2015

Creativity exercises in the field of entrepreneurship

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Experiential Entrepreneurship Exercises Journal

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Experiential Entrepreneurship Exercises Journal (EEEJ), published quarterly by Illinois State University's George R. and Martha Means Center for Entrepreneurial Studies, is a forum for the dissemination and exchange of innovative teaching exercises in the fields of entrepreneurship, innovation, and small business management. EEEJ is currently seeking original contributions that have not been published or are under consideration elsewhere.

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Setting the Stage:
Thoughts from the Ivory Tower

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I just returned from a week in beautiful Calgary, Alberta, Canada as a member of the inaugural cohort in the Go Deep Entrepreneurship Teaching and Learning Scholars and Fellows Program. Sixteen innovative educators gathered to discuss how to implement deep impact in their respective entrepreneurship education-related projects. A majority of us focused on some sort of classroom project, so we naturally wanted to discuss the activities; the "how" was front of our mind. Our guides (Alex Bruton and Michelle Yeo) pushed us to change our initial focus from the activities to the desired learning outcomes so we could "subscribe to a learning perspective of entrepreneurship and an outcomes-based and constructive philosophy toward it."

The idea was to follow this progression:
1. Develop desired learning outcomes
2. Develop assessment tasks
3. Develop teaching and learning activities

This creates a broader learning and assurance landscape based on constructive alignment. In other words, it creates a powerful learning experience for students. The activities found in this journal are the vehicle educators can use to implement their outcomes and assessment. I urge you to understand how a certain activity might help you assess students' learning. This requires you to first define your desired learning outcomes. In my course, those include empathizing with potential customers, prototyping a physical representation of an idea, and selling a good/service to a stranger. Once I define those outcomes, I define what success looks like – what my students will see, hear, fell, experience if they met the desired outcomes. Next I define what constitutes evidence – "something that can be observed, presented, or performed to support an assertion that the learning has happened, and can be articulated for different levels of mastery." Then I think about the assessment tasks, or what I can do to assess the students' learning. Finally, I get to injecting teaching and learning activities into the learning environment.

The activities found in this journal can transform your students' experience, but only if you implement them in a way that aligns with the learning outcomes and assessment tasks. It seems unnatural and perhaps painful to design teaching and learning activities last. ***Trust me, it is worth it to wait!*** Only when you have our desired learning outcomes and assessment tasks mapped out, then browse our activities for those that deliver the learning opportunity that matches.

The Marble Game

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Abstract

In The Marble Game, students learn to consistently trade up in value. They begin with essentially nothing (a virtually worthless object) and proceed to amass as much value as they can over three weeks' time. Past student successes include a student having amassed approximately $1,700 in value, and another student couples amassed $5,645 in cash.

Keywords: Marble Game, Arts Entrepreneurship Games, Hart

Subject Area: Pitching, Sales Techniques, Asset Acquisition, Experiential Learning, Games for the Classroom

Subject Topic: Asset Acquisition, Pitching, Experiential Learning

Student Level: Undergraduate

Time Required: Students begin The Marble Game with forty minutes of class time to trade--for one 50-minute class. This is then followed by ten minutes of group discussion about their discoveries. Students then spend three weeks time competing.

Recommended Number of Students: Four or more with no maximum number

Background and Acknowledgements:
Some years ago, Canadian Kyle MacDonald began trading up in value from a single red paperclip. After fourteen well-thought-out trades, he came to own a house. MacDonald's experiment is the inspiration for The Marble Game.

Note: This game is briefly articulated in an essay that appears in a book published by Edward Elgar Publishing. However, this game is not explored in detail in that essay/chapter—only briefly mentioned. The following text is used in a footnote in that essay: "The Marble Game is an offshoot of Kyle MacDonald's effort of trading up from a single red paper clip to an eventual house. At the second author's institution, The Marble Game is played in a course called Attracting Capital. In this case, students begin with a marble, as it has no apparent and obvious use. In the fall semester of 2013, one student traded up from her marble to over $1,700 in value."

Learning Outcomes:
- Development of sales techniques
- Experience in pitching and leveraging one's personal story and passion
- Knowledge of how to inspire others
- Understanding the relativity of value
- Experience in asset acquisition
- An experiential knowledge of the value of bartering
- Experience in competition
- Experience for students in utilizing their personal network
- Experience in the redistribution of assets
- Experience in creating significant value from virtually nothing

How to Play:

For most, a marble has no significant value—outside of possibly stimulating a childhood memory of play or it may attract one's eye as a shiny object. What is important about the use of marble is that it is common and virtually worthless. It is the objective of the students to consistently trade up in value from essentially nothing to a significant amount of value.

Students are divided into pairs and, working together, take a full class-time period to begin the process of trading up. They leave the classroom and begin their process in the college or university building/s. With ten minutes to spare, before the end of class, students return and share with the class what they have acquired and how they did it.

Some of the objects that students have returned with after this class-time period have included textbooks, pens and other school supplies, a pre-paid Visa card, a cigar, a Starbucks gift card and other random objects.

Students are told they have three weeks to work consistently as a pair, in competition with classmates, to amass as much value as possible. At the end of three weeks, the class, as a whole will assess and vote upon the value of what each pair has been able to acquire, and the winning couple is awarded:

1. The title of "Champion of the Day" and
2. An automatic score of 100 on their next quiz.

Tips for the Teacher:

What is the Real Value?

Until students amass a considerable amount of value (one student pair acquired Range Rover wheels during one semester), the object/s they are trading have virtually nothing to do with acquiring greater value. What they are selling is their story and themselves. Past student players have found value in telling people they are in competition with other students and that they will get a 100 on their next quiz grade. They may tell prospective traders that all proceeds are donated to a nonprofit. Others have found value in communicating with passion.

Eventually, students may amass a considerable amount of value, such as the Range Rover wheels mentioned above, and can then trade their objects for cash, which has an unequivocal and non-debatable value.

Dividing Assets:
If students end up with multiple objects (like a book and a necklace, for example), they may find it useful to each take an object and begin the process of trading separately from one another. By each person trading separately, there is a greater likelihood they will amass more value, as they need not be together in the act of trading. One student may trade at their sorority house while another with family members or at work.

Tax Considerations:
So that the school does not encounter tax issues with the students' amassing of assets, all goods and/or cash collected are donated to a nonprofit of the class or winning pair's choice. With the donation, the students commit an act of good (donating to a nonprofit), which is popular with students, and experience redistribution of assets.

Utilizing Networks:
Generally speaking, people like to help those they know, like and trust. With this understanding, it behooves students to utilize their networks in the process of amassing value. One's network is key for any entrepreneur, and this is an opportunity for students to gain an experiential understanding of how their network can aid them in the realization of their goals.

