/to its customers. An in-depth industry analysis was conducted, several different factor-rating strategies were compared, and detailed operational plans were revealed. The team was able to integrate its objective assessment and viewpoints from the owner and employees into the final video footage. Soon after graduation, Mr. Bush utilized confidence and skills acquired during the project experience to start his own company to assist small businesses to optimize their inventory management strategies.

_Shasta Ice Cream_
“Everyone liked the ice cream experiences, “free ice cream”. Everyone was helpful if a problem occurs… I enjoyed this [project] experience because it was different from all the other class projects. This project got me out of the classroom and into a business environment. I learned that inventory systems are customized and not [a single] system is specialized to fit every need.” (End of semester evaluation, Tuyet Ly, production and service operations student, Fall 2010).

Ms. Ly and her teammates won the “Best Movie Award” at the end-of-semester red carpet event in Fall 2010, which was hosted to honor the projects produced by the Operations Reality Show. Her team worked with the on-campus ice cream shop on a project titled “The Ice Cream Shop’s Inventory Control”. The team tracked the inventory availability on a weekly basis and documented the process for the shop to replenish its supplies. Their project illustrated the difference between fix-order based and fix-time based inventory models with a humorous touch. One of her teammates received a “descent” job offer, based, according to the employer, on her involvement in the integrative project and her ability to illustrate the connection between abstract theoretical concepts and management practices.

Coast Fire & Safety

“The project really enlightened me on the Make to order/ Make to stock process. I learned how much work goes in behind the scenes that [are] necessary to create special products. Most of my team members assumed that Firefighting gear was just made in the Make to stock process, that is it was made in standard sizes. It was surprising to see that many firemen wear specially tailored gear. The project provided information I would have never learned otherwise. ...” (Informal communication, Tim Clark, production of service operations student, Spring 2011).

Mr. Clark and his team initially set out to study the production process of bunker gear with a local emergency response equipment supplier. After analyzing orders from its clients, they realized that a single MTO process was insufficient to meet various acquisition needs. Eventually, they broke
down the acquisition process by SKUs and identified how MTD/MTO and hybrid models all contribute to the production of bunker gear sets. Working with the faculty, the team also developed a detailed plan to satisfy the critical near-term objectives of the supplier - which has recently experienced a number of serious challenges including deteriorated throughput rates and high inventory costs. Based in part on the work of Mr. Clark’s team, the supplier was able to identify their bottlenecks and to adjust their pacing and achieved encouraging financial outcomes.

**Practical Tips**

Throughout the project, there are several challenges. First, each team needs to develop a well-defined project scope and objective around a specific topic. As the class generally covers a range of different topics on business operations, each team has to narrow down a topic that can render both educational value and managerial relevance. The choice will largely determine the path a team goes through the semester. For instance, teams choosing forecasting generally have to go all the way to understand the type of products, customer needs, and production capacity associated with the sponsor organization. Yet teams choosing scheduling priorities need to analyze the service process and identify the cons and pros associated with each priority rule. I usually ask each team to sign up for a specific chapter in the first week of semester and encourage them to research on the chapter to identify an interesting topic in the following weeks.

Second, teams need to compose stories to tell the connection between chosen topics and business processes. To facilitate the storytelling process, teams need to document their stories in scripts and storyboards. Being used to traditional slides-based presentations and term papers, communicating ideas through sketches (i.e., scripts and storyboards) presents a challenge to teams. However, this turns out to be a very interesting process – students brought in their creativities to communicate ideas (e.g., cartoons, photos, line drawings, shapes, See Appendix 1 for details).
Communicating ideas and thoughts through visual aids helps tremendously when exploring unfamiliar territories within/outside of teams. Occasionally, a team may have highly developed creative propensities with little regard for academic content. Therefore it is important to require each team’s script and storyboard to be approved to ensure that the final video will be creative and relevant.

