



Experiential Entrepreneurship Exercises Journal

***Enabling More Active Entrepreneurial Classrooms
Through Sharing, Learning & Doing***

ISSN: 2374-4200 (online)

Volume 2, Issue 2

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Experiential Entrepreneurship Exercises Journal (EEEJ), published quarterly, is a forum for the dissemination and exchange of innovative teaching exercises in the fields of entrepreneurship, creativity, innovation, and small business management. EEEJ is currently seeking original contributions that have not been published or are not under consideration elsewhere.

The scope of all articles published in EEEJ is limited to experiential exercises, with maximum relevance to those teaching entrepreneurship, innovation, creativity, and small business management. The Journal appeals to a broad audience, so articles submitted should be written in such a manner that those outside of academia would be able to comprehend and appreciate the content of the material.

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Submission

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Setting the Stage: Thoughts from the Ivory Tower

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As I navigate some painful professional waters, and look toward new opportunities on my horizon, I wonder what entrepreneurship education should look like. It is a question our discipline struggles mightily with.

Should we be teaching students how to startup?

Should we be teaching students to think like entrepreneurs?

Should we be teaching students the business skills that other disciplines have typically been responsible for teaching them?

While I have a sizeable ego, I do not propose to know those answers for our discipline. But I am very engaged in conversations and projects and collaborations to work to answer some of them.

I do have my own answers to those questions. I believe my responsibility in my entrepreneurship classroom is to offer my students the opportunity to develop the mindset and skill set that allows entrepreneurs to build successful projects, communities and businesses. The main focus in my classroom, and I believe it should be in any entrepreneurship classroom, is active learning, experiential learning, problem-based learning, whatever buzzword is preferable these days. I want my students to practice design thinking, customer interviewing, prototyping, experimenting, analyzing, building, failing. We all have different goals and guidelines in our classrooms. But I believe, regardless of goals or guidelines or any of the things that impede innovation and progress, our students need to learn by doing. The exercises contained in this journal provide exactly that opportunity for students in classrooms around the world.

As always, I am deeply indebted to our Editorial Board members, to the authors, reviewers and readers, and to the associations, corporations and other stakeholders who continue to contribute time and energy to our effort to create more engaging classrooms.

Deconstruct to Reconstruct: An Exercise to Inspire Innovation and Creativity (and Rethink the Concept of Waste...)

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Abstract

Ever hear students say “I’m not creative!” and wish you could convince them otherwise? This exercise puts students in a group environment where, because of the initial frame-breaking – where habitual patterns and perceptual sets are disrupted – the use of constraints, and the incentives provided by clear goals and rewards, students can discover their creative ability. This exercise introduces creative “upcycling”: material from the recycling bin is deconstructed, and then reconstructed into something to use for a different purpose. Students think they’re being asked to rethink the concept of waste, but they’re really being encouraged to identify opportunities and act entrepreneurially.

Keywords: creativity, sustainability, creative destruction, effectuation, opportunity identification, entrepreneurial alertness

Subject Area: Entrepreneurship, Innovation, Sustainability, Ideation, Creativity

Topic Area: Ideation, Creativity, The Entrepreneurial Process, Developing an Entrepreneurial Mindset

Student Level: undergraduate or graduate

Time Required: between 20 minutes to 90 minutes depending on number of students, and the scope of learning objectives

Recommended Number of Students: at least 12, up to 30 or more if the room allows. Students should be in groups of 3, with separate work spaces for each group, and two resource tables for materials.

Attribution

The idea for this exercise came from the Terracycle video originally produced for the 2009 National Geographic production *Garbage Moguls* where Terracycle employees visited the dump to scavenge items that could be repurposed into consumer products. See <http://shop.nationalgeographic.com/html/catalog/videoclips/garbaremoguls2.htm>

When entrepreneurial educators ask students in the beginning of a class to come up with new ideas, they often hear students complain, “but I’m not creative!” The educator then must convince these students that “everyone is creative!” At this point, the educator has several options.

The educator can point out, via a mini-lecture or assigned readings, that an entrepreneur has to be aware of the entire entrepreneurial process, from the initial recognition or identification of an opportunity, through the evaluation of its feasibility, acquisition of sufficient resources, and actual action taken to realize a presumably profitable outcome (adapted from Shane & Venkataraman, 2000). And, in order to be truly entrepreneurial, some creativity may be necessary at every step.

One definition for creativity is “the goal-oriented individual/team cognitive process that results in a product (idea, solution, service, etc.) that, being judged as novel and appropriate, evokes people’s intention to purchase, adopt, use, and appreciate it” (Zeng, Proctor, & Salvendy, 2011, p. 25) . Therefore, even though the idea might be novel and useful, if the idea or product isn’t brought to market, it wouldn’t be considered an example of entrepreneurial creativity (Amabile, 1997). So if students want to be truly entrepreneurial, they have to develop creative capabilities.

The educator can use “war stories” and case studies to model the process, and, if the models are credible, students may be inspired to try based on what they’ve seen others do. However, this doesn’t substitute for direct experience. Therefore, instructors might want to use an experiential exercise where students actually enact a creative process.

This “Deconstruct to Reconstruct” exercise puts students in a group environment where, because of the initial frame-breaking – where habitual patterns and perceptual sets are disrupted – the use of constraints, and the incentives provided by clear goals and rewards, students can discover their creative ability.

The exercise is inspired by the story of Tom Szaky, founder of Terracycle, who believes that together we can eliminate the idea of waste (Szaky, 2013). (See Szaky’s story at <http://www.terracycle.com/en-US>) In the exercise (based on what Terracycle does) students are presented with items taken from recycling bins such as plastic bottles/containers, wire hangers, foam and plastic cups, empty egg cartons, cardboard, packing peanuts, plastic bags, bottle caps and corks, and asked to “repurpose” them into something different. This is what Szaky calls “upcycling”: material from the recycling bin is deconstructed, and then reconstructed into something to use for a different purpose. Students think they’re being asked to rethink the concept of waste, but they’re really being encouraged to identify opportunities and act entrepreneurially.

The objective of this experiential exercise is to expose students to the creative process by asking them to transform existing resources into something entirely new. The end goal is to raise student’s self-efficacy about their ability to engage in opportunity identification/recognition – doing ideation that could lead to a potentially profitable entrepreneurial opportunity. At the conclusion of the exercise, students will have had a memorable experience that confirms their ability to actually be creative.

The instructor can use the exercise as a jumping off point for a discussion of the entrepreneurial process, explaining how students have actually engaged in ideation, opportunity identification, and have employed effectual reasoning where the goal is not predetermined, but instead open to the surprises that emerge in the process of just doing something. This should confirm the importance of developing an entrepreneurial mindset, and inspire students to apply these concepts, to identify opportunities and act entrepreneurially, everywhere, all the time.

An additional benefit of the exercise is to get the students to reconsider the concept of waste, encourage them to engage in recycling/upcycling in their daily lives, think about the long-term implications of the relative value of waste products to the world at large, and perhaps participate in a socially responsible activity or initiate a socially responsible business that addresses these issues on a larger scale.

How To Do It

This is best done at the very beginning of class, early on in the course. As students enter the room, they are faced with tables or group workspaces with only three chairs at each workspace. At each is a table number, an information card for the group to explain who they are and what they did, and an instruction sheet. This arrangement is purposeful – participants should be put “off stride”, not expecting this unusual setup, and so should be intrigued and a little puzzled. This is an example of “breaking the frame”, positioning the exercise as something that breaks the habitual response patterns, priming the individual for something new and hopefully creative.

On a table in the front of the room are examples from Terracycle of how discarded items are remade into consumer products. Terracycle takes post consumer waste, such as potato chip bags, juice pouches and other items, deconstructs them and repurposes them into new products, such as: a Frito-Lay pencil case, Capri Sun tote bag, Kraft Cheese business card holder. (See examples on the Terracycle website at http://www.terracycle.com/en-US/about-terracycle/how_we_solve and <http://www.dwellsmart.com/TerraCycle>)

Also on the front table are various items that have been “discarded” as recyclable (see examples listed above), plus tools such as scissors, glue guns, hole punches that could be used in “deconstruction”. Finally, other materials are provided that could be added to the recycled items to create something new: posterboard/colored paper, wood craft sticks, pipe cleaners, string/ribbon, rubber bands, duct tape.

Students are asked to form teams of three, find a table to set up at, and go create something. Instruction sheets on each table introduce the exercise as “The DE-construct, RE-construct, RE-create Student Challenge”, and explain participants have 40 minutes to produce something. (See the instruction sheet and instructor notes in the Appendix.) There are additional constraints: they can not use anything that is not already present in the room, they have to produce something different from what the object was originally intended for, what they create needs to serve a useful purpose for some user, they must keep the “waste” from their efforts to an absolute minimum, and they should consider the broader social responsibility/benefits beyond what they created.

The instructor introduces the exercise by explaining how creative solutions are within everyone’s reach, that it’s possible to repurpose almost everything, that there are customers hungry for innovative solutions, and that, with the right fit between problem & solution, there is money to be made! The instructor demonstrates this by pointing to the Terracycle examples, and briefly explaining that Terracycle believes in the concept of “upcycling”, where waste is turned into raw material that can be used for another purpose, a purpose for which the waste material was never intended (Szaky, 2014).

The instructor points out the recycled items, the tools, and the additional material that can be incorporated, and starts the “clock”. The students have 40 minutes to choose their raw materials, decide what to do, find tools and other materials, and complete their creations. As students work, the instructor circulates among the teams to observe progress and aid if necessary. The instructor should not give ideas, just suggestions in the form of questions, i.e. “what else could you use this for? What problem might this solve, and for whom?”

At the end of 40 minutes, teams submit their creations for review, including an information card that lists the members of the teams, the raw materials they re-purposed, the additional construction materials they used, and the purpose they now see the item being used for. The instructor can make choices of category favorites either on his or her own, or by choosing and then asking all participants to vote to confirm these choices.