Asset Acquisition:
Successful entrepreneurs often develop something of sizeable value from essentially nothing. They use their imaginations, personal networks, passion and strategies to acquire and amass value. The same holds true for students playing The Marble Game. With the accumulation of assets, students can then trade those assets for cash—either through platforms like www.craigslist.com, www.ebay.com or in person through friends, colleagues, associates or even strangers.

Motivating Students:
Each semester I have played this game, at least one student in the room eagerly takes on the challenge, commits him or herself and acquires a significant amount of value. However, some will not commit and, consequently, do not gain much from the game. I have found it important to consistently check in with students, asking them how much value they have acquired. More, if they do not play the game, their participation grade is docked. Each student fills out a questionnaire on themselves and their partners, communicating if each participated.

Students in higher education are often busy and their schedules filled with obligations. Therefore, it becomes important to incentivize students so as to keep the game fresh in their minds and to motivate them to consistently play. I have found success in challenging the students to triple their value within one week. If they can do so, they gain five extra credit points on the next class quiz they take. Students have also given feedback that their ability to choose which nonprofit receives the acquired value is a motivating factor to try harder.

Student Reactions:
Sam Lankford, Arts Entrepreneurship minor, said, "The key to my success was not the object I had, but the good and the impact it was going to have in the end." This reaction stems from an interview from our campus paper, which can be found HERE. In the following video, recent graduate and then Arts Entrepreneurship minor Jordan Barnett, speaks about her process and discoveries in the playing of The Marble Game.

Past Outcomes:
For the purpose of this article, I share two examples of students' success. In the video I share, Barnett was able to amass an estimated value of around $1,700. Paired students Sam Lankford and Tala Duwaji were able to amass $5,645 in cash.

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A Low-Risk Entrepreneurial Trading Challenge

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Abstract

This exercise involves giving students a low value item (e.g. a small item of stationary, in this case a folding clip) and challenging them to trade this with customers for items of greater value. The exercise is suited for small to medium sized classes, can be run over anything from 1 to 4 weeks and requires an initial 15 minutes to outline the challenge and a 30-60 minute debrief. This experiential exercise introduces students to value propositions and interacting with customers in a generally low risk environment, and can provide them with useful insights into entrepreneurship.

Keywords: value proposition, customer segments, risk

Subject Area: Understanding the perception of value and engaging with customers

Subject Topic: customer development, marketing

Student Level: Undergraduate and Graduate, both within and outside of business schools, although experienced entrepreneurs (e.g. MBA students) may (but not definitely) find this a little underwhelming.

Time Required: ~15 mins to introduce, ~30 mins to an hour to debrief, 1-4 weeks running time outside of class; any more than four weeks may result in the exercise stagnating, but shorted running times may impede trading opportunities.

Recommended Number of Students: 10-50 (upper limit relates to time needed for individual debriefing in class.

Concept

One of the key aspects of entrepreneurship is understanding how potential customers perceive value; i.e., the interaction between the value proposition and customer segment sections of the Business Model Canvas (Osterwalder and Pigneur, 2010). Getting students to go out into the real world and discover this for themselves can be difficult; this exercise aims to provide a low risk method of introducing students to engaging with potential customers, discovering how different potential customers perceive value, and how their own perception of value can significantly differ from their customers perception, a key factor in any entrepreneurial venture.

The exercise mimics the experience of Kyle McDonald (MacDonald, 2007), who traded a single red paperclip for various items over the course of a year until he eventually traded up to a two storey farmhouse in Saskatchewan. Rather than a paperclip, this exercise started with a folding clip (see Figure 1).

Figure 1. Folding clip used in this challenge; other low value items (e.g. stationary, marbles, etc.) could also be used.

Each student was given a folding clip and was given four weeks to trade up to the most valuable item they could obtain by trading alone. The instructions given to the students were as follows:

- Each of you gets one folding clip
- You should try to uptrade this clip for something better and get a chain of trades going between now and Workshop 12 (i.e. in 4 weeks' time)
- Each pair should come to Workshop 12 with their final object(s) and a very short presentation outlining their chain of trades
- Best pair (by popular vote) gets a prize of $50 each.
- Be creative, use social media, and find some trades!

There were no other guidelines issues to students and there were no marks assigned to the task. The end result was that around 75% of the class traded their clip at least once, with the most successful trading several times and ending up with much more valuable items, like a combined

printer-scanner with paper, a $500 surfboard, and two used drum heads from famous drummers (including Chad Smith of the Red Hot Chili Peppers), among others. The exercise was a surprise with no prior warning and was outlined in the last 15 minutes of a workshop so that students could immediately go and start thinking about trading.

This exercise was run with the second year cohort of the Bachelor of Science Advanced - Global Challenges (Honours) degree course at Monash University, a selective course where a small cohort of high potential students study a core science of their choice (e.g. maths, physics, chemistry, geology, environmental science, biology, etc.) as a major but take other courses that are focused on leadership, communication and entrepreneurship. As such, these students had little experience in entrepreneurship before the start of this course, with the success of this exercise (see student feedback below) indicating that it is probably suitable for a wide range of students both within and outside of business schools. The exercise also highlighted a number of key aspects of entrepreneurship, including:

- The importance of moving fast (e.g. by advertising your clip on a university-focused Facebook page, meaning that any subsequent students who posted on the same page essentially "copied" your approach).
- Engaging with customers to determine what they consider is valuable and what is not (the very essence of trading).
- The importance of understanding different perspectives on value propositions; what you might consider cheap and of no consequence might be considered very valuable to others.
- Changes in the value of an item as a result of external circumstances such as timing and location; one student realized that a folding clip would be very valuable to students submitting assignments and so commenced his trading on a day when assignments were due in and close to the submission boxes, ensuring he increased the value of his initial item.
- Marketing and social media; the most successful students used a variety of tools when trading, both face to face, via blogs and Twitter (e.g. using a hashtag of #chainoftrades and trading-focused blogs http://tradeevolution.blogspot.com.au/).
- The importance of resources other than money; by removing money from the equation you emphasize that students and entrepreneurs alike need to consider (and often prioritize) resources other than money, especially during the early stages of a start-up. This is important, especially for students starting out on their entrepeneurial education, as often the first thing they think about is how they can secure cash for their enterprise, rather than securing other more important (but potentially less tangible) resources.

The activity is also fairly low risk in terms of finances, but requires students to engage with customers and potentially risk their own reputation (as discussed in the student feedback below). The exercise wrapped up with a simple discussion of individuals' trades and what they ended up with, plus delving into the insights and key take away messages for entrepreneurship that they developed from the exercise.

In hindsight, allocating marks to this exercise may have engaged more students, and also the trades noticeably dropped off as this exercise was run in the second half of semester, meaning that other assignments and exams took priority over this exercise. As such I would recommend this be run during the first few weeks of a course. I also thought that running the exercise in pairs might have engendered more creativity but the vast majority of students worked as individuals, so little in the way of teamwork was achieved through this exercise.