In addition, I also learned from both John Wiley & Sons and my digital media colleagues that video producers need to secure proper release permit(s) prior to shooting. Those permits state the team can shoot video for educational use at the chosen locations, and that the company or persons featured in the video will not be remunerated for the video. Getting this process starts early in the semester can prevent further delays as teams move to the production stage. While working with large and national/international enterprises is desirable, securing approval from major corporate headquarters can be the major roadblock for completing the project on a timely fashion. Hence, I always encourage teams to work with local communities to identify potential clients/sponsors (See Appendix 2 for a sample release form).

As suggested in the project examples provided above, teams are also exposed to real-time challenges, including (1) project planning, where they create project aims and implementation strategies, and benchmarks and metrics for measuring progress and outcomes; (2) managing groups, where they must deal with real group dynamics, team-building and leadership; (3) problem solving and conflict management, in which they must apply such interpersonal skills as listening and assertive communication to mediate and resolve differences, and engage in the political and emotional dynamics that are a natural part of organizational functioning (Salimbene, Buono, & Lafarge, 2005). While teams may take different approaches to respond to those challenges, the instructor can facilitate teamwork by providing a clear set of project rubrics and by gauging each
team’s performance on a regular basis. Appendix 3 shows the weekly work log template that can be used to document each team’s planning, teamwork, and communication progresses.

Finally, students may feel challenged during production (i.e., shooting) and post-production (i.e., editing and streaming) processes. Operating camcorders and shooting video may not take much effort, yet teams have to pay close attention to sounding, lighting, framing, and balancing issues. Given that most students do not have prior experience with videos, it is helpful to have a checklist for teams to use when preparing/shooting the raw footage. Once the production is completed, it is also important to tour students through the basic steps to import, edit, polish, and stream videos through certain package (e.g., amateur packages including iMovie and Power Director; or professional packages including Final Cut and Adobe Premiere). Appendix 4 includes screenshots for some of the projects that have been produced and streamed via different software packages.

**Transferability**

While writing this section, I am wondering whether this project experience can be transferred elsewhere. The answer depends mainly upon the degree to which an individual can embrace a SL and storytelling pedagogy. Because such an approach encourages collaboration in a semi-controlled environment and involves multiple stakeholders, it is likely that some instructors find themselves losing control over content and therefore feel uncomfortable applying the project presented here. In addition, this project concept requires a much higher level of work and adaptability than traditional assignments or case studies. The supervising faculty must have a high level of commitment to service-learning projects by advising on a variety of issues, by interacting with clients in support of students, and by motivating participants through the inevitable ebb and flow of emotion (Brower, 2011; Kenworthy-U’Ren & Peterson, 2005; Papamarcos, 2005). Hence, the SL and storytelling pedagogy is not for every professor or for every course.
However, the pedagogy appears to be highly transferrable when a faculty member is willing to place much of the responsibility in student hands and to introduce a degree of uncertainty and complexity not present with more traditional instructional formats. While faculty members have no way to prepare every aspect of what will happen during a service-learning project, they need to consider the “fit” of a particular project with the overarching objectives of the course. Specifically, the project must encompass key aspects of the course’s required knowledge base and learning objectives.

Another important characteristic of the project, the storytelling method, also appears to be transferrable to courses that expect to bring an aesthetic perspective to abstract concepts. In this regard, storytelling can fit in both business and nonbusiness disciplines very well. However, the instructor needs to choose the format carefully. While technology-based media such as video may appeal to the student body, it requires certain level of expertise to successfully translate ideas into decent footage. Yet other formats such as drawing and podcasts are less technical oriented and can be easily integrated into course design with only modest modifications.

Conclusions

It has been a rewarding experience to work with students on the project. Although we have had ups and downs with the project across semesters, there are certain factors that can help ensure a successful implementation of the project. We have been talking about motivating “students” into projects, yet we have not talked about how to motivate “ourselves” with projects. Are we really into projects? I enjoy photography and filming and I truly believe that media is a great way to communicate ideas and to disseminate knowledge. In addition, I always cherish the idea of learning through experience. So what I am trying to say is that inspiration and motivation can be the key for both professors and students to complete a project successfully.
From a resource-based view, we will also need to secure enough resources to ensure the sustainability of the project. Since the launch of the project, I have collaborated with colleagues to include several different classes and programs to scale up the project. As a result, we have accumulated over $100,000 grant support from different resources, which helps tremendously when it comes down to equipment, assistant, and software. Scaling up the project also allows us to experiment new ideas such as hosting red-carpet events to honor students’ work, improving students’ writing skills with the writing center, setting up marketing campaigns to reach out to local communities, etc. With the financial assistance and collegial support, I was able to test the idea of whether such a project can really improve students’ learning experiences on a longitudinal basis. My future plan is to enhance the SL component of the project to support the exploration of operations management.
References