In the debrief students are asked what inspired them to be creative, the most interesting thing they learned, if there was anything that didn’t work out as planned (where they had to make a “pivot”), what they would have done if they had more time. They are also asked to fill out an

evaluation rating the quality and value of the exercise (1-5 scale) that asks them how they benefited from the exercise

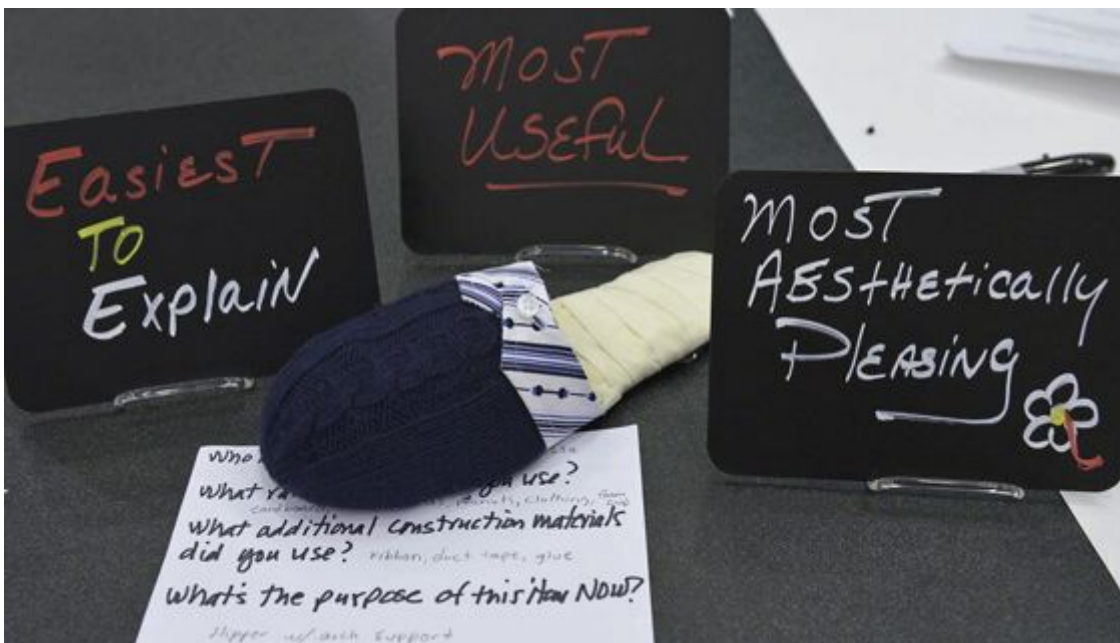
Student Reaction

Given the instructions, which specifically encourage teams to keep the “waste” from their deconstruction/reconstruction efforts to an absolute minimum, and consider the broader social responsibility/benefits issues beyond the actual thing(s) they created, many teams may choose to create multiple items, repurposing not only the recycled material, but the construction material as well. Students have used the string to weave “nets”, the duct tape to create “fabric”, rubber bands and craft sticks to create “handles” for things. Students are also proud when they display their work surface and it contains almost no left-over material.

Regarding expectations of student response, feedback from the students in the past has included the following: “I realized I could be creative in a small amount of time; I learned how to think about garbage in a different way and see how creativity can solve problems; how to use common waste and make new products that are useful to daily functions; I enjoyed it; it was a fantastic idea that was inspiring, keep doing it!” Students usually comment that the time went by so quickly, that they surprised at how many ideas they were able to come up with in such a short time, and that they will never look at waste in quite the same way again.

Exhibit 1

Example of a “winning” item. This is a slipper made from a discarded dress shirt and sweater, cardboard, water bottle, foam cup, crushed peanuts (for the foot arch support), ribbon, and duct tape, put together with a glue gun. Included are the “awards” that this student item won.



Appendix 1: Instruction Sheet

The DE-construct, RE-construct, RE-create Student Challenge

In your team of 3, here is your task:

1. Look at the samples from Terracycle on the front table to get ideas of how to repurpose waste or recycled materials.
2. Look through the recycled items on the front table. These are the items available for deconstruction.
3. Once the challenge begins, select the items you'll use for DECONSTRUCTION, then choose tools and other materials from the front table as needed to RECONSTRUCT and RECREATE items into something useful.

You will have 40 minutes for this challenge.

You cannot use anything that is not already present in the room.

Your final creation will be evaluated as follows:

- You used only what was provided.
- You created something different from what the object was originally intended/created for.
- What you created will serve a useful purpose for some user/audience (therefore it COULD be a process or service rather than a product).
- You kept the “waste” from your deconstruction/reconstruction efforts to an absolute minimum.
- You considered the broader social responsibility/benefits issues beyond the actual thing you created.
- You will be asked to report on what inspired you to be creative, what was the most interesting thing you learned, was there anything that didn't work out as planned (where you had to make a “pivot”), what would you have done if you had more time? You'll also be asked what benefit you got, personally, from the exercise.

Please fill out the card that lists the members of your team, the raw materials you re-purposed, the additional construction materials you used, and the purpose you now see the item being used for.

Instructor Notes

As presented, this exercise is appropriate for any college level course that introduces the entrepreneurial process, intends to develop an entrepreneurial mindset, and highlights the importance of creativity and creative problem solving. It could also be used in a course on sustainability, and to illustrate the ethics of waste and the meaning of “value” – how do we assign value to items, and what signal do we give when we discard something, how can we justify consigning something to the “trash” when it might be useful to someone else, somewhere else, and where our trash becomes someone else's problem to handle (consider the legacy we're leaving our

children!) NOTE: Tina Seelig used a similar exercise in one of her classes, where she challenged her students to create as much value as possible from the contents of a single trashcan in only two hours (Seelig, 2012, p. 199).

As outlined, this exercise is planned for a 90 minute class, but can be shortened if necessary, by only allowing 15 or 20 minutes for the deconstruct/reconstruct activity. However, it's most important that the instructor should not let the students know ahead of time that they will be asked to participate in any exercise. Part of the process is to "break the frame", intriguing the students, preparing them for the unusual, priming creativity. This is why the room set-up, where the traditional tables and chairs no longer face the front of the room, is so important. Students should walk in and see a difference, and have to deal with this difference.

In addition, it's important to put students in groups of three if at all possible: less than three and there's not enough room for diverse opinions, more than three and it's harder to get everyone to participate equally in a short amount of time. In addition, the instructions list specific constraints – both in terms of a time limit and what participants cannot do – and also provide a goal with clear performance criteria. These elements, as well as the initial frame-breaking arrangement of the physical environment, are intended to maximize the possibility that this exercise will be memorable.

Regarding the overall timing, the introduction of the exercise should take no more than 5 minutes: as the students enter the room, the instructor directs them to gather around the tables in groups of three and look at the instruction sheet. Once all the students are in the room, the only introduction the instructor has to give is to say: "Entrepreneurs believe creative solutions are within reach of everyone, that it's possible to repurpose almost everything, that there are customers out there hungry for innovative solutions, and that, with the right fit between problem & solution, there is money to be made! You have 40 minutes. Follow the instructions. GO!" If possible, a laptop will be set up with a count-down clock visible on a screen so participants will know how much time they have left in the exercise.

Once 40 minutes are up, the facilitator will call TIME. As a debrief, the facilitator will ask each group to explain what they did, to give their impressions of the process, and then the facilitator will comment on what was observed, asking participants what inspired them to be creative, what was the most interesting thing they learned, was there anything that didn't work out as planned (where they had to make a "pivot" as a group), what would they have done if they had more time? And what benefit each individual got, personally, from the exercise. If there's time, participants may be asked to walk around and inspect other teams' creations and give their opinion on category "winners": most aesthetically pleasing, most useful, most creative, etc. This debrief should take no more than ten or fifteen minutes.

Student teams should be asked to fill out the "card" at their table that asks the following: Who are you (team members)? What raw materials did you use? What additional construction materials did you use? What's the purpose of this item now? In addition, each participant should be asked to fill out an event "evaluation" that asks for student status (Freshman, Sophomore, Junior, Senior), major, a rating of the quality of the exercise, a rating of the value of the exercise (1-5 rating scale for both questions), and a statement of how they benefited from the exercise.

The instructor can choose to invite other "judges" into the room to evaluate the final reconstructed products, and award "prizes". Participants have been told this will be a timed "competition" and that there will be awards for the results that are the most innovative, the most aesthetic, the most useful, or the most fun, etc. These categories are chosen specifically to reward multiple forms of creative expression. Once the exercise is done, the instructor can make choices of category favorites either on his or her own, or by choosing and then asking all participants to vote to confirm these choices. However, it's best to create categories that match the number of teams, i.e. if there are 30 students, there will be 10 teams, and 10 categories. That way everyone "wins" something. Each team should receive a hand-written plaque with the designated category on it, and both the item(s) created, the plaque, and the information card can be put in a display area where others outside the class can see how creative everyone was!

Finally, the instructor can take fifteen or twenty minutes to explain the history of the original exercise, using the Terracycle story and Tom Szaky's belief in the importance of a creative and socially responsible mindset in business, and give a mini-lecture on the concepts underpinning the exercise. Key points to be stressed include the following: explain how students have actually engaged in ideation, opportunity identification, and have employed effectual reasoning where the goal is not predetermined, but instead open to the surprises that emerge in the process of just doing something – the entrepreneur in this case “effects” change by transforming existing resources into something that has never been seen before – identifying existing resources, starting with who you are, what you know, and who you know (Sarasvathy, 2012; Sarasvathy, 2001), investing “no more than what you can afford to lose” (Read, Sarasvathy, Dew, Wiltbank, & Ohlsson, 2011), trying something, seeing if it will work, and continuing to tinker with it until you've found a viable market or markets. Not only have the students done this in the exercise, but also this is, in fact, what Szaky actually did as he developed Terracycle from what it was, initially, to what it has become.

The instructor can use the exercise as a jumping off point for that mini-lecture on the entrepreneurial process, incorporating textbook concepts, examples, and other pedagogical tools, while reminding students throughout the course that they DID engage in creative thinking and problem solving, and are continuing to do so as they move forward. This should inspire students to apply these concepts, to identify opportunities and act entrepreneurially, everywhere, all the time.

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Franchises Combat

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Abstract

The aim of this exercise is to provide students with an opportunity to analyse franchise systems as attractive investments. The exercise exposes students to alternative business entrances allowing them to interchange responsibilities so as to play the evaluative role of a franchisee and play the convincing role of a franchisor that bargains high returns for their proven business model. Students will be able to practice making sound business decisions, negotiation and presentation skills. This is accomplished by a ten step group exercise in an exciting game which ends with the winning group that has the most franchise agreements.