Overall, I would encourage entrepreneurial educators to try this exercise either with their own students or as part of a challenge within a wider entrepreneurial ecosystem as it is low risk but a) gets students thinking and acting entrepreneurially, b) helps students develop insights into key aspects of entrepreneurship and their own entrepreneurial careers, and c) has the potential to provide some interesting publicity for courses and students, especially if students effectively engage

with social media. I would also certainly value any feedback in terms of further development of this exercise and to understand how this exercise would be approached by students from other (i.e. non science) backgrounds.

Student Reaction:

Isabelle Capomolla, second year Global Challenges student: I discovered how useful it can be to be first to utilise a resource in your field. For me, the instant we got this assignment, I posted on Monash StalkerSpace (a Monash University Facebook page with >10,000 student members) to see if anyone was willing to trade with me. This is a resource that I have within my reach and, by being the first person to post on this page, I effectively had the monopoly on this resource as a means of finding a potential trade. This illustrated to me that by understanding resources I can already utilize, I can make the most of them and also prevent my competitors (i.e. my classmates) from being able to take away some of my market share. This same principle can be applied with resources like intellectual property (ensuring that patents are filed quickly once a product is developed) or with staff (hiring someone who is very talented early on to show them that they are important to you).

Secondly, I learnt from other people's experiences that the value of an item cannot be determined by you, but rather your customers. It is important to recognize that sometimes the value you perceive in a product you develop may not always be the same value that your customer perceives. These are the two most valuable things that I have taken away from this exercise and that I can apply to my enterprise models in the future.

Scott Runacres, second year Global Challenges student: Shortly after receiving my folding clip I was nagging random people in my lecture theatre if anyone wanted to trade. Finally, after my 5th lecture, a lovely girl traded my clip for my two toy erasers, probably out of kindness; these two toy rubbers were then traded for a kettle from a man at a garage sale (I convinced his daughter that she needed the erasers). I had the kettle for a few weeks until I discovered a friend was moving out of home; I asked if he needed a kettle and he said yes, so we traded it for an old dusty surfboard which had no value to him. This old surfboard was traded for a new, custom made surfboard by a friend (whom I'd given a lift home from a nightclub just weeks earlier) and who is sponsored for surfing! So, I ended up with a $550 surfboard, from a 30 cent bulldog clip. How? Firstly, every trade I made, I increased the value of the product I was receiving. The father who traded his kettle for my two erasers didn't really care about the kettle that was selling at a garage sale anyway; instead he saw the value in his daughter being happy. The old dusty surfboard I received from my friend had no value to him as he already had three new boards and the old board had been in his garage for years. The new surfboard I received, even though it was expensive in terms of cash value, was small to the person I traded with as he is a sponsored surfer and gets surfboards very cheaply anyway. This illustrates that value means different things to different people, according to their personality, position at the present time, morals/values, financial state etc.

The other important lesson here is ask people if you want something or need something; what harm will come your way by asking people (i.e. potential customers)? Furthermore, and on a similar note, network with the people around you; ask people if they know anyone whom you can benefit from interacting with. The more people you ask and the more people you bring into your 'circle' the greater the chance of someone being able to offer you something of interest and vice versa. These are incredibly simple concepts, yet many people still devalue the power of networking, or are too lazy to ask around or to look and to discover. If you want something, either ask someone if they can give it to you, or ask if they know anyone that can. It worked for me, and it will work for you, and you may be very surprised at what some people consider useless! The best thing about all this is that it is incredibly easy.

George Hurley, second year Global Challenges student: One simple lesson that I learnt from the folding clip challenge was that you don't know what you can get until you ask. For me that was in

the form of standing up in front of the whole men's division at my hockey club and asking for a trade. This took me outside my comfort zone to the point where I nearly did not go through with it as I really value what the other guys at the club think of me and when you see them 3 times a week for more than half the year you want to get along. So to me, putting myself out there in front of them was really difficult. I didn't know if people would respond positively or mock me for it. Initially I did get a bit of mocking but I expected that and could deal with it. However, after I had about 4 or 5 people come up to me either with offers to trade or ideas, I was really encouraged by this and it showed me that unless you try something you will never know.

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Customer Interviews for Early Stage Business Creation

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Abstract

This article presents a method for interviewing customers for early-stage business research. It covers customer identification and interview preparation, execution of customer interviews, and analysis of interview data for product and business framework design. This methodology can be applied to fledgling ventures in all industries, as well as experiential educational programming. This exercise has been used extensively by 3 Day Startup, a 501(c)3 nonprofit which designs and delivers experiential entrepreneurial workshops, and has been shown to have a proven track record of success.

Keywords: Customer, Development, Interviews, 3 Day Startup

Subject Area: Customer Research

Subject Topic: Customer Development, Market Validation

Student Level: Undergraduate, Graduate

Time Required: 120 minutes (Divided into three sections of 30 or 60 minutes each)

Recommended Number of Students: 15-40

Introduction

3 Day Startup (3DS) is a 501(c)3 nonprofit which designs and delivers experiential entrepreneurial education workshops in university ecosystems. In these workshops, participants are taught concepts important to early-stage business research and creation, and then reinforce material learned by working on a business concept of their own. At the end of the third day, participants have created an initial product or business framework, which they can elect to continue working on after program completion. Table 1 below gives a general outline of 3DS educational programming.

Table 1: Outline of Tasks During 3DS Program

Day 1	Day 2	Day 3
• Identifying business opportunities • Idea generation for business ideas • Selection of business ideas • Business team formation	• Market Validation • Customer Interviews • Analysis of customer research • Design of initial business framework or product	• Business Plan Design • Identification of suppliers and partners • Product prototyping • Pitching a product or businesses

A key element of 3DS educational programs occurs on Day 2, when participants complete real-world customer interviews to validate business assumptions and shape early business design. Participants are "kicked out of the building" to seek out real potential customers for interview data. This exercise gives participants the opportunity to hear from customers directly, and incorporate their feedback directly into their initial business offering.

This paper presents an abridged version of the customer interview method 3 Day Startup uses in their educational workshops. It has been modified so that it can be reproduced in a classroom setting. Although every business has a different set of customers and needs, this paper presents a general methodology can be applied in a variety of settings. Additionally, customer interviews is not a one-time action, and should be repeated at multiple points during business development

Exercise

This exercise is divided into three separate phases, all of which take 30 or 60 minutes to complete. An entire phase should be completed without interruption. However, if time is a constraint, different phases can be completed at different times, as long as phases are completed in order, and results from each previous phase is incorporated into subsequent ones.

Phase I: Customer identification (30 minutes)

Before starting customer research, participants should spend time planning their data acquisition strategy. The first step for this is identifying likely customers for their business concept. To determine likely customers, students should answer the question "Who is most likely to buy my product or service?" An exact answer is not required for this, but participants should attempt to determine as much demographic information as possible. Additionally, students should brainstorm locations where they can identify and contact likely customers for interviews.

It is important that students recognize the difference between users and customers. While it is important for a business to have extensive knowledge about both, customers are more important as they are the source of sales and revenue for a business. Ideally, students should interview both

customers and users. However, if there is only time to pursue one, they should aim to interview customers for this exercise.

Additionally, students should determine what information is needed. Typical interviews will focus on customer pain points, and interview questions that will confirm the business is solving a real market need. Questions can further focus on how much time of money a customer spends attempting to solve a problem, and how they research other potential solutions. The ultimate results of these efforts are a set of questions which will form a 5-10 minute customer interview.

Phase II: Customer Interview Execution and collection of Data (60 minutes)
Once interview planning is complete, teams should conduct interviews with likely customers. If feasible, students should travel to locations identified in Phase I to collect as accurate data as possible. Additionally, to collect data efficiently, teams should divide into groups of 1-2, with each group conducting interviews independently. This will allow teams to collect multiple data sources simultaneously, and even collect data in multiple locations.

One technique which can be beneficial is to have two participants complete an interview together. One person conducts the interview, and drives dialogue with the customer. The other participant takes notes and records observations. This allows each participant to complete an important task for customer interviews, without being overwhelmed. Additionally, recorded notes will be important when interview results are analyzed in Phase III, and should not be neglected.

During this Phase, it is important to emphasize that participants interview people as close to likely customers as possible. Interviewing individuals that do not fall into this demographic can give inaccurate or even incorrect information. At this early stage in business creation, incorrect customer information can lead to product and business failure. While it may seem more efficient to have students interview each other, or interview those on campus regardless of business idea, doing so won't allow students to gain real-world experience from this exercise, which is the primary learning outcome from this exercise.

Even though students have prepared interview questions beforehand, they should not be afraid to go "off-script," or have conversations about topics not initially identified during Phase I. These unplanned conversations can be the source of very valuable insights that users could not identify on their own. Students should be encouraged to take extensive notes as well, so as to remember these unexpected findings when analyzing findings in Phase III.

Phase III: Analysis of Data (30 minutes)
When all interviews are completed, all members of the team should reassemble. All collected data should be consolidated and analyzed for further insights. Quantifiable data (i.e. answers to the questions "How much do you spend on _____") should be analyzed as well, to look for trends. The team should try to identify patterns or common themes within qualitative data which could be influential to startup product design.

During this phase, a business will often pivot from their original ideas, and can end up pursuing. This can make students apprehensive, and they will sometimes be hesitant to do so. However, changing direction in response to market data occurs for every successful business, and should be encouraged based of collected data. Doing so indicates that the business is committed to constantly improving their product or service, even if it means deviating from initial hypothesis.

Students should also not be afraid to admit pivoting or abandoning an initial assumption, as it shows a company is open to change and response to real-world customer input.

Once this phase is completed, participants should incorporate results into overall business design. This will drive product creation that is data driven and effectively responds to customer pain points.

Student Reactions

3 Day Startup remains very interested in the educational outcomes from its educational programming, and is constantly surveying students in regards to learning and attitudes towards entrepreneurship. In a recent study, 3DS surveyed program participants before and after educational programming, to gauge educational change. When asked to rate their ability to perform Customer Research, there was a significant positive change in average responses collected post-programming versus those collected before commencement of programming. Figure 1 below shows the results of this Pre- and Post-Programming survey data for customer research.
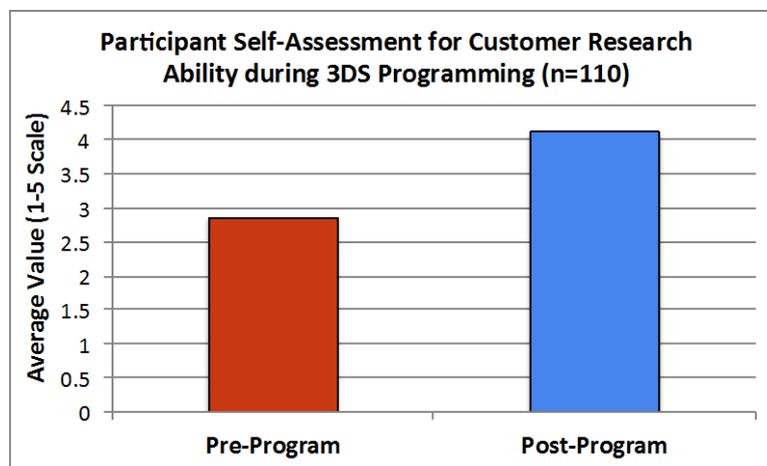
Figure 2: Change in participant ability to conduct customer research as a result of 3DS Programming

Additionally, 3DS uses Net Promoter Score (NPS) to gauge participant reaction to programming. This method, which is frequently used in business and educational settings, asks respondents to rate on a scale from 0 to 10 their likelihood of recommending a 3DS workshop to a friend or colleague. Responses are separated into Net Detractors (0-6), Neutral (7-8), and Net Promoters. NPS, which is calculated as a percent, is calculated by subtracting net detractors from net promoters, and dividing the result by the number of overall participants. The overall NPS for multiple programs is comparable to some of the most popular US corporations (See Figure 2 below). This gives the organization further confidence that programming (of which real-world customer interviews are a significant part) is well received by participants.

Net Promoter Scores for 3 Day Startup (n=212) and Popular US Companies
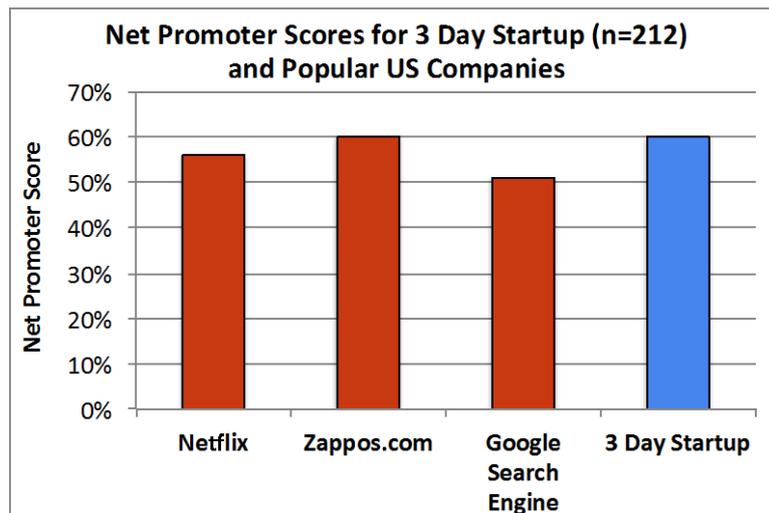
3DS also asks participants for general feedback about educational workshops. Many participants, unprompted to do so, cite customer interviews as one of the highlights of the program. The quote below is from a former 3DS participant:

> "I really appreciate taking part in 3ds. It's amazing program. What I like the most is the part when the teams have to leave the building and go to the clients to understand their needs. It shows very well that sometimes we can think that people have a need but in the fact they do not."

Conclusions

3 Day Startup uses experiential learning to teach entrepreneurship and business creation. A significant step in early stage business creation is interviewing customers and using real customer information to drive product and business design. This paper introduces a general methodology for interviewing potential customers. Because this method relies on talking to real-world customers to validate assumptions, it is applicable in both education and real-business creation settings.

Opportunity Recognition Exercise: Painstorming

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Abstract

Sometimes engineers spend a lot of time solving problems that, even if solved—don't generate significant value to the customer. One way to avoid this failure mode is to first focus on the problem/opportunity itself to make sure that, if solved, it will alleviate a real pain for the customer (stakeholder). Such alleviation of a customer pain is prerequisite for creating value for that customer. This article describes a painstorming exercise designed to enable engineering students to identify opportunities.

Keywords: Painstorming, opportunity recognition, problem definition, innovation

Manuscript Subject Area: Opportunity recognition

Manuscript Subject Topic: Painstorming: A tool to identify opportunity

Student Level: Freshman through graduate

Time Required: Approx. 200 mins in class (plus some student homework time)

Recommended Number of Students: 8-40

Students and practicing engineers often utilize brainstorming as an idea generation technique. While the author believes there are significantly better idea generation methodologies than brainstorming, that is not the subject of this exercise. Instead, this exercise involves a technique that will be referred to as painstorming, a sort of play on words with the term brainstorming.

Epicenter published a similar article on the author's painstorming exercise at http://epicenter.stanford.edu/resource/how-to-teach-a-painstorming-exercise.

Sometimes engineers spend a lot of time solving problems that, even if solved—don't generate significant value to the customer. One way to avoid this failure mode is to first focus on the problem/opportunity itself to make sure that, if solved, it will alleviate a real pain for the customer (stakeholder). Such alleviation of a customer pain is prerequisite for creating value for that customer.

The idea behind painstorming is instead of just brainstorming for solutions to some assumed or given problem, you back up a step and look for significant pain or opportunity in the market.   It has been the author's observation that engineers tend to be pretty good at solving problems, but not nearly as good at opportunity recognition and identifying problems worth solving in the first place.

In painstorming, students are asked to generate problem statements based on actual customers' pains and frustrations before proceeding to develop potential concepts addressing those opportunities. The painstorming process is essentially an ethnographic research process designed to identify a significant opportunity space.

The author teaches this technique in his product development, innovation, and design and creativity classes as well as industry workshops. Painstorming provides an opportunity for students to work on designing the problem rather than just the solution to problems given to them. Products perceived to be innovative that have done well in marketplace can be traced back to the pain they address. Also, all patents must discuss 'usefulness,' which typically entails a description of the pain that is alleviated by the invention.

The author's painstorming exercise can be done with undergraduate or graduate level students. It is relevant in any design course, but particularly one in which the students are tasked with opportunity recognition and problem definition tasks

The seven steps of the exercise are listed below.

Step 1
Provide students with examples of innovative products that address customer pains.

The author does this via a PowerPoint presentation which can be found at: http://weaverjm.faculty.udmercy.edu/fileshare/HHDNmodules/UDM_KEEN_Painstorming_with_audio_20120910.pptx. The author would welcome any updates to this presentation. This step is done in class and usually takes approximately 30-45 minutes.

Step 2
Prime students with observation skills.

The author shows his students a popular video that demonstrates the power of observation and the tendency for people to only notice what they are focusing on: www.youtube.com/watch?v=IGQmdoK_ZfY (study by cognitive psychologists Daniel Simons and Christopher Chabris). In this video, how many passes did you count? Did you see the gorilla?

The author also presents the students with the following AEIOU observation guidelines (which the author first saw in a workshop done by Heide Neck of babson College):

•   **A**ctivities – what are people doing?
•   **E**nvironment – how are people using the environment? What's the role of the environment?
•   **I**nteractions – Do you see any routines? Do you observe special interactions between people? Between people and objects?
•   **O**bjects – What's there – and is it being used or not? Describe engagement with objects.
•   **U**sers – Who are the users you are observing? What are their roles? Are there any extreme users?

This step is done in class and takes approximately 20 minutes.

Step 3

Help students understand the customer.

Weaver leads a class exercise with IDEO methods cards, which help researchers, designers and engineers develop diverse ways to understand the people for whom they are designing:
www.ideo.com/work/method-cards

This step involves an in class discussion and quick overview of the methods cards which usually takes about 20 minutes. Each student is tasked with choosing one card and trying that method in a homework assignment (that assignment can take 30 minutes or more).

Step 4

Assign each student the task of observing human pains for a week.

Students are given an assignment to go out into the world to listen for and observe frustration. The assignment deliverable is a 5-10 minute video of a people performing everyday tasks (done with no staging and without getting in trouble).
The student must watch his/her video multiple times, and in different ways (with no audio, with someone else, backwards, etc.) and write down potential opportunities where an innovative solution may generate value. Students must also note sub-optimal ways that people perform tasks without even noticing that the approach is sub-optimal (usually because that's the way it's been done for a long time—even though conditions and technology may have changed).

This step is done outside of class time. Student time to complete the task varies widely, but is typically an hour minimum.

Step 5

Ask each student to bring his or her video to class and collect other students' observations.

In class, students watch the collection of videos together and identify additional needs or opportunities that the student who made the video may have missed.
This step takes approximately 15 minutes per student. Obviously this approach can become unmanageable for a class larger than 10 students or so, so in that case, the author recommends breaking the class into groups of five or six students for execution of this step, with the instructor first facilitating the process through a few videos to demonstrate the expected process.

Step 6

Grade students on how many needs or opportunities they identified in their own video, and how many needs or opportunities they identified in others' videos that the owner missed.

This step is just a data collection activity that can occur simultaneously with Step 5.

Step 7

Use these ideas as starting points for students to state potential problem statements before proceeding to generate a wide array of concepts that address those problem statements.

Some of the pains uncovered by students in the authors' classes include: inefficient ways people loaded and secured bicycles, canoes and kayaks to their car trailers; student dorm room problems such as one alarm clock waking up both roommates; and different ways people spread fertilizer or weed killer on their lawns.