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Sample Student Comments

“I learned important lesson from the project. I learned how to articulate and present specific topic in short and presentable way.”

“It did help me learn a lot from doing this project. As an individual I had never wrote a script before I think that task really helped with my writing skills.”

“I learned communication is the key for making or breaking a team. My team encouraged me not to quit the class when I felt so bad. To me that's a team almost like family. Everyone's input helped in one way or another.”

“I was impressed with the class when it came to the Project, I had never experience such collaboration from other courses into one final project.”

“The project did help me to pick up inventory control chapter a lot faster than I would have otherwise.”

“I learned the importance of finding a solution to a particular business problem and how that problem can affect the business goals and operations.”
Figure 1: The WBS Structure for Operations Reality Show
Figure 2: Frequency Chart for Project Topics

Percentage of Topics Covered in Ops Reality Show

- Core Competency
- Operations Consulting
- Facility
- Queuing
- Project Mgt.
- Logistics
- Quality
- Forecasting
- Scheduling
- Service Operations
- Process
- Inventory

0.00% 5.00% 10.00% 15.00% 20.00% 25.00% 30.00% 35.00%
Appendix 1: Screenshots of sample storyboards

Use of Drawing

Use of Cartoon

Use of Character

Use of Color
Appendix 2: Sample Permission Form

Photograph, Audio, & Video Release Form

I give my permission for the team named above to record the facility at the location below for the dates specified on this form. I hereby grant permission to the team to tape without payment or any other consideration. I understand that the tape may be edited, copied, exhibited, published or distributed and waive the right to inspect or approve the finished product wherein the facility appears. Additionally, I waive any right to royalties or other compensation arising or related to the use of the facility’s image or recording. I also understand that this material may be used in diverse educational settings within an unrestricted geographic area.

Photographic, audio, or video recordings may be used for the following purposes:

- Educational presentations or courses
- Informational presentations
- On-line educational courses
- Educational videos

By signing this release I understand this permission signified that photographic or video recordings of the facility may be electronically displayed via the Internet or in the public educational setting.

I will be consulted about the use of the photographs or video recording for any purpose other than those listed above.

There is no time limit on the validity of this release nor is there any geographic limitation on where these materials may be distributed.

This release applied to photographic, audio, or video recordings collected as part of the sessions listed on this document only.

By signing this form I acknowledge that I have completely read and fully understand the above release and agree to be bound thereby. I hereby release any and all claims against any person or organization utilizing this material for educational purposes.

Facility name __________________________________________________________
Street address/P.O. Box __________________________________________________
City _____________________________Zip Code_______________________________
Intended Dates __________________________________________________________
Contact Name  ___________________________________________________________
Signature ________________________________ Date  __________________________
Phone ___________________________________ Email Address __________________
Appendix 3: Sample Work Log Template

**Weekly Work Log**

Date:
Group Name:
Group Leader:
Group Members:
Project Title:

Guideline: use the work log to document how members brainstormed, discussed, and solved problems. Record individual responsibilities and describe how the individual efforts capitalized on strengths of each team member.

Hours worked:
Problem & solutions:

Description of work completed:

Description of individual efforts:

Suggestion for next meeting:
Appendix 4: Screenshots from Sample Projects

1. Production process of bunker gear with a local emergency response equipment supplier

2. Inventory management strategies for a music instruments retailer

3. Scheduling at a laboratory providing environmental testing service

4. Forecasting for a printing facility that publish weekly newspapers

5. Demand management for a local brewery producing seasonal beers

6. Inventory models adopted by an on campus ice cream shop

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