Keywords: Franchisor, Franchisee, Royalty, Investment

Subject Area: Entrepreneurship

Subject Topic: Franchising

Student Level: Graduate

Time required: 120 minutes

Recommended number of students: 15- 21

Introduction

Entrepreneurship courses and programmes in many universities around the world stress the importance of creativity and innovation in the development of new ventures. Whilst the majority of these programmes focuses on idea generation for business start-ups and new ventures that can be created by entrepreneurs from scratch, several of these programmes also lay emphasis on alternative entry routes into business ownership. These entry routes include the buying of an existing business and purchasing and operating a franchise. This exercise will focus on franchising as a viable option for business entry. Owning a franchise is a perfect opportunity for increasing the chances of business success since the products, services and methods are already established, proven and the business may come with customer loyalty which in many cases can take an entrepreneur many years to build in a brand new venture. This exercise will serve to highlight to students that franchising is an attractive vehicle in business success and students will be able to carry out a practical evaluation of various franchises, compare and contrast various franchises terms and conditions and select suitable franchises that would be good investments.

Learning Outcomes

At the end of the exercise, students will be able to:

- Identify and evaluate various franchises that are potential business opportunities
- Compare and contrast the elements of various franchise systems
- Justify the selection of a suitable franchise as a business opportunity
- Confidently present to and influence third parties on franchise opportunities
- Participate in a role play exercise of franchisors and franchisees
- Acquire a contextual understanding of franchising as a form of business entry

Concept

This exercise will be most impactful if administered to the class after the topic on franchising is taught. More precisely, before administration of the classroom activity, it is recommended that instructors deliver lectures on what is franchising, the various types of franchise systems, the advantages and disadvantages of franchising, how to evaluate franchise systems and the steps in buying a franchise. When one thinks about franchising, the first thing that may come to mind is fast food restaurants. This exercise is designed to expose students to the various types of franchises that could be feasible investment considerations. Students will have the opportunity to conduct research, work with their peers, and discuss and defend their choices. The intent is to have students experience just a taste of what it is like to be in shoes of franchisors and franchisees. Hence, in this activity, students will switch between the role of the franchisee and the role of the franchisor. Upon completion of exercise, students will be able to formulate their own opinions on franchising and decipher whether it is a valuable approach to becoming entrepreneurs.

Required Materials

Laptop/Tablet- one per team
Internet Access
Display Board (one per team) or Tape
Consumable supplies including: construction paper, permanent markers, coloured pencils, rulers, post-it, scissors

Steps for instructors in administering the activity

Step 1

Divide the class into small groups comprising of three classmates per group.

Step 2

Distribute materials to the groups

THE ROLE OF THE FRANCHISEE- IN STEPS 3-6, STUDENTS WILL PLAY THE ROLE OF A FRANCHISEE

Step 3

Students are asked to research and compare various franchise opportunities on the internet. A useful resource link that can be recommended to students to conduct their research is

<https://www.entrepreneur.com/franchise500>

Step 4

Ask each group to select the top three franchises that they consider are the most feasible investment options in their country or region.

Step 5

Ask each group to create a Franchise Profile Matrix on their construction paper. For the matrix, students should draw from their lectures to (1) decide on and include the criteria for franchise selection, (2) assign weights for each criterion and (3) create their own scoring system. (See Appendix 1 for matrix worksheet)

Step 6

Using the matrix, each group should conduct an evaluation on their three top franchises in order to determine to best franchise of the three.

THE ROLE OF THE FRANCHISOR: IN STEPS 7-8, STUDENTS WILL PLAY THE ROLE OF A FRANCHISOR

Step 7

Ask each group to design and decorate a poster on the top franchise they have selected from step 6. The poster must serve as a franchisor advertisement to attract franchisees.

Step 8

Each group must then deliver a short presentation of their franchise using their poster. The aim of the presentation is to serve as a franchisor pitch to potential franchisees. Hence students should highlight the advantages of that franchise system.

THE ROLE OF THE FRANCHISEE: IN STEP 9, STUDENTS WILL PLAY THE ROLE OF A FRANCHISEE

Step 9

Ask each group to select the franchise that they will invest. The rule here is that they cannot select the one that they presented in step 8. It must be a franchise from another group. To do this: Ask each group to visit each other, evaluate the posters and negotiate terms and conditions. Once completed, select a franchise to invest in.

THE ROLE OF THE FRANCHISOR AND FRANCHISEE: IN STEP 10, STUDENTS WILL PLAY THE ROLE OF BOTH FRANCHISEE AND FRANCHISOR.

Step 10

For each franchise that was selected, create and sign a franchising agreement/contract. The contract must include the terms and conditions of both the franchisor and franchisee. Finally, the franchise with the most contracts wins the game. Instructor will announce the winner.

Post Activity Debrief

The debrief session can be open discussion where the instructor would point out areas of improvement, commend good work done and ask students what were the most challenging and rewarding aspects of the exercise. Some questions that can be asked to students:

1. How difficult was it when you made your initial franchise selection? Were there any doubts?
2. Were there any opposing views from your group members?
3. Would you consider buying a franchise over starting your own business? Why so? Do you think franchising is a good investment option?
4. What were some of the limitations that you found from the final franchise agreement?
5. Do you think that your first franchise selection from your evaluation matrix was better than the second franchise that you had to choose from another group? Why so?

Student Reaction

“As an MBA student, the exercise was both challenging and rewarding for me. With the help of my group members, I was able to expand my knowledge on how to evaluate potential franchises that I can set up in my country. The research was eye-opening for me. I was amazed by so many businesses that are franchises including hotels, hair salons, vitamins and commercial cleaning. I was disappointed though that I did not see many businesses from my country (Trinidad and Tobago) as franchises. I had fun when creating the poster. From the presentations made by the other groups, I learnt so much on the details of other franchises. This exercise motivated me to start my own business and then turn it into a franchise so that one day, when students are doing this same exercise, my business would be in the Entrepreneur Franchise 500 list. The exercise gave me an opportunity to practice my negotiation skills and to also think critically. I support the part of the exercise where we were not allowed to select the franchise that we initially presented on for the final investment decision. This way, I was able to evaluate without any bias. I felt as though I was thrown in the valley of risk and choice. The time allotted to do the exercise also mimicked real world circumstances and the competitive forces that exist when managers and leaders have to make sound decisions for their business. The exercise gave me an expanded knowledge and changed my perspective on franchising positively”

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Appendix 1: Franchise Profile Matrix

Selection Criteria <i>Develop your selection criteria in this column</i>	Weight	<i>Place rating scale here</i>		
		Franchise #1 <i>Insert Name:</i>	Franchise #2 <i>Insert Name:</i>	Franchise #3 <i>Insert Name:</i>
Total				

Note to the instructor

The selection criteria should include the elements that one may use to evaluate a franchise system which includes but not limited to royalties and fees, brand name appeal, standardized quality of goods and service, advertising programmes, training aid, financing options, etc.

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Improv Pitch: Using Shark Tank for Business Pitches and Comparison Discussion

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Abstract

The business pitch is an important aspect of sharing ideas and is often utilized to garner interest and funding. This experiential exercise requires students to quickly develop a pitch based on brief descriptions of start-up companies. After presenting the pitch, students must answer questions in an effort to convince the audience of their value proposition. This exercise helps students with their communication skills and improves their ability to think on their feet. After answering questions, students unknowingly view actual entrepreneurs pitching the same business by airing clips from Shark Tank with comparison, discussion, and reflection to follow.

Keywords: Business pitch; critical thinking

Manuscript Subject Area: pitching; critical thinking

Manuscript Subject Topic: Critical thinking in real time

Student Level: Undergraduate

Time Required: 50-75 minutes for Part 1; 50-75 minutes for Part 2

Recommended Number of Students: 8-40¹

¹ Ideal size is ~20 such that groups remain around 3-5 and the total numbers of Shark Tank clips are only 4-5. Showing more than 4-5 clips from an episode(s) belabors the point and can become mundane rather than interesting and exciting for students.

Research suggests that a great deal of start-up funding is secured through the business idea pitch (Pollack, Rutherford, & Nagy, 2012). Furthermore, the interaction and discussion between the pitchers and pitchers after the pitch influences the likelihood of funding, which requires entrepreneurs to think and communicate quickly in response to questions about and potential opposition to their ideas, as this ability attests to the legitimacy of the venture (Bird & Schjoedt, 2009). While some entrepreneurs naturally engage in such banter during the question and answer session, for others this can be a challenge. In some instances, the entrepreneur should make multiple pitches to different audiences to prepare and receive feedback (Boni, 2012). Through multiple pitches and feedback, the entrepreneur learns and improves their abilities and behaviors of delivering the pitch. Although individuals have a baseline performance level for such a skill, improving communication abilities can influence investor decisions (Clark, 2008). The general idea of this activity is to encourage all students to think quickly in order to devise a business pitch in a limited duration. The exercise also influences students that tend to meticulously plan the details of their pitches, to engage in a more spontaneous activity that requires them to adapt and think quickly about preparing a compelling case for a product or service that they are not overly familiar with. Unbeknownst to most students, they will receive information about an actual business that was presented on Shark Tank². This will allow the students to compare and contrast their ideas, pitch, and presentation with those actually pitched by entrepreneurs on Shark Tank.

How to Run the Exercise

Preparation:

- Plan the activity in or shortly thereafter your curriculum pertaining to business or elevator pitches.
- Prior to providing any information regarding the pitch, review 2-3 Shark Tank episodes that show how the Q&A process works. The purpose of this exercise is to prepare students for how a pitch is delivered and how it may be received by potential investors. It also provides the students with insight into what is important to potential investors and how those items should be carefully incorporated into the initial pitch process.
- Prepare information for students from the selected business pitches from the show Shark Tank essentially giving them the information that you learned from the pitch. One-half page of information for each of the pitches within an episode(s) provides students with an adequate amount of information. This is a lesson-plan activity and should be done in advance of your class.
- Instructor needs to have access to 2-3 episodes of Shark Tank. One way to do so is to purchase episodes currently available through Amazon.com for \$1.99 per episode.

² About Shark Tank: More information can be found at ABC's Shark Tank website (<http://abc.go.com/shows/shark-tank>). There are typically three pitches per one hour episode. These episodes are greatly reduced in length through purchase by which there are not commercials. The duration of each pitch and Q&A is approximately 13 minutes.

Part 1: The Activity

- Inform students they will form groups and receive some information about a relatively new business. After they receive this information they will have 10 minutes to work together to prepare an elevator pitch that at least one person in their group will present to the class.
- Give them this time to prepare.
- Proceed in one of two ways: (1) let all groups pitch first and then watch the episode clips and discuss one by one or (2) watch the episodes and discuss after each pitch. We recommend the former because if you run out of time it's better to have all students pitch on the day of the activity rather than giving some groups additional time between classes to prepare. It is most likely that instructors will finish the student pitches in class period one and begin watching the actual Shark Tank pitches. Then in class period two, finish watching the clips and partake in most of the discussion.