One student took a video of a man raking leaves. Problems he observed included sub-optimal ergonomics of the rake, wind interference and inefficiency of leaf collection bags. While the class watched the student's video, another student noticed that the end of the man's roof drainage pipe protruded into his driveway several feet, and as a result was crushed from being run over by his car. Other students followed this train of thought and began discussing the man's clogged gutters and other pain points unrelated to the apparent theme of the video. This demonstrates how a discussion that was originally about leaves in a yard turned into downspouts and water management. Getting students to see this when the obvious focus was on the person cleaning up leaves was exactly the objective of the exercise.

The author's website also features a collection of Keen Technical Entrepreneurship Case Studies, which are intended to be used in engineering programs to enhance student understanding of how technical concepts can be developed into new businesses:
www.weaverjm.faculty.udmercy.edu/udmkeencases.html

Also, while brainstorming has its place (maybe), the author believes that a variety of concept generation tools can greatly expand a team's (or individual's) capability to thoroughly address the design space before committing to a particular concept. Slides on many of these ideating techniques are available at http://weaverjm.faculty.udmercy.edu/innovation.html (under the Weaver's Notes heading).

Student Reflections

Here are two reflections written by students who have been through the painstorming exercise.

First Student Reflection

At the first glance painstorming process sounded easy enough, but when I started looking for pains it quickly became evident that even though the pains are all around us, you really have to pay attention to find them. Some can complain about "what a pain it is to (action)…." but then it goes unnoticed unless someone really pays attention and hears the complaint in the "hunting for pain" state of mind.

Second Student Reflection

This is a mind opening process. First, you see products that really address and solve common pains of daily life. Here you can see how humanity solved daily problems with relatively simple solutions that always make you think: "why I didn't think of that"? The next step is a focus game, it shows the difference between people that can really focus on selective details of something and forget about the rest and those people that doesn't focus that much but see things the first group does not. This will show you which group you are in. Innovative people need to see beyond the common things and be able to see beyond the usual and obvious. Then it's time to watch people doing their routine, without knowing exactly what you're looking for. This step helped me see what is bothering customers, what the customers want to see improved or even removed from their lives. This is This is done by shooting and analyzing videos. After shooting and analyzing their own videos, the group watches each other's videos to seek for new pains that the shooter did not notice. This step shows that it does not matter how many times you watched the same video, you will always miss something - and that could be the million dollar idea, so be prepared to find it. In the end of the process, the group of students will have a list of pains they can work on for the remainder of the course. It's up to each group to analyze one by one and choose which one has the best potential to become a new solution that the team might bring to market.
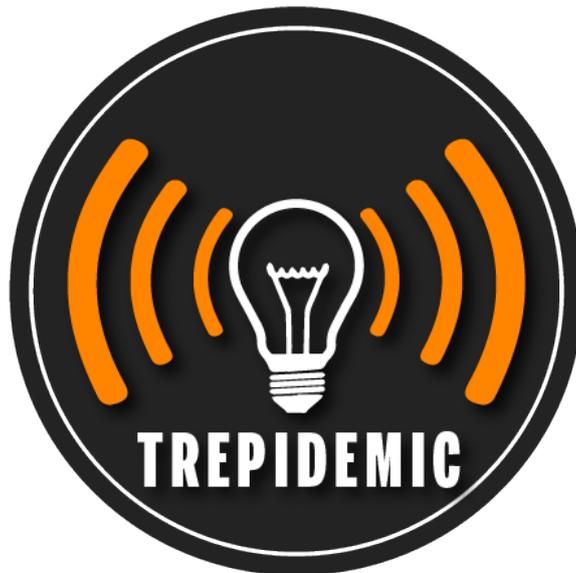
Where Entrepreneurship That Works Meets Entrepreneurship Education

Announcing *Trepidemic* – the podcast that brings innovative, forward-thinking entrepreneurship educators together with successful entrepreneurs to discuss the hottest trends and most effective practices in entrepreneurship education. The show is targeted to educators, entrepreneurs, and students looking to perfect their craft, learn what works, and to open up productive conversations to help change the world.

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Make That Money

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Abstract

In the Make That Money exercise, students learn how to engage potential customers, leverage limited resources, and how to sell. They begin with limited resources (a few dollars and short timeframe) and proceed to quickly make as much money as they can. This fast-paced, high-pressure exercise involves students interacting with their community to create sales. This introduces students to concepts of planning vs. doing, customer development, selling, negotiating, and teamwork.

Keywords: Customer Development, Selling, Negotiating, Teamwork, Pitching

Subject Area: Pitching, Resource Leveraging, Selling

Subject Topic: Customer Development, Selling

Student Level: Undergraduate or graduate

Time Required: 1.5 – 2 hours. Students should have 40 minutes to sell, then at least 35 minutes to debrief.

Recommended Number of Students: Four or more with no maximum number

The Setup:

The author uses this exercise as the first experience for students on the first day of class. He does not introduce the course, provide the syllabus or any other introductory materials or activities before this exercise. He emails students prior to the beginning of the semester notifying them to meet him at a specific location of his choosing instead of in the classroom. Do not give students any information about the exercise or the purpose, just instruct them when and where to meet.

The first day of class, meet with students off campus, ideally in a shopping area with plenty of foot traffic. Because the students have limited time to sell, it is necessary there be plenty of potential customers readily available. Ideally, place students nearby some sort of grocery store/gas station/pharmacy so they can have the opportunity to purchase goods with their money. The author sets the exercise up for the students as follows:

1. Split the class into groups of 4 or 5.
2. Give each group 10 $1 bills.
3. Instruct them their task is to *legally* make as much money as possible in 40 minutes. The students will have many questions. The author does not answer any questions, just reiterates their task is to *legally* make as much money as possible in 40 minutes.
4. Instruct students to meet back in the classroom after the 40 minutes.
5. Walk away.

It is critical to not answer the students' questions because they need to learn to navigate the uncertainty and ambiguity of the situation. They will ask questions to clarify how they can use the money, how they can split the money, whether they can make sales on credit, whether such-and-such counts as a sale, and the litany of questions goes on. Most will be very uncomfortable with the lack of instructions and boundaries. The author physically walks away from students while they are still asking questions to make the point that they need to get started, and that they will not get any clarification. The goal here is to stress action; they need to get started right away given the short timeframe.

The Action and Debrief:

Most students will fail gloriously at this task and create zero sales. Business students will generally spend too much time planning how to use the 10 $1 bills. Students from other disciplines will generally not be too distracted by the money and will start brainstorming ways to create and deliver value. Most return to the classroom frustrated and anxious. A few return energized and excited. To debrief this exercise with the students, lead discussions for the remainder of the class around the following questions targeted at the students:

1. Describe your group's process
   a. *Most groups will talk about spending much of the time developing a plan. Here is a chance to highlight the planning vs. action dichotomy. Given very limited resources and a very specific goal, talk to students about the importance of taking quick action and learning-by-doing. Also talk about teamwork and the difficulties of working together toward a common goal given very limited resources; most groups will bring up some type of conflict within the group in terms of key decisions (where, how, why, etc.)*

   b. *Most groups will choose to take the approach of selling something they develop or purchase to customers instead of interviewing customers to identify and fulfill their needs. Here is a chance to discuss customer development as a more effective method of "selling".*

2. What was the role of the cash in the exercise?
   a. *Most groups will highlight their focus on the cash; they will talk about deciding how to split the cash between group members, and how to use the cash. In this exercise, the cash is a distraction. The groups that succeed will realize this and understand the easiest path to success is selling a service, which requires no cash to develop.*

3. What and how did you learn?
   a. *Students will discuss how they learned about taking action, about working in a team, about how difficult it is to sell something of little value to strangers. The variety of "what" identified by the students provides a good roadmap for future exercises in the course. More importantly, push the students to identify how they learned during this exercise. Highlight the importance of learning-by-doing, and of engaging their customers with questions.*

Student Reactions:

Michael, junior Entrepreneurship & Small Business Management major. Initially, I hated this exercise. I knew Doan did things differently in his class, and gave us the chance to create our own experience, but I was really uncomfortable with this as the beginning of the class. I am a transfer student, so I didn't know anyone in the class. We immediately had to get in groups, and since I didn't know anyone, I felt like I was the last one picked. I had some ideas of how to use the money Doan gave us, but since the other group members all knew each other already, I had a hard time convincing them to listen to me. I eventually just went with the group's plan, even though I didn't agree with it. We went to the CVS store and bought some bottled water to try and resell it. Of course, this was a terrible idea because it's already expensive when we bought it, so why would anyone pay even more for it from a stranger? Anyway, we didn't sell anything. I got lots of weird reactions and looks from the few people I approached. We didn't have much time to sell because we spent so much time talking about what to do. We threw all kinds of ideas out there, but the brainstorming didn't do us any good because we didn't have enough time to really think through the ideas. As the class went on, I realized this exercise was a really good introduction to the class. Entrepreneurship is about focusing on the customer, and using the few resources you have well, and just flat out hustling to sell stuff. That's what this exercise is about. While I hated this exercise while I was doing it, and for a while after it was over, as the class went on, I realized it really was an awesome introduction to entrepreneurial learning.

Speed dating for entrepreneurship – rapid fire pitching and adaptation of business models

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Abstract

Pitching an idea for a business can be daunting; equally, nascent entrepreneurs can often be wedded to their original idea and may find it difficult to adapt this idea as they acquire more information. This exercise involves rapid-fire pitching of business models to fellow students during entrepreneurial speed dating, with the questions and suggestions received after pitching being used to adapt the student's model during the next pitch. This fast paced pitching and incorporation of new information introduces students to the concepts of iterative learning and adaptation as new information is received from customer engagement and market testing.

Keywords: pitching, business models, networking, customer engagement

Manuscript Subject Area: Pitching, networking, iterative learning and business models

Manuscript Subject Topic: Pitching, reforming and evaluating an enterprise model

Student Level: Undergraduate and Graduate

Time Required: Minimum 40 minutes. Students need to come to the class with at least an initial outline of a business model that they can pitch, meaning that this aspect needs to be introduced the week before the class. The exercise itself will last a minimum of 40 mins but could be extended further to an hour or more depending on how many rounds of speed dating you undertake.

Recommended Number of Students: 10-40

Concept

Pitching a new idea, especially in public and in a short period of time, is something that is an intrinsic component of entrepreneurship yet can be daunting to students. In addition, entrepreneurs need to be able to quickly take in information from various sources (e.g. customers, potential investors, colleagues, etc.) and reform (often drastically) or pivot aspects of their business model as a result of these learnings. This exercise addresses some of these needs using a speed dating approach whereby students to deliver 1 minute business model pitches to one of their peers, who then respond with 2 minutes of questioning or providing suggestions or other input. This obviously means that students need to develop a business idea or model prior to the class that they can pitch during the session; this need not be that well developed as the speed dating will facilitate the development of the model. After the initial 3 minutes of pitching and then questioning the roles are then reversed, with the original questioner now pitching and then being questioned for two minutes. The students then change partners, and another round of pitching should commence, with this next round of pitching incorporating the results of the questioning and suggestions from the previous round of speed dating. This process is repeated as many times as is desired or as many times as you have allotted time for, with a minimum of 3 iterations to ensure students have the chance to take on information and adapt their business model as a result of new information. The maximum number of iterations is dictated by the time available in the classroom, but a practical limit of 6 rounds of speed dating is probably good as returns seem to diminish after this. The basic outline of this exercise (incorporating the three minimum changes of partner) is as follows:

- Setting up of the room with two rows of chairs facing each other
- Introduction of the exercise by the facilitator (~10 minutes)
- Students form into pairs and the first round of speed dating commences (2 x 3 mins)
- Students then change seats to find a new partner (~1-2 mins)
- Students form into pairs and the second round of speed dating commences (2 x 3 mins)
- Students then change seats to find a new partner (~1-2 mins)
- Students form into pairs and the third round of speed dating commences (2 x 3 mins)
- The exercise finishes and students are given a maximum of ~5 minutes to make any notes they want to make before the debriefing session
- Post-exercise debriefing led by the facilitator (~15-30 minutes)

This total exercise should be able to be run over 40 minutes or so.

The ideal setting for this exercise is an open room where you can set chairs in two long lines facing each other in the center of the room. This not only gets the students intrigued and excited by what might be going on during the workshop or tutorial but also facilitates changing of partners, as it is easy to ask all of the students to stand up and move one seat to the left, thereby meeting a new partner. This setup also enables the facilitator to clearly identify who should be pitching and who should be questioning by dividing the classroom into left and right halves, reducing the amount of questioning by students who do not know what they should be doing.

There are two methods of dealing with an odd number of students; either you as the facilitator can pair up with the extra student, or the extra student can form a three with an existing pair, splitting the 6 minutes into 3 lots of 2 minutes (i.e. 1 minute for pitching, 1 minute for questioning by the other two students) with each student having 2 minutes rather than the 3 minutes that pairs of students usually have. If you use the latter option, you should ensure the three students end up in pairs rather than in the three that will form during the next round of speed dating.

Timing is essential; ideally a bell or some other clear signal is needed to stop students talking and to either transition from pitching to questioning or vice versa, or to initiate swapping of partners. An internet based stopwatch or similar (e.g. www.online-stopwatch.com/full-screen-stopwatch/) would

also be useful both for the facilitator and the students to clearly delineate when changes or swaps should occur.

When running the exercise, expect quite a bit of noise as discussions take off. In addition, if students really get into their ideas there may be some resistance to moving on to the next partner; however, ensuring that the majority of students get up and move to the next partner will ensure any reluctant parties will also move on.

The final cycle of the exercise should be followed by a debriefing session where students get to outline the insights they developed during the exercise and how their business models have changed as a result of interacting with other students (who in some cases may also be potential customers). Some simple questions you might pose are:

- Did you find an enterprise that you want to be involved in?
- Did your own business concept change as a result of speed dating?
- Was this a positive or negative experience?
- What aspects of the presentation or enterprise engaged you?

Selecting one or two students to outline their original business plan and how it has changed as a result of the speed dating can also be productive. These questions should lead into deeper discussion of the importance of not being wedded to a fixed business plan, of testing your ideas through interacting with customers, of networking with possible partners and resource providers, and of being able to quickly react and adapt to new information, as is the case when starting a new business.

This exercise should ideally be used during the early stages of an entrepreneurship course, especially any courses that require students to develop business models or start their own business during the semester. The approach can be used with a wide range of students from nascent entrepreneurs to experienced graduate students and beyond; I have successfully used this exercise or variants thereof a number of times and have not yet encountered a group who does not get a lot out of (and enjoy) the exercise or who does not fully engage with the rounds of pitching and questioning. The quick-fire approach also contrasts sharply with many other formats of presentation that university students are exposed to (e.g. lectures or formal in-class presentations) and emphasizes the importance of being able to quickly but precisely outline a business (or indeed any) concept.

Student Reaction:
Cass Cleever, second year Global Challenges student: One of the things that I got from the speed-dating exercise was that I found it really beneficial to actually speak about my idea for a business model. It not only formalized what I was doing, but the physical act of speaking about it and explaining it made me more motivated/excited to see it through. Furthermore, gaining support and feedback from peers made me review my own business model and begin adapting it to new ideas.

Don't Pitch, Show: An Update to Final Course Presentations

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Abstract

Students often have difficulties conveying how their venture idea solves a consumer pain during in-class business plan pitches. Instead of standard business plan presentations, the following exercise allows students to demonstrate the consumer pain and their solution via a Kickstarter-like video. Students produce a two to three minute YouTube video with the main intent to show how they are solving a pain, but presented in an interesting and entertaining way. This creates a more creative and hands-on environment of how to think about and effectively communicate new venture ideas, along with aligning with emerging funding sources (open crowdfunding).

Keywords: business plan; experiential entrepreneurship education; pitch

Manuscript Subject Area: Pitching

Manuscript Subject Topic: Customer Validation

Student Level: Undergraduate and/or Graduate

Time Required: Highly flexible contingent upon in-class time devoted to the project. At a minimum (spread throughout the duration of the course), 10 minutes to explain the project, 50-75 minutes for mid-term pitches, and 50-75 minutes to show their final videos.

Recommended Number of Students: 12-60

One of the first steps in new venture creation is creating a business plan (Shane & Delmar, 2004). "The value of the business plan is in its ability to convey the goals of the firm, the intent of the founders, and the promise for the future value of the venture" (White, Hertz, & D'Souza, 2011, p. 1). Because of this, many college students in entrepreneurship courses are directed to create a business plan for their own venture idea (Honig, 2004; Morris, Kuratko, & Cornwall, 2013). However, these final reports tend to be inadequate as students treat them as filling out a template (Edelman, 2004), and lack the passion in the venture needed to really sell the idea (Chen, Yao, & Kotha, 2009). Thus, while value is still added for students in the process of putting together and presenting a business plan, there is need for an updated method to convey this information.

This exercise utilizes a new method that builds on the popularity of viral videos, while also forcing students to actually engage with potential customers and solutions in a given industry. By producing an engaging, Kickstarter-like YouTube video explaining why their solution is needed, students demonstrate the validity of their idea, as many of the ideas are difficult to demonstrate within a classroom setting in real-time. Through this exercise, students will gain a better understanding of what their idea actually entails versus making assumptions via non-contextual-based research on industry and demographic trends. From this better understanding, and a visual demonstration of that understanding, students' end products will be enhanced. This enhanced communication of the idea also brings with it a better interaction between students and judges because they are all sharing the "same language" (Grant, 1996), allowing judges to provide more directed feedback.

Two other indirect benefits stem from this exercise. First, while experts in their own realm, some business plan judges tend not to be the most ideal for a specific venture idea. This is due to geographic constraints of the local network of potential judges near the university. This tends to put some student teams at a disadvantage during the judging period and after the course (i.e., assuming students have plans to pursue the idea further). Thus, having digital pitches allows instructors to invite judges with a richer expertise needed for that specific project. Second, the investing landscape is beginning to change, where a person with an idea no longer has to sit in a room with an angel investor or venture capitalist and pitch their idea to get funding. Crowdfunding is now a multi-billion dollar industry where any individual can provide seed money for a new idea they believe in. In fact, the Crowdfunding Industry Report estimates that over $5 billion will be raised via crowdfunding in 2013[1]. Due to this rise in new funding, many entrepreneurs have begun flooding crowdfunding sites like Kickstarter and Crowdfunder. Because of this new format, a one-on-one conversation with the investor will likely never take place, and entrepreneurs have to be more creative in pitching their ideas to more novice investors. Having an engaging video about the idea can help an entrepreneur standout from the crowd and get exposure to many potential investors (Ferguson, 2008).

The Exercise

The directive for this exercise is for students to understand if their venture idea is feasible. As part of their final project for creating a business plan of a new venture, students must create a 2-3 minute video demonstrating the issue and solution in a given market. Students have to make an in-class pitch to instructors for their midterm grade. This is when they will receive feedback on areas in which they need rethinking or enhancing. From this feedback, students will understand if their message is or is not working when conveying it to others. Once their positioning is better conceptualized, the team then decides on the type of video and theme they want to create. Providing diverse examples of past projects also helps with student understanding, creativity, and to emphasize that no one way is better than another. It is also suggested that teams put a storyboard together of shots they need in order to show their story, as this helps students to break up a larger task into manageable pieces. Most, if not all, students own a smart phone with video-taking and

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[1] http://www.crowdfunding.nl/wp-content/uploads/2012/05/92834651-Massolution-abridged-Crowd-Funding-Industry-Report1.pdf

video-editing capabilities. There are also very affordable applications for the phone that can be used for enhanced quality of the final video. The final video should not be longer than three minutes in order to keep the attention of the audience, but also force the students to concisely convey their venture idea. Final videos are graded by instructors, peers, and judges based on creativity, entertainment, usefulness of information provided, and excitement created about the venture idea. The final video can be the whole presentation or used to enhance a traditional pitch. Judges' comments and questions about the venture idea can be in-person or submitted electronically. Extra credit can be offered to the teams with the most likes for their video on YouTube up to one week past the submission due date (or by the time grades are due). Future iterations may enhance this idea by giving extra credit to students that receive the most funding from a crowdfunding website.

Student Reaction

While initially concerned about having very little guidelines, students are appreciative of the chance to have so much creative freedom, which tