



OBTC 2015 at University of La Verne June 17th – 20th, 2015

Submission Template

SUBMISSION GUIDANCE

- * Remove all identifying properties from this document **
- * All files must be saved in PDF format **
- *Please include ALL supplementary text at the end of this document**
- *Only one document should be submitted**

Submission Template for the 2015 OBTC Teaching Conference for Management Educators

1) Title of Proposal:

Design Thinking: Applying Tools, Techniques and Strategies to Quickly Innovate and Develop Mobile Solutions in the Classroom

2) Abstract:

Please include a brief session description (not to exceed 100 words). If your proposal is accepted, this description will be printed in the conference program.

Within our core technology higher education course, we have created different learning experiences to enable the students to think and act quickly by creating prototypes of proposed information systems that can then be refined and iterated upon. The particular technology we are currently focusing on are mobile apps using the *Prototyping on Paper* app. Student teams are provided a description of a premium gymnasium that is in need of a mobile app. They are then given 30 minutes to design, 20 minutes to build, and 15 minutes to demonstrate and receive feedback on their prototype for the initial application.

3) Keywords:

Use three or four keywords to describe your session.

Ideation, Design, Mobile, Prototyping

4) Format

- Activity or exercise
 Discussion roundtable (60 minute only)
 General discussion session

5) Time Requested:

- 30 Minutes
 60 Minutes (*Roundtables must select 60 minutes*)
 90 Minutes

6) Planning Details:

Does your session have any special requirements for space or materials?

For this session we need large poster paper, black markers, and the ability to project an iPhone or Android mobile application on a Podium PC projector.

7) Learning Objectives or Goals for the Session:

What are 2-4 specific learning outcomes that participants will get from your session?

The learning objectives for this session are to:

- Appreciate the excitement and value that visualization techniques such as prototyping bring to any classroom activity.
- Illustrate how classroom experiences, such as Design Thinking, can be applied to solve real-world problems through student teamwork and collaboration.
- Gain exposure to a prototyping tool that allows students with no programming experience to easily draw designs on paper, take photos, and then link the pictures to build a lo-fidelity prototype for rapid feedback and iteration.
- By using inexpensive cloud-based technology tools in the classroom on a regular basis, we better relate to our students who are “digital natives” and demonstrate the value of simple technology solutions.

8) Management or Teaching Topics:

Describe what management and/or teaching topics are relevant to your session, and why. Please include theoretical, disciplinary, or theoretical foundations that will help reviewers understand how your ideas fit within the broader field of management.

The theoretical foundations for this approach are grounded in the literatures of innovation, IT project management, entrepreneurship, and user-led design.

- 1.) Innovation processes, often times referred to as design thinking methodologies, reflects the complex processes of inquiry and learning that designers perform in regards to identifying a challenge or opportunity, idea generation, experimentation, piloting as well as implementation (Kaspar for the Kellogg Foundation, 2008). These methodologies have been studied extensively in the research and design literature for over 50 years and are becoming increasingly important to the technology environment. Today, however, innovation, including design thinking methodology, is no longer confined to the technology or R&D parts of an organization. Every function in an organization, from strategy to marketing, has to be innovative and technology is a key enabler driving the innovation.
- 2.) IT project management is recently going through a massive change as the original theories of design and implementation based on waterfall methodologies (e.g., linear approach to all design process steps), are being questioned by practitioners who are heavily invested in creating methods that reflect the real needs of the user community: agility and flexibility (Dygsyr et al., 2010). Agile methodologies are based on the original work done in the fields of collaboration and team building with user-centered methodology. Based originally on what is termed the Agile Manifesto – Agile is an approach to managing software development projects based on four commonly share values: individuals and interactions over (i.e., are more important than) processes and tools, working software over comprehensive documentation, customer collaboration over contract negotiation, respond quickly to change over following a detailed plan (Royce, 1970; Ambler, 2011).
- 3.) Prototyping and piloting smaller versions of larger solutions comes from the literature in decreasing cognitive complexity so that users can make sense of their surroundings (Harkema, 2003). Visual solutions, such as prototypes, help reduce the complexity and increase the likelihood of increased user adoption (Maguire, 2001).
- 4.) Although mobile application strategy is in its infancy, the previous research done in the area of user-led design and user-interface design techniques establish the notion that user experience and context drive adoption are critical success factors (Charland and Leroux, 2011).
- 5.) The entrepreneurship literature reminds us that experimentation and the ability to iterate often is a corner-stone of successful new ventures (Greenberg, McKone-Sweet, Wilson, 2011). Understanding how to iterate, experiment and

learn from mistakes is a critical benefit of learning–by-doing through prototyping.

9) Session Description and Plan:

What will you actually do in this session? What activities will you facilitate, how long will they take, and how will participants be involved? Reviewers will be evaluating how well the time request matches the activities you'd like to do, and the extent you can reasonably accomplish the session's goals. Reviewers will also be looking for how you are engaging the participants in the session. Include a timeline for your session.

Timing	Description
10 minutes	Provide an overview of the session with learning goals, place the participants into small teams of three to four members each, and then have the participants read a one-page description of the business requirements for the gymnasium mobile application. Participants will be shown a few familiar mobile designs before they begin the exercise but it is assumed and appreciated that they do not have extensive knowledge of the area. Iteration and active critiques are a significant part of the learning experience.
30 minutes	Participants will be asked to draw pictures of their mobile application design (storyboard). They will be provided with large poster paper to encourage collaboration. Few rules are placed on the collaboration exercise except to: encourage everyone to participate and reinforce each other's designs (similar to a classic brainstorming approach.) Once an initial design is agreed upon, the participants will be asked to transfer their designs to smartphone templates so they can more easily take photos.
20 minutes	One team member will be asked to download the <i>Prototyping on Paper (POP)</i> application which is available on both the iPhone and Android platform. We have done this many times and the steps to download are extremely easy and we provide detailed instructions. All participants will be provided with a one page description of the application. Participants will then build a mock-up of their mobile application using POP.
15 minutes	Volunteering teams are given 2 to 5 minutes each to demonstrate their mobile application prototype. The participants are then asked to critique the apps for future iterations.
15 minutes	The participants will be asked to comment on their experience and the applicability to their own teaching disciplines. In addition, the session learning goals will be recapped.

10) For Activities and Exercises:

Attach any materials needed to run the activity and debriefing questions. Evidence for effectiveness may also be included.

Attached you will find the short description of the business requirements for the gymnasium. Debriefing questions include the following:

1. What will you take-away from this session?
2. How can you apply the design thinking process to your teaching discipline?
3. How would you modify the exercise for your environment?

We have also provided a sample design of what the output from using the POP app can look like. We have used this exercise in several of our higher-education technology core courses. The student and faculty direct feedback has been very positive and include:

- Many of our business students are not technology-savvy, and literally all of them indicated how easy it was to use the POP app. They also indicated the experiential learning from this exercise was a very effective means to learn about the possibilities of new technology such as mobile apps.
- Although this exercise was used in the core IT course in a business school, many students interested in different disciplines (e.g., marketing, entrepreneurship, operations, strategy) appreciated the value of quickly building a mobile app prototype to gain fast user feedback. In several cases, students used the POP app on future class projects.
- Faculty indicated it was a fun and engaging way to teach technology. While showing examples of the latest mobile apps was important, having business students actually create an app in the classroom and get real-time feedback from peers enabled much more discussion on the value implications, use cases, and critical success factors for mobile apps.

11) Implications for Teaching or for Teachers:

What is the contribution of your session?

While the scenario in this session is for a mobile application, teachers can apply the class outline and learning goals to illustrate the exploration and development in any ideation session that requires a visual prototype. As mentioned earlier, this experiential learning exercise increases student engagement in understanding technology-enabled design processes.

12) Application to Conference theme:

How does your session fit with the overall OBTC theme of Learning in Community?

Our session addresses the following two objectives expressed by OBTC:

- Create an active learning community where students connect their learning to the subject, themselves, and their fellow learners.

To do this exercise effectively, students must first collaborate with each other and then critique and build upon each other's prototypes. In this way, the community reinforces each other as opposed to competing. In the world of crowdsourcing, ideas are just the starting points for innovative thinking.

- Link learners through technology and social platforms that challenge students to learn online in ways that connect and support spirit, passion, and ideas.

The exercise requires the use of cloud-based technologies. Our students often share their designs via a mechanism built into the POP application.

13) Unique Contribution to OBTC:

Have you presented the work in this proposal before? If so, how will it be different? Is this proposal under current review somewhere else? If so, please explain. How will your proposal be different for the OBTC conference?

No, we have not presented this work before. In the past, we have gained valuable knowledge from attending OBTC and hope that these ideas will be applied and refined by our colleagues.

14) References and/or Additional Materials:

References

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EAST BANK CLUB

Project Description

East Bank Club (EBC) is a premium gymnasium located in the greater Boston area. All facilities are equipped with a pool and every type of workout equipment imaginable, including nautilus. The gym is open 24 hours a day, 7 days a week. Classes are offered each day and depending upon the type of membership, clients can schedule between two and seven hours of personal training sessions weekly. Each center also has a snack bar that is open from 6:00AM to 10:00PM. To better serve his clients, Mr. Fitte, the founder and CEO, would like you to build a mobile app for the club.

Beside the clients, project stakeholders include Mr. Fitte, the managers at each center, the personal trainers, and the instructors. The major center managers include: Ms. Jumpe in Boston, Ms. Strong in Newton, Mr. DaMan in Weston, Mr. Flex in Wellesley, and Mr. Trainer in Lexington. They are responsible for managing the facilities including making sure that the instructors show up for classes and the personal trainers for sessions, towels are laundered, spray bottles are filled, lockers are checked, equipment is serviced and the snack bar is stocked with food and drinks. The managers are also responsible for enrolling new members. To get started, Mr. Fitte has invited you to a meeting with his managers.

SYSTEM REQUIREMENTS

Membership

Let's talk about our clients, "the most important entity in our organization" says Ms. Jumpe. Members enroll at the center of their choice. EBC offers four different types of memberships depending upon the amount of time the client wishes to spend with a personal trainer. "We have not yet named the membership types – you are welcome to be creative and name these," says Mr. DaMan. There is no initial joining fee but the monthly dues are \$500 for 7 training sessions, \$300 for 4 sessions or \$200 based for two sessions. Prospective members can call and schedule an appointment at a specific center and one of the employees will walk the person around the facility and show them all the different equipment and key features. When the individual decides to enroll, the manager enters their name, address, phone number, age, gender, medical issues (if any) and credit card number for the monthly dues. "While we are happy to have prospective clients tour the club, it would be wonderful if they could self-enroll," remarked Ms. Strong. "Often, they don't join immediately but return a few days later to sign-up. Currently, each member is issued a membership

card that they scan when entering the facility. Many clients have requested that they be able to use their phone for this purpose. It would be terrific if you could add that feature. “

Personal Training Sessions & Classes

“Our two most important services are our personal trainers and the fitness classes we offer” says Mr. Fitte. “Depending upon their membership type, our clients can schedule between two and seven personal training sessions a week. This means that we are spending hours on the phone trying to match our clients’ desired meeting times with the availability of their favorite personal trainer.” “Class scheduling is also a hassle,” laments Mr. Flex. “EBC offers classes in yoga, pilates, step-aerobics, pool aerobics, tai-chi, kickboxing, weight-training, and meditation. “We do not mail out class schedules – we post them on the bulletin board at the gym entrance. Members constantly call us to find out whether a particular class is available at a specific time and figuring this out is time-consuming, “Can your app help with this?” Mr. Flex asks. Each class is taught by several instructors. Classes are offered from 7:00 AM to 8:00 PM and each class is an hour long. Because the instructors are not EBC employees, members are required to register for classes. Right now, they do this when they arrive and as you can imagine, it often results in long lines.” In addition, when instructors cancel classes, we notify our clients via email. It would be terrific if we could text them. This generation seems to use text more than email.”

Reward System & Snack Bar

Having recently attended a seminar on applying game theory (e.g. leaderboard, badges, points) to encourage user adoption of a business practice, Mr. Trainer remarked, “it would be cool if the clients could earn points for regularly attending the gym, signing up for classes, and meeting with the personal trainers.” Everyone agreed and requested that this features be added to the mobile app. The decision was made to allow customers to redeem points for snack bar items. The snack bar serves a continental breakfast, yogurt, sandwiches and salads, fruit smoothies, and various coffees and teas.

PROTOTYPE INSTRUCTIONS

Select ONE set of requirements from the list of three shown below. Then, using the Prototyping on Paper (POP) mobile application, build a prototype. Refer to the separate POP instructions hand-out.

1. Membership
 - Home page
 - Add or change a membership
 - Gain access to the gym (track reward points)
 - View class schedule

2. Manage Personal Training Sessions and Classes
 - Home page
 - Book, change, or cancel classes (earn reward points)
 - Book, change, or cancel personal training appointments (earn reward points)
 - View trainer videos

3. Reward System and Snack Bar
 - Home page
 - Display reward points
 - View and select snack bar items
 - Use points to pay for snack bar items

EAST BANK CLUB

Prototyping on Paper Instructions

1. Download POP from the App Store or Google Play
 - a. Sign up (not necessary but you cannot share your app if you don't create an account)
 - b. Verify your account by responding to the email on your phone
2. Think about the user experience and make a list of potential screens, for example:
 - a. Screen #1: Welcome
 - b. Screen #2: Sign in
 - c. Screen #3: Menu
 - d. Screen #4: Add an entry, etc.
3. Draw the screens on paper. Put back arrows in the top left and think about the navigation forward.

4. Open up POP on your iPhone or Android
5. Create a project
 - a. Click the menu (left corner, 3 horizontal bars) and then select Projects
 - b. Click the plus symbol in the upper right
 - c. Enter the project name
 - d. Click Create
6. Take pictures of your paper screen mock-ups
 - a. Click the camera icon in the lower left and select Take Photos
 - b. Take a pictures of ALL your screens by pressing the orange button
 - c. Press Next and then Done when finished.
 - d. To delete an unwanted screen, press the three small circles in the lower right and select Delete Mockup
7. Link the screens
 - a. Touch your first (home) page
 - b. Touch the plus symbol in the lower left
 - c. Drag the image to the area of the page that the user will press causing the app to move forward.
 - d. Press Link To
 - e. Press the Next icon at the bottom of the page
 - f. Touch the page you want to link to
 - g. Repeat this process for all the Home page links
 - h. Assume you want to return to the Home page from all the other screens
 - i. Select the second page by clicking on it
 - j. Click the plus symbol in the lower left
 - k. Drag the image to the top left corner and press Link To
 - l. Select Link Back to Previous Page
 - m. Repeat this process for all the pages you want to link back from
8. Play the app
 - a) Go to the Home page
 - b) Click the play arrow at the bottom of the page
 - c) Click the hot spots to move forward or back
 - d) To exit play mode, touch the screen with two fingers, select Quit Play
9. To share the app with others, go back to the Project and select Share.

EAST BANK CLUB (EBC)

Membership Requirements – Student Prototype

Home Screen



Create a Membership 1/2



Create a Membership 2/2

A hand-drawn sketch of a mobile application form titled "Create Membership". The form is contained within a white smartphone frame with a black border. At the top left of the form is a hamburger menu icon. The form fields are as follows:

- Name**: A single-line text input field.
- Address**: A single-line text input field.
- City**: A single-line text input field.
- state**: A small rectangular text input field.
- Zipcode**: A small rectangular text input field.
- Phone**: A single-line text input field.
- Create password**: A single-line text input field.
- Membership type**: A dropdown menu with "Basic" selected and a downward-pointing triangle on the right.

Access the Gym



View Class Schedule