Part 2: The Discussion

- Why some entrepreneurs secured funding and others did not.
- Reflect on differences between students' presentations and the presentations seen on Shark Tank. Do so one by one and highlight positives and negatives as well as discussing the overall challenges.
- Discuss the behaviors exhibited by the entrepreneur and the Shark to understand the perception of legitimacy from both perspectives.
- Discuss the potential Shark Tank Lift and/or compare to the Icahn Lift.
- Other topics discussed contingent on the selected pitches.

Other/Nuances:

- Usually a few students will have seen the episode but not a significant number
- It is highly recommended that all pitches are presented on the main day of this activity; if you are running out of time complete the pitches and finish the videos, along with the discussion, during the following class period.
- Do not allow them to use technology during the activity
- Either between class periods or as a follow up assignment you can require students to conduct research in order to turn in or present the current state of the business.

Student Reaction

There were several positive responses to the exercise such as: "Never thought of pitching an idea as being innovative, good for us to practice....we should have done more. Fun and exciting- need more experience based classroom activities like this. Good change of pace, introduce early in the semester and do it again with the same teams with different exercises."

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Appendix 1

Company information example 1

Information for students:

Description: Product helps newborns sleep through the night, mimics the womb for babies, keeps them swaddled in the blankets, keeps them from scratching their face and waking themselves up, makes babies feel safe and protected.

Sales/financials: sold for \$35, over \$1M in Revenue, 100% of business is through their own site, no marketing thus far, invested only \$700 in business.

Additional information for instructors:

Season / Episode: 6 / 1

Company Name: Sleeping Baby, Zipadee Zip

Pitches requested: 200,000 for 10%

Offers: 200,000 for 25%, 200,000 for 20%, 200,000 for 20% (but must go retail, which they may not want to do), counter offered 200,000 for 15% (shark declined counter offer, said only 20%)

Did sharks invest: Yes, Daymond

Final agreement: 200,000 for 20%

Extra notes: Have a huge follower base online, had previous customers vote on new patterns for the Zipadee Zip

Website: <https://zipadeezip.com/>

Appendix 2 Company information example 2

Information for students:

Description: Wire building toy system for ages 6 and up, has a working circuit, can build any creation they desire, can build any structure they desire, open ended play, kids decide what they want to build.

Purpose: designed to inspire young girls to expand their horizons, empower female engineers, inspire innovation through play.

Sales/financials: \$1.7 Million generated in 1.5 years, expect \$5 Million this year, have sold through amazon and online only to date, \$8.75 to make, sell to stores from \$16.50 to \$24, will be in Toys R Us, Radio Shack, Barnes & Noble, and Nordstrom soon, invested 850k.

Additional information for instructors:

Season / Episode: 6 / 2

Company Name: Roominate

Pitches requested: 500k for 5% at 10mil valuation

Offers: 500k for 5% (if his daughters can spend time with the female engineers (entrepreneurs))

Did sharks invest: Yes, Mark and Lori

Final agreement: 500k for 5% from two sharks jointly

Extra notes: market to boys too, but primarily to girls, sharks said being asked to invest in success before success actually happens, sharks suggested marketing should directly communicate that it is for girls

Website: <http://www.roominatetoy.com/>

Breaking the Glass Ceiling of Entrepreneurship

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Abstract

Research shows that women may have a significantly lower aspirations to start their own businesses (Wilson, et al., 2007) as it has been assumed that men are more competent in these regards than females (Correll, 2004). Educators helping students transition from universities into entrepreneurial endeavors should be aware of methods to help students address self-perceptions that may deter realization of their full potential. Specifically, this classroom exercise demonstrates how the Reflected Best-Self Portrait (Roberts et al., 2005) may be used to assess and overcome gender differences in self-perception and increase self confidence among female students in launching their own businesses.

Keywords: Entrepreneurial Intent, Entrepreneur Self-efficacy, Gender, Self-perceptions

Manuscript Subject Area: Management, Gender Studies

Manuscript Subject Topic: Entrepreneurial Intent, Entrepreneur Development

Student Level: Undergraduate

Time Required: 50-75 minutes

Recommended Number of Students: up to 40

This exercise is designed to thwart the fear of failure and lack of self-efficacy associated with reduced desires to engage in entrepreneurship. The Reflected Best-Self (RBS) class activity was designed to allow participants a means of overcoming a tendency to underestimate their own task efficacy in job interviews and job applications. The activity focused on the techniques described in the 2005 publication “Composing the Best-Self Portrait: Building Pathways for Becoming Extraordinary in Work Organizations” (Roberts et al., 2005). The authors define a reflected Best-Self, or RBS, as “an individual’s cognitive representation of the qualities and characteristics the individual displays when at his or her best.” Participants engaging in the creation of a reflected best-self-portrait solicit positive performance feedback from peers, coworkers, and acquaintances. Participants then search for themes within the content of the positive feedback, followed by reflection upon the meaning of the content themes. Any information in content themes that the participant may not have been aware of may produce a positive “jolt” in an individual’s self-perception, resulting in an increased awareness of positive attributes (Roberts, et al., 2005). This “jolt” in self-perception may counteract stereotypically lower levels of self-efficacy (Sweida and Reichard, 2013). Based on this history of positive results, the authors propose that the use of the Best-Self Portrait can help bolster positive self-perceptions and self-efficacy as female college students prepare to transition into the job market.

Implementation

The students were given instructions to collect positive feedback from at least 10 acquaintances, sort the feedback into themes using standard qualitative grouping techniques, and write a short essay about what they learned from the feedback. The importance of collecting only positive, rather than negative, feedback is emphasized to students. Indeed, the RBS activity is not designed to explore ways that students might improve shortcomings. Rather, the RBS is designed to concisely highlight positive personal attributes.

Once students had turned in completed assignments, they were given a short evaluative questionnaire about how the project impacted them. The evaluation included questions related to insight students gained from the assignment as well as benefits students perceived as a result of the positive feedback. The survey included both quantitative questions (e.g. “Did you learn more positive things about yourself than you expected?”) as well as qualitative questions (e.g. “Based on the knowledge you gained in this project, how do you think it might affect your ability to start your own business?”). While participants generally reported that the project made a positive impact on them, an analysis of evaluation results shows that male and female participants were impacted differently in certain aspects.

Conclusion

As research continues to investigate gender differences in entrepreneurial intent and career aspirations, there is a need to address gender differences in self-perception and self-efficacy. The current exercise focuses on the particular situation of students considering starting their own business. This exercise illustrates one method educators can employ to play a role in helping both male and female students recognize their full potential and help them break through self-constructed glass ceilings. The results presented here illustrate that when used as a class activity, the RBS portrait can increase awareness of abilities, particularly among female participants, helping to minimize the negative impact of underinflated self-perceptions. This increased awareness may promote more realistic self-perceptions among females considering an entrepreneurial endeavor.

By creating more realistic self-perceptions of abilities among female job candidates, the authors hope that a small but important impact can be made in the campaign to eliminate self-imposed glass ceilings, allowing opportunities for new value creation to reach greater utilization by more skillful and capable females.

This exercise described herein has several limitations. First, this is an initial exploratory application consisting of data collected during two semesters. A larger sample would be beneficial. Future research with additional data collection could address this issue. The second limitation of this study is that the experiment is time-bound to a single data collection. This limits our ability to assess if the class activity impacts self-perception over time and what lasting impact it may have throughout an individual's intention and subsequent efforts to engage in entrepreneurship. A longitudinal data collection plan would allow a deeper understanding of the lasting impact of the RBS exercise. Future research should also examine individual differences and their relationship to potential positive changes in self-perceptions and the contributing factors of entrepreneurial intent and behavior.

Student Reaction

While participants generally reported that the project made a positive impact on them, an analysis of evaluation results shows that male and female participants were impacted differently in certain aspects. The total number of respondents in this exploratory application was 92, with 42% female. Responses to items in the evaluative questionnaire were used to determine the existence of differences in perceptions of the project and individual results between males and females. Results indicate that the positive impact of the RBS portrait was more pronounced on females in several aspects, specifically in areas related to entrepreneur-related self-efficacy and self-esteem.

Responses to the quantitative item requesting extent of agreement with the statement "I feel that individuals who filled out my survey have a more positive image of me than I had of myself" were significantly more positive in female respondents. That is, females were more likely to have started the RBS project with a less positive image of themselves than the image reported by their respondents. This finding is in agreement with prior research indicating females underestimate their talents and abilities (Correll, 2001).

Analysis of qualitative dimensions produced similar results. Responses to several open-ended questions about the perceived benefits of the RBS showed a much higher occurrence of reports of increased levels of self-esteem and self-efficacy among female respondents. One female student noted, "I feel more comfortable promoting my talents now that they are validated." Another commented "Being told how others believe I'm a good leader absolutely boosts my confidence for starting my own business." Over 73% of female respondents reported comments related to increased self-efficacy or self-esteem compared to only 15% of males.

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Appendix 1: Teaching Overview

This activity uses the Reflected Best-Self Exercise (Roberts et al., 2005 “Composing best-self portrait...” Academy of Management Review). Its purpose is to show your unique competencies and skills, or those things that you do well. You will seek input from other people who know you in order to more deeply understand your personal, interpersonal, and managerial strengths.

1. Find 15-20 people you feel know you well (coworkers, professors, fellow students, friends or family). The more variety you can find, the more accurate your portrait will be. People will inevitably take a long time to respond to your request for feedback, so be sure to ask them early in the course. You must include at least 10 responses to complete the assignment.
2. Compose an email or text request to send to the people you decided to include. (at least 10-20 people). Chances are high that not everyone will respond... and you need at least 10 responses.
3. Read your feedback and sort it into themes. Make notes about concepts that people comment on, and try to see common themes across respondents. Make a chart with themes and actual comments (see below).
4. Create the Reflected Best-Self Portrait by writing a description of your BEST SELF (no more than two double-spaced typed pages) that reflects the insights you acquired from the feedback, appending copies of the emails to the portrait you turn in. For example, a self-portrait might indicate what you do when you are at your best, how you solve problems or communicate with others effectively, and the ways in which you help other people.

In class we will discuss the implications of these best-self-portraits for the development of managerial competencies, effective rewards and motivating work experiences.

Appendix 2: Sample Email Request for Feedback

NOTE: this is just an EXAMPLE... you may also come up with one or more of your own unique questions, even if you decide to use some of the examples below.

1. One of the ways that you add value and make important contributions is:
For example, I think of the time that: (give your example, if you want...)
2. One of the ways that you show valuable leadership characteristics is:
For example, I think of the time that: (give your example, if you want...)
3. One of the ways that you set a positive example for those around you is: =
For example, I think of the time that: (give your example, if you want...)

Make SURE all questions ask for POSITIVE responses (that is why it is called Best-Self, not WORST self. Do not ask about things you need to improve, fix, or make better about yourself; only ask questions about what you do well).

Sorting Themes and Creating a Chart

The next major portion of your paper should include the content analysis of your responses. Group your feedback into themes, make a chart...

Commonality/Theme	Examples Given	Interpretation
1. Proactive	"Jill consistently takes initiative at work" "Jill always takes action to get things done quickly" "Jill is a great team member because she helps the group move forward by doing not just delegating."	My peers note that I am able to move forward on tasks in a proactive manner, and that my proactive nature tends to be an asset to team performance.

Creation of Best –Self Narrative

Compile your reflected Best-Self portrait.

Deliverables: Copies of emails, chart (similar to one above), and write-up, not to exceed 2 pages, typed double-spaced.

Entrepreneurial Readiness Survey and Self-Evaluation

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Abstract

The Entrepreneurial Readiness Survey and Self-Evaluation is a reflective exercise designed to enable students to recognize the wide variety of basic business skills necessary to not only start but manage and sustain their entrepreneurial venture. The exercise both informs students of these skills and asks them to rate their own competency in each area from low to high. Through the self-evaluation and the corresponding follow-up questions, students are able to determine skill areas that require improvement.

Keywords: Entrepreneurial Readiness, Entrepreneurship Education, Experiential Learning

Manuscript Subject Area: Entrepreneurship, Development

Manuscript Subject Topic: Assessment

Student Level: Undergraduate or Graduate

Time Required: 35-50 Minutes

Recommended Number of Students: 15-20

Entrepreneurs are responsible for nearly every aspect of their venture, especially during the nascent stage. While larger, more established companies tend to have the advantage of employees with specialized skill sets or perhaps entire departments dedicated to particular functions (marketing, human resources, finance, etc.), the entrepreneur in a nascent venture will likely be responsible for much of the practical work of the organization. In many cases they will perform the most difficult jobs in addition to the administrative and managerial tasks necessary to allow the company to function (Saarni, S., Saarni, E., & Saarni, H., 2008).

As a result, entrepreneurs must be multi-skilled in a wide variety of business functions and technical skills to ensure that the business does not fail (Lazear, 2008) (Kim, P., Aldrich, H., & Keister, L., 2006). Therefore, it is important that potential entrepreneurs understand these basic business functions and responsibilities as well as their own experience and skills in these areas in order to address any deficiencies they might have.

Unfortunately, many students are not aware of the basic business skills needed in order to operate their venture, nor have they assessed their own competencies in these areas. This is, in part, because little of current entrepreneurship curriculum focuses on skill assessment and recognition, but is instead geared toward ideation or the creation of the venture. This activity is designed to help students understand the business skills needed and responsibilities required to start and operate their venture. By gaining this awareness, as well as their strengths and weaknesses in each area, they will better be able to address possible deficiencies and increase their probability of success.

Activity Description

Ask most students about starting their own businesses and they believe their idea, creativity or passion is enough to succeed, while the majority of the functional areas of business remains an abstract concept. Many students assume they are ready to become entrepreneurs without much serious deliberation, review or analysis of themselves or the responsibilities of being an entrepreneur. Simply stated, the vast majority do not realize what it means to be an entrepreneur; the tasks that must be performed and overseen; and the commitment required. They are ready to plunge headfirst into starting and operating a business without a clear understanding that sustaining their venture will require more than ideation and hard work.

This exercise allows the potential entrepreneur to examine themselves against the basic skills required to be an entrepreneur (i.e., management, marketing, sales, finance, IT and operations) in order to realistically make an assessment about their entrepreneurial readiness. Each student completes the Entrepreneurial Readiness Worksheet and Questions individually, before moving on to a group discussion. The key to this exercise is the student's willingness to perform an honest self-examination.

Conducting the Exercise

Implementing the Entrepreneurial Readiness Survey and Self-Evaluation involves three steps. The exercise steps can be completed in a variety of ways, depending on the needs and scheduling constraints of the class. It can be most efficiently conducted in single class session (Steps 1-3),

although it might not generate the highest level of self-reflection (Step 2). The best results have come from conducting the exercise over parts of two class periods, with the Entrepreneurial Readiness Worksheet being completed at the end of one class (Step 1), the Reflection Questions (Step 2) being completed on the student's own time, between classes with the Discussion (Step 3) completed at the beginning of the next class.

The following steps assume that the exercise is completed during a single class:

Step 1: Entrepreneurial Readiness Worksheet (10 minutes)

Students complete the Entrepreneurial Readiness Worksheet – a 50 question survey covering 10 areas of business skills (sales, marketing, financial planning, accounting, human resources, personnel administration, operations, information technology, personal business skills and intangibles). Students score themselves on a scale of 1 (low) to 5 (high) for each question, with 250 total points available for the exercise. It is important to note that while students are asked to add up a total score, there is no formal scoring table that accompanies the survey as the goal of the exercise is for students to recognize their own deficiencies and discuss them (Steps 2 & 3) as opposed to being formally categorized. Appendix 1 provides the sample Entrepreneurial Readiness Worksheet.

Step 2: Reflection Questions (15-20 minutes)

Following the completion of the Entrepreneurial Readiness Worksheet, students individually complete the 5 Reflection Questions, covering their self-identified strengths and weaknesses, their perceived readiness vs. the worksheet, their view of entrepreneurial responsibilities and their perception of entrepreneurship. Appendix 2 provides the reflection questions.

Step 3: Discussion (10-20 minutes)

The exercise ends with a class discussion, during which students can discuss how and why they scored themselves in the various categories on the Entrepreneurial Readiness Worksheet as well as their reactions/perceptions to the self-scoring, which were recorded in the Reflection Questions. Due to the diversity of the class in both course major (typically, 50% are business students and 50% are from all other majors) as well as personal and professional experiences, students tend to have a wide variance in skill sets, although most tend to score low in many of the categories.

While this opens many avenues for discussion, although a significant amount of discussion time is often dedicated to how students perceived their entrepreneurial readiness prior to the exercise versus their self-scoring in each category.

Student Reaction

The following student reaction was prompted by asking participants to discuss their experience after rating themselves during the exercise. The following questions were used:

1. How did your overall perceived readiness (before filling out the worksheet) match up with your actual readiness level after completing the worksheet? Were you surprised by the results?

I was surprised by how underprepared I am for any sort of an entrepreneurial venture. I had expected, rather naively, that I would score fairly high in all categories. However, it seemed to me that I didn't score highly in categories that strike me as more important to have experience with. Some of these categories included sales, billing, monthly profit/loss statements, tax preparation, etc. These are the sort of things that just never occurred to me. I feel better now that I know what I need to be working on and what I need to research, of course. It was certainly humbling to evaluate myself and find myself wanting.

Stuart

2. What area or areas, according to the worksheet, is your greatest strength? What experience, education and/or training do you have that would support this?

My strongest areas are financial planning and personal business skills, which both scored a 4. I can attribute the above average competency in financial planning to the way that I was raised. My father is financially conservative and I was always taught to save more than I spend and to live within my means. My high score in business is due mostly from my work experience. I managed my father's office for over three years, which helped me to work on my written communication, email/word processing and organizational skills on a daily basis.

Jasmine

3. What area or areas, according to the worksheet, is your greatest weakness?

My greatest weakness is in the administrative area, which deals with scheduling, payroll handling, and benefits administration. While I have helped my managers with daily and weekly scheduling, I do not have any experience with payroll and benefits, besides what I have learned about in my classes; I do not have any real-world experience or training in those skills.

Jennifer

4. Does your prior view of entrepreneurial responsibilities differ from your current view now that you have completed the worksheet? If so, how?

After working for other people, you tend to forget that there is someone in who takes care of things like payroll and copywriting. Companies have the resources to have individual departments for each category. But as a start-up, you are completely responsible for everything. I knew it would be a lot of work, but I did not realize it would be so demanding. My current view definitely differs from my prior view because I now know how much work and experience it would take to be organized and successful

Taylor

5. Having completed the worksheet, what is your current perception of entrepreneurship – excitement, anxiety, confidence, fear or something else? Explain your answer.

This project was eye opening. My current perception of entrepreneurship would be a combination of fear and excitement. It was a bit overwhelming to see all the things that I need to become experienced in for my business to run successful. This job is not for the weak. My fear stems from the feeling of being overwhelmed by all the responsibilities. I have feelings of excitement because I am always open to learning new things. I am excited to take on new roles that I have never been in before.

Daniel

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Appendix 1: Entrepreneurial Readiness Worksheet

Name: _____

Skills	Low		Medium		High
Sales					
Pricing	1	2	3	4	5
Buying	1	2	3	4	5
Sales Planning	1	2	3	4	5
Negotiating	1	2	3	4	5
Direct Selling to Buyers	1	2	3	4	5
Managing Other Salespeople	1	2	3	4	5
Customer Service Follow-Up	1	2	3	4	5
Tracking Competitors	1	2	3	4	5
Marketing					
Advertising/Promotion/Public Relations	1	2	3	4	5
Advertising Copy Writing	1	2	3	4	5
Marketing Strategy	1	2	3	4	5
Media Buying	1	2	3	4	5
Pricing	1	2	3	4	5
Knowledge/Use of Social Media	1	2	3	4	5
Financial Planning					
Monthly Cash Flow Planning	1	2	3	4	5
Bank Relationships	1	2	3	4	5
Management of Credit/Credit Lines	1	2	3	4	5
Accounting					
Bookkeeping	1	2	3	4	5
Billing, Payables & Receivables	1	2	3	4	5
Monthly Profit/Loss Statements	1	2	3	4	5
Quarterly/Annual Tax Preparation	1	2	3	4	5
Human Resources					
Payroll Handling	1	2	3	4	5
Benefits Administration	1	2	3	4	5
Hiring Employees	1	2	3	4	5
Firing Employees	1	2	3	4	5

Skills	Low	Medium	High		
Personnel Administration					
Scheduling	1	2	3	4	5
Motivating Employees	1	2	3	4	5
General Management Skills	1	2	3	4	5
Ability to Train Others	1	2	3	4	5
Operations					
Knowledge of Operational Processes	1	2	3	4	5
Ability to Create Policies, Processes & Procedures	1	2	3	4	5
Ability to Make Products/Provide Services	1	2	3	4	5
Distribution Channel Planning	1	2	3	4	5
Knowledge of the Industry	1	2	3	4	5
Industry Relationships	1	2	3	4	5
Information Technology					
Email/Word Processing Skills	1	2	3	4	5
Excel/Spreadsheets	1	2	3	4	5
Computer & Network Security/Privacy	1	2	3	4	5
Hardware/Software Integration	1	2	3	4	5
Website Building/SEO	1	2	3	4	5
Personal Business Skills					
Oral Presentations	1	2	3	4	5
Written Communication Skills	1	2	3	4	5
Networking	1	2	3	4	5
Organizational Skills	1	2	3	4	5
Intangibles					
Ability to Work Long Hours	1	2	3	4	5
Ability to Manage Risk and Stress	1	2	3	4	5
Ability to Deal with Failure	1	2	3	4	5
Ability to Work Alone	1	2	3	4	5
Ability to Work with Others	1	2	3	4	5
Family Support	1	2	3	4	5

Total Score:

Appendix 2: Reflection Questions

Name:

- 1. How did your overall perceived readiness (before filling out the worksheet) match up with your actual readiness level after completing the worksheet? Were you surprised by the results?*
- 2. What area or areas, according to the worksheet, is your greatest strength? What experience, education and/or training do you have that would support this?*
- 3. What area or areas, according to the worksheet, is your greatest weakness?*
- 4. Does your prior view of entrepreneurial responsibilities differ from your current view now that you have completed the worksheet? If so, how?*
- 5. Having completed the worksheet, what is your current perception of entrepreneurship – excitement, anxiety, confidence, fear or something else? Explain your answer.*

Idea Maturation: The Wooden Egg

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Abstract

The main objective of the “Wooden Egg” activity is to stimulate students to turn an initial product idea into a more attractive and valuable design for sale. Students are provided with a real case that presents an initial product prototype – an animal-shape wooden egg- developed by a student that wanted to launch her own company. Although it is a feasible and saleable product, she is determined to improve her idea before launching it to the market. In teams, students are asked to help her to develop further her initial prototype. Students have to present their invention and explain how their prototype improves and adds value. This activity helps to develop key entrepreneurial competencies such as ideation, adding value to a product and prototyping.

Keywords: Idea Maturation, Creative Thinking, Product Improvement, Value Proposition, Prototyping

Manuscript Subject Area: Entrepreneurship, Innovation

Manuscript Subject Topic: Ideation, Product Development, Creativity, Prototyping

Student Level: Undergraduate students

Time Required: 90 - 120 minutes

Recommended Number of Students: 15 –40.

The “wooden egg” case

The main objective of the “Wooden egg” activity is to develop an improved product in order to make it more attractive and valuable for sale, that is, how to mature an initial business idea.

Students are provided with a real case that I created from a short article that Indiana University (IU) published about the story of Mikaela Gilbert, an IU student that has developed her own business idea (see Appendix 1). The article explains the product development process that Mikaela undergone before launching her final product prototype. This real case serves to present students with a problem to solve: how to improve and mature an initial prototype.

I divided this article in two pieces to create the case:

- **Part 1:** The first part explains the initial product prototype that Mikaela developed. During a digital design class, she was asked to turn a wooden egg into a sellable product. She solved the problem with the creation of a wooden egg that looked like a farm animal, with a weight in the bottom to make it wobble and that emitted the sound corresponding to the animal design. She received good feedback (the product was feasible and saleable) and was encouraged to initiate a Kickstarter campaign. However, Mikaela refused to launch it because she was determined to add more appeal and value to the product. With that purpose, Mikaela decided to enroll in an innovation class.
- **Part 2:** The second part of the article details how the initial prototype of Mikaela, the Animal wooden egg, evolved into a more mature and added-value product, a foreign language tool for children under 5. The final prototype speaks simple phrases in English and then repeats them in a different language. The initial design of the egg is kept, but the animal is representative of the area where the language being taught is spoken. For example, the Chinese-speaking egg is designed to look like a panda.

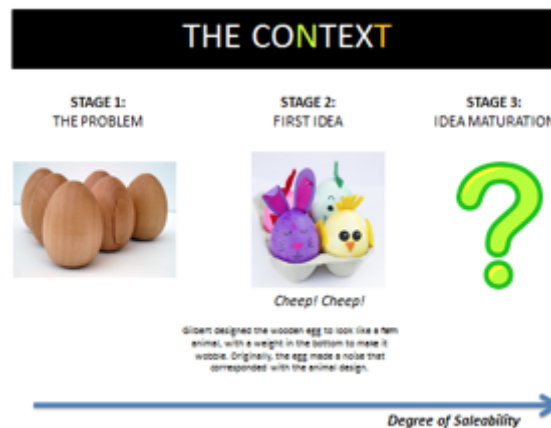
I use Part 1 to introduce the activity to the students, that is, to explain the problem they have to solve; while Part 2 is explained after the activity is conducted (in the discussion step).

Activity implementation

Step 1 – Activity presentation and team formation

This step usually takes around 10 -15 minutes. I prepare a few slides outlining the main activity’s objective and instructions using part 1 of the article. I present the problem that students have to solve: developing further the initial prototype of the wooden egg (see Figure 1).

Figure 1: Problem introduction



Students are asked to help Mikaela Gilbert to improve her initial idea (the animal wooden egg that emits animal sounds) and turn it into a more attractive and saleable product. I explain that they can make themselves the following questions: Can I make this product better? How could it be more attractive? How can I add value to the product? Why the consumer would buy it? How can I make it unique? Is my idea realistic and clear?

This activity is performed in teams. Students build their teams after I present the case. Generally, I allow teams to self-form. The size might be from 3 to 5 students depending on the total number of students in class. The creation of teams should not take more than 5 minutes. The teams are separated from each other to work and I give them and explain an answer sheet (see Appendix 2).

Step 2 – Maturing the product

The teams face the challenge of improving the initial prototype design of Mikaela. They have around 30 minutes approximately (40 minutes if the class has a longer duration). Some students are enthusiastic about the challenge, while others first reaction is reluctance. They feel unable to develop a better product. This feeling is expected because this activity is challenging their creativity skills and they are not used to do this type of exercises. Their attitude changes as they start to work on the product improvement, and the general feeling of the class is very positive at the end when they present their inventions. I walked around the classroom and keep “visiting” the teams to coach them and monitor their progress. I push them to be ambitious and don’t stop with the first idea that crosses their mind, but to explore alternative options and/or develop further their improvement idea.

Step 3 – Ideas presentation

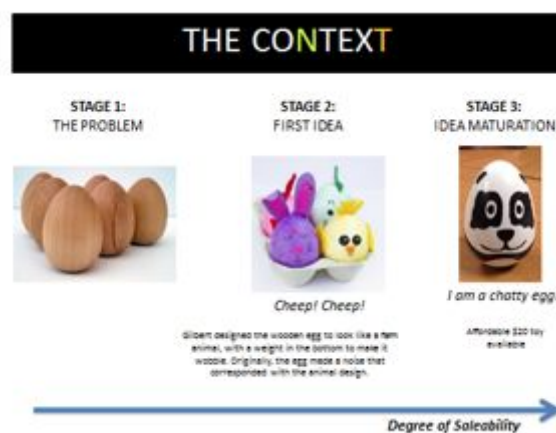
Each team has 3-4 minutes to present their invention and how it improves the initial prototype of Mikaela - how it adds value or why the improvement makes it more attractive and saleable. In order to foster their pitching skills, I ask them to be creative and good communicators. Presentations vary from team to team. Some of them draw their prototype; others prepare a short commercial or a short performance. After each team presentation, we devote 4-5 minutes for open discussion and feedback.

At the end, each team has to vote for the “best improvement” based on the criteria provided (see Appendix 3). This helps to create a sense of competition between the teams to lead them to be more ambitious and creative in their inventions and add fun the activity.

Step 4 –Post-exercise discussion and conclusions

I end the activity with the second part of the Mikaela’s article. I present to the students the final prototype that Mikaela developed: the chatter egg (a language translator tool for children) (see Figure 2). Students really enjoy knowing the solution because it is based on a real case, while they learn the importance of adding value to a product and improving an idea before launching it to the market. This case serves to show how a very simple product idea can become an attractive product and have more changes to succeed.

Figure 2: Problem solution



The discussion can raise interesting topics connected with the ideation stage such as prototyping, idea maturation, idea potential assessment, value proposition (canvas method), and creative thinking. In addition, this activity helps to point out that determination, perseverance, and self-achievement are key attitudes within the entrepreneur’s profile.

This is relevant because a first business idea or a first prototype rarely is the best option. Most of the entrepreneurs fail because they have not matured their ideas enough before launching them to the market (Seah, 2010). Turning a business idea into a real business opportunity requires experimenting with alternative solutions; generating different options; and adapting, tweaking and improving ideas (Foster & Corby, 2007).

Learning objectives

The activity helps students to improve key entrepreneurial competences:

- Prototyping: This activity helps students to further develop their ideas to develop more concrete and feasible product and services.
- Ability to add value to an idea: In the process of improving the animal wooden egg, the students develop and find ways to create and build value around an initial idea
- Take your idea and critically evaluate its potential: in the process of idea maturation, students are critically assessing different prototypes of their idea because they consider the advantages and disadvantages of each prototype.
- Position an idea: Adding value to an idea and think how to make it more saleable imply to find and define the customer segment that that will pay for your product or services and why this person is willing to pay for it.
- Creative thinking: This activity also impels students to use creativity and mental flexibility because they have to generate and assess different ideas or approaches to improve a prototype.

In addition, the wooden egg activity helps to bring theoretically the concept of Value Proposition – a key component of the Canvas method (Osterwalder et al., 2010)- and the different ways through which a product/service or a business model can create value for the customers.

This experiential exercise can be used both to introduce theory, or after the theoretical explanation, as a practical activity to develop the skills connected with the theory. Furthermore, it can be easily connected with other activities linked to the ideation stage of the entrepreneurial journey, for example, with the Mysterious Box (Antolin-Lopez, 2016) that is focused on the generation of ideas for the creation of a first initial prototype.

Student Reaction

What was your experience during the exercise? Working together with the team went really good. All of us had good ideas, which could be combined to an even better idea. First, we did a small Brainstorming Session to collect ideas. Afterwards, we needed to think about who will be the target customer. Are we continuing with the idea of creating a product for kids or do we want to appeal other customers? We noticed that there are many different games already for kids with a huge variety. There is almost nothing that doesn't exist. Thus, we came up with the idea to create a product which is still for kids but can be used by the persons who are most related to the kids: their parents. Finally, the idea came up to create a babyphone. We started thinking about what a perfect babyphone needs to make the babies sleep even better (music, light, sleep tracker) and developed the Dreamy Egg.

What challenges did you & you team experience during the activity? First it was hard to find a good improvement of the simple product of the animal wooden eggs. We had many ideas, but first none of them were convincing. One of the hardest parts was inventing a good name.

Did you find useful the activity? Why? What did you learn? I think the activity was useful. I liked that the activity was related to a real case. I learned that although the initial idea is a quite simple idea, it is able to create a complex business idea out of it in the end. I also experienced that the developed ideas by the teams were completely different. However, I strongly noticed, that

digitalization and use of technologies become more and more important nowadays. Almost every group linked their product to an application on the smartphone.

Is there something you did not like? No! There is nothing that I did not like.

Did you like the activity? Would you recommend to keep it in the syllabus? I would recommend this activity. When it comes to improving creativity, it's important to practice a lot. It is not really effective to tell how to be creative and what one can do to be more creative. The best way to become more creative is to experience creativity.

Inna Dickmänken, 02/03/2016

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Appendix 1: Case Study of the “Wooden Egg”

(<http://inside.indiana.edu/spotlights-profiles/student/2016-01-20-mikaela-gilbert.shtml>)

In high school, Mikaela Gilbert wanted to be a pharmacist. But it was her passion for business that eventually led her to Indiana University.



In a high school digital design class, she was asked to turn a wooden egg into a sellable product. Gilbert designed the wooden egg to look like a farm animal, with a weight in the bottom to make it wobble. Originally, the egg made a noise that corresponded with the animal design. While her teacher thought it was a viable product and encouraged her to create a Kickstarter campaign, Gilbert instead brought it into her innovations class, determined to add more appeal to the product.

The egg quickly evolved into a foreign language training tool for children under 5, Gilbert said. The product, dubbed Chatter Eggs, speaks simple phrases in English and then repeats them in a different language, such as Chinese or French. While the toy is still designed with an animal’s face, the animal is representative of an area where the language being taught is spoken. For example, the Chinese-speaking egg is designed to look like a panda, Gilbert said.

She is currently working with an Indianapolis-based toy company to gather a prototype cost estimate that she can then send to factories for production.

“I see Chatter Eggs being an affordable \$20 toy available in everyday stores like Walmart and Target,” she said. “It’s meant to be something a consumer can purchase on the spot, versus a \$100 product that you have to really think about buying.”



After hearing Gilbert speak about her business venture at a [Women & Hi Tech](#) event in Indianapolis, it was IU first lady [Laurie Burns McRobbie](#) who encouraged Gilbert to consider IU. Gilbert is now a freshman in the [IU Kelley School of Business](#), where she studies entrepreneurship and corporate innovation with a dual major in marketing.

One of the biggest challenges Gilbert has faced throughout this process is her age. Having very little business experience or knowledge makes it difficult to negotiate with toy companies, which is why she has had various mentors along the way.

IU has led her to some of her best mentor relationships yet. Through word of mouth, the father of her neighbor in the dorms heard about her business venture and thought it sounded like a good idea. They have since been working together to launch the product. She also seeks advice from [Donald F. Kuratko](#), a professor of entrepreneurship in the Kelley School of Business. “There’s so many different people around IU with so many different levels of knowledge,” Gilbert said. “If I run into a question about anything, there’s always someone to ask.” Gilbert envisions Chatter Eggs as a stepping stone to building a company that provides children with foreign language learning tools from the exposure stage to fluency.

Appendix 2: Answer sheet for the “Wooden egg” activity

team N°:	Group Members (<u>ALPHABETICAL ORDER</u>)
	1.
	2.
Group name:	3.
	4.
	5.

PRODUCT/SERVICE DEVELOPED:

JUSTIFICATION OF THE IMPROVEMENT:

PRODUCT NAME:

PRODUCT SLOGAN:

Appendix 3: Criteria assessment for the “Wooden egg” activity

JUDGING OTHER INVENTIONS

Criteria	Team 1	Team 2	Team 3	Team 4	Team 5	Team 6
Degree of originality						
Attractiveness of the product/service						
The use of the elements						
Presentation						
Final score						
Ranking						

Note: Use a scale from 1 (poor) to 5 (excellent)

Comments for Team n° :

Comments for Team n° :

Comments for Team n° :

Comments for Team n° :

Comments for Team n°

Prototyping and Testing for Business Product Development

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Abstract

This article presents an exercise that can be used for product development in early-stage business creation. It introduces methods for construction of prototypes for a product or service, testing these prototypes with potential customers, and incorporation of user feedback into overall business development. This exercise can also be applied iteratively, and it can easily be integrated with other Lean Startup methodologies. It is an effective tool to help startups quickly gain customer feedback crucial to early business development.

Keywords: Prototyping, Testing, Product Development, Customer Research

Manuscript Subject Area: Product Development

Manuscript Subject Topic: Product Development, User Testing

Recommended Number of Students: 15-40

Student Level: Undergraduate, Graduate

Time Required: 150 minutes (Divided into three sections of 30 or 60 minutes each)

A key element involved in developing a new business is the incorporation of customer feedback into the design of a product or service. Primary research techniques (i.e. customer interviews, surveys, focus groups, and testing) are frequently employed to collect this customer input directly. Within primary research techniques, prototyping and subsequent user testing of created prototypes can be a particularly effective method. While interviews and surveys can be revealing, there are some insights that can only be discovered by observing a user interacting with a product. This is especially true with new and innovative solutions, where a respondent might have trouble conceptualizing a product or service they have not previously encountered. Prototyping allows observation in all of these situations, and it can be a powerful tool for entrepreneurs developing new products or services.

This paper presents an experiential prototyping exercise that can be implemented in diverse educational settings. This exercise can be utilized to rapidly gain real-world customer feedback. Additionally, it can be applied to all forms of business product development, including the development of software and service businesses. While this paper presents a single round of activities to be completed, these exercises can also be modified to develop multiple, iteratively developed prototypes, or ones of increasing complexity.

Exercise

This exercise is divided into three separate phases, all of which take 30 or 60 minutes to complete. If time is a constraint, phases can be presented separately, as long as each phase is completed without interruption. However, phases must be completed in order, since results from early phases are incorporated into subsequent ones. Before running these exercises, an instructor should gather prototyping supplies to be used by students in Phase II. These should be things that can be rapidly modified and assembled for quick prototype construction. Appendix 1 contains an example of supplies that can be used for this exercise (though many other materials can also be used just as effectively).

If students will be constructing software prototypes, instructors should print up mobile screen templates. Printed on paper, these templates are used to visually present mobile software interfaces for testing, allowing prototyping without the costly and time-consuming process of writing software.

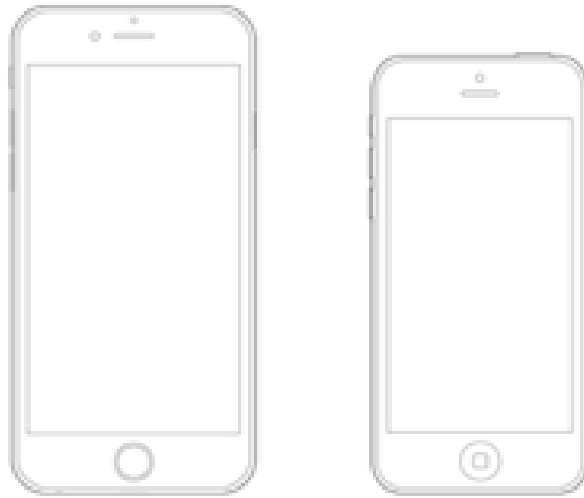


Figure 1: Example of mobile screen template that can be used for prototyping. Templates are typically printed at full screen size to accurately simulate mobile interface (Jojhnjoy, 2014)

To maximize the efficacy of this exercise, prototyping exercises should be integrated with other entrepreneurial actions. It can be presented with other product design functions, like identification of customer needs or solution ideation, or with other business activities like Lean Canvas generation and/or creation of a product pitch. Before undertaking this exercise, an instructor should consider how it fits with other lessons.

Phase I: Introduction to various prototyping techniques (30 minutes)

The first phase of this exercise entails introducing prototyping and how it fits into larger product development and business creation processes. The instructor should emphasize the importance of customer feedback in early business development, and how prototyping can generate these insights. The instructor should also compare it to other primary research techniques, like customer interviews and surveys. Doing so will allow the instructor to convey some of the advantages of prototyping, including the ability to quickly convey an idea or measure if end-users understand how to use a product properly. Students should take away from this phase the lesson that prototyping is one of many tools that can be employed to collect user input. In addition, the instructor should introduce some of the following prototyping techniques, which participants will have a chance to employ in Phase II:

- **Minimum Viable Product (MVP)** – Many products have a single feature or aspect that is critical for end users. If a student can accurately identify this through customer research, they can construct a minimal prototype to test and develop this critical component.
- **Wizard of Oz Prototype** – If a proposed product is expensive or technically complex, it can be time consuming to construct a working prototype. A Wizard of Oz Prototype allows test subjects to have an interactive, realistic user experience, while the creator simulates product functionality behind the scenes.
- **Storyboarding** – This prototyping method entails a series of images or sketches which demonstrates a start-to-finish user scenario. It can be particularly useful for prototyping services and walking a potential user through what an overall process would look like.

In addition to constructing prototypes, the instructor should introduce testing and how it can be used to collect customer feedback. Students will have a chance to experience this concept first-hand when they identify potential test subjects in Phase II, and when they complete user testing in Phase III.

Phase II: Prototype Construction (60 minutes)

Once prototyping techniques have been introduced, students should apply what they have learned and construct a prototype for a business of their choosing. Using materials supplied by the instructor, students should construct a prototype that potential users can interact with and test. It is important to emphasize this functional component, and these creations cannot just be a sketch or description of the prototype. Students will have potential users test their prototype in Phase III, and they will need a functional product to complete this phase properly.

Students should be instructed to not worry about constructing finished or visually pleasing products. The objective of this exercise is to make something quickly that can collect user feedback. Figure 2 shows examples of prototypes constructed during a previous embodiment of this exercise, which were successfully tested with end users.



Figure 2: Examples of results from a classroom prototyping exercise where participants were instructed to create a wallet for a partner.

In addition to constructing a prototype, students should think about testing created prototypes with likely end users. In this phase, they should determine most likely customers for their business and where they can reach these users for testing. By the end of this phase, students should have a functioning, interactive prototype, as well as a general plan for finding end users for testing their creations.

Phase III: Prototype Testing (60 minutes)

Once all prototypes are completed, team members should seek out potential users to test constructed prototypes. Students should observe how these users interact with the product and confirm that they are using the product as intended. They should also examine if the product performs as expected. By the end of this activity, students should observe multiple potential users interacting with constructed prototypes, which can direct future prototypes and product design functions.

Ideally, students will leave the classroom and seek out the most likely users of customers of their prototype for testing. However, this is sometimes not feasible due to time or logistics constraints. As a substitute, students can test their prototypes with other students in their class. The methods of testing and collecting feedback described above are the same for this embodiment. However, if this is done, the instructor should remind students that when doing this for a real business, it is important to identify and seek out most likely customers.

Once this phase is completed, participants should incorporate results into overall business development. Instructors should remind students that pivoting from an original design is important to iteratively improve a business or product. They can also plan additional business creation activities that will incorporate results from this exercise. This allows students to experience prototyping as part of a larger entrepreneurial process, and better understand how it will factor into business creation for future ventures.

Student Reaction

Students often have an enthusiastic response, and they enjoy the hands-on and interactive nature of this exercise. They will frequently get immersed in the activity and will often voluntarily spend additional time working on prototype construction and feedback collection. Students are also often excited to share the prototypes they have constructed. This allows for optional additional activities like presenting their creation to other students, creating opportunities to practice additional skills like public speaking and business communications.

Past assessment of this technique shows quantifiable positive learning outcomes. A prototyping exercises similar to the one outlined in this paper is typically employed by 3 Day Startup, an experiential entrepreneurship educational program employed in university ecosystems. Participants were asked before and after programming to self-assess their ability complete prototyping actions. A Student's t-test shows a significant ($p < .01$) positive change for post-programming responses (See Figure 3 below). This is a further testament to the efficacy of this exercise to teach prototyping in an entrepreneurial setting.

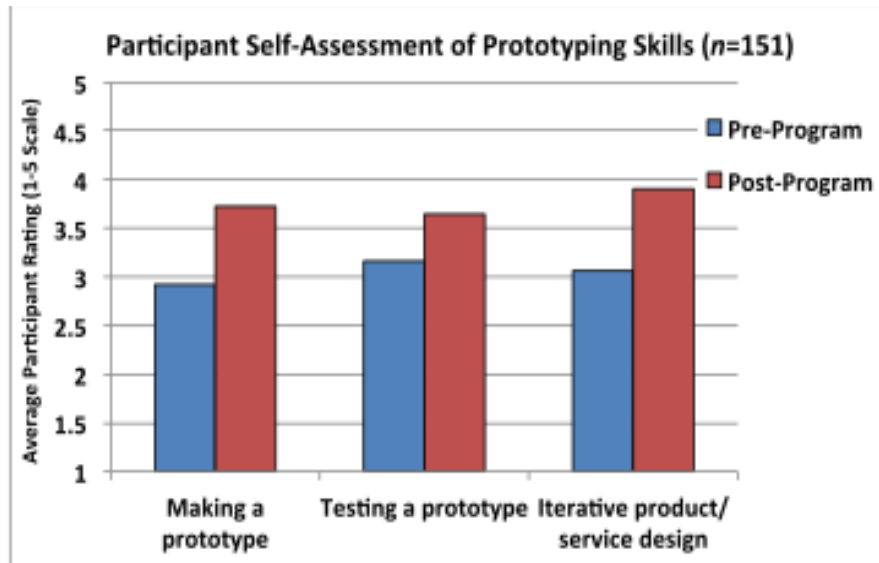


Figure 3: Participant assessment or prototyping tasks before and after programming. A Student’s t-test shows a significant ($p < .01$) positive change for all post-programming responses)

Conclusions

This paper introduces techniques for constructing prototypes for a business product or service. It also introduces techniques for testing these prototypes with potential customers, and it teaches ways of incorporating collected feedback into future product design. This method is applicable in both education and real-world business environments, and prototyping can be an effective tool for entrepreneurs in the early stages of business creation.

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Appendix 1: sample prototyping supplies kit

The following is a sample of supplies that can be provided for a prototyping exercise. While some supplies can be shared (i.e. glue sticks, staplers), the instructor should ensure they have enough materials for all students to create functional prototypes.

- Construction paper
- Glue Stick
- Paper clips
- Binder Clips
- Staplers
- Scissors
- Fabric squares (quilting squares work well for most cases)
- Pipe cleaners
- Pens
- String
- Printouts of smartphone and tablet templates (can be printed on Letter or A4 paper).



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Bug Hunting

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Abstract

In the Bug Hunting exercise, students learn how to find opportunity in everyday environmental situations. They begin by opening their eyes to the idea that they have become “blind” to many of the potential business opportunities that surround them. They begin with a something to record their notes and with fresh eyes open to observation. This introduces students to opportunity through pain points that they and others they may be observing that have been potentially overlooked, gone unnoticed, or tolerated, and the potential feasibility in offering a resolution to a target market.

Keywords: Opportunity Recognition, Pain Points, Observation, Idea Feasibility

Subject Area: Resource Leveraging, Feasibility

Topic: Opportunity Recognition

Student Level: Undergraduate or graduate

Time Required: Varied, but 1.5 – 2 hours over a week should produce the desired outcome.

Recommended Number of Students: This can be done individually or in groups of four with no maximum number

The Setup:

The author uses this exercise as the first experience for students on the first day of class. Je starts by asking who has an idea that they would like to explore over the course. Too often, and for a variety of reasons, there are few responses. He often hears “I don’t have an idea”, or “I can’t think of any opportunities” which begs the conversation of how entrepreneurs can generate ideas.

He discusses how it is human nature to overlook and tolerate many minor irritations of daily lives, and invites discussions on what may have been irritating to class members that day (i.e. weather, roommates, parking, etc.). This discussion invites the setup of the assignment:

The Bug List assignment is intended to sensitize you to the possibilities of new ideas for products and/or services by focusing your attention on how the absence of these products and services leads to problems in your daily life or on a broader scale. Many entrepreneurs find ways of creating value by fixing problems that they or others encounter. **The principle is that there is value in reducing pain, discomfort, irritation or inconvenience.**

There may be a few clarification questions, but generally the students accept the assignment at face value. The richness of this is in the follow up discussion the following week, so the immediate goal here is to stress awareness; they need to maintain vigilance this is not something to set down until the day before or day of the next class.

The Action and Debrief:

To begin, the author requires the students to write down their personal experiences (of note, work experience), and any causes or other interests that they are passionate about. This is to begin the process of making the student actively evaluate their environments. Then, students are told to keep track of “bugs” (things that bug them) during the next week. It is not required to actually experience them this week...draw on your past experiences that you thought about as well. They can also focus on the things that bug others as well. Students are directed that if they are still stuck, to ask their friends and family what bugs them.

In the assignment body, the author offers:

Your current and past employment is often a valuable place to look for bugs, because businesses often pay more for solutions than do consumers. The more individuals who are bugged about a situation, the more likely it is that a solution will result in a viable business idea.

Think about opportunities in your “causes” as well.

Carry a smartphone, notebook, note pad or card with you. When you find something that bugs you or someone else, make a note of it. Type a formal list of the things that you have identified and bring it to class on the Experience/Bug List due date.

The idea is not for the students to generate several pages of “bugs,” but to generate bugs that can be solved and for which many individuals might pay for a solution. If they wish, they can keep a list of potential solutions as well. The author does not require students to submit the “solutions” part, but it does begin the habit of thinking about how to create value.

Most students will come back with three or four rather mundane items. Commonly offered bugs may be:

- Hair in the shower drain
- Food available at the university
- Parking

- This bug list (a perennial favorite)
- Waiting in queue (for anything)
- Phone/laptop/tablet battery running out

While the item noted above may seem mundane, two things may develop. The first is that these items being listed and shared within the classroom may spark a different student to come up with an idea to explore. The second occurrence that may develop is the potential for a genuinely insightful feasible idea. Business students will generally focus on vetted idea and only list those that they think meet some minimum level of quality. Additionally, these students will likely be inward facing and generally list bugs that only affect themselves. Students from other disciplines will generally be much more creative and provide lists that contain both more items listed, and represent a broader spectrum of people facing bugs.

To debrief this exercise with students, the author leads discussions that focus on the following questions:

1. What was most surprising about your Bug Hunt?
 - a. *Most students will mention how many things they have been overlooking and accepting situations as the way it is (or needs to be). Occasionally, students may build upon one another's ideas. Often the class will share consensus on a few items shared by most college students. This is a great opportunity to point out that many of these shared items are due to the context of the students. That the environment has an impact on observations, as well as bugs. At this point, the author asks the class if their list would have been marginally different if it had been raining all week – snowing – sunny and warm?*
 - b. *Some students may share that they were surprised at how many things irritate them! This is a good time to bring in discussion about customer discovery and validation. If one student shares how much people eating popcorn loudly bothers them, the author will pool the class with a non threatening poll "how many people in here are, or know someone well who is, irritated by others eating popcorn." Generally the class allows for a few of these types of short discussions.*
2. What is the most interesting / best idea that you heard today?
 - a. *Generally the class will coalesce around two or three ideas. This will offer the chance to start the conversation about working in teams with shared interest in an idea or shared background. The author introduces the option to work in teams and leaves the class one more week to decide individually if they want to work alone or in a team.*
3. What and how did you learn?
 - a. *Students will discuss how they generated items on their bug list, where they went or what they did to try to experience pain points themselves or observe pain points of others. Often students will again share their surprise at the number of items that are tolerated by themselves and others – at home, school, and work.*

Student Reactions:

Initially, students often protest the process of idea generation as a difficult one or one where they "can't come up with anything good." As the semester moves forward, the author redirects many

questions or assignments back to the initial discussions the class had regarding observations, environments, and customers. One particularly notable outcome came from one student hearing the bug of another student and listening to the proposed solution. The student in the audience thought about an entirely different approach to the solution based on their personal experience and environment. That semester the student went about working on the improved solution and applied it to an entirely different audience. Fast forward four years and they are running a multimillion dollar company with over fifteen employees and just finished a Series A funding round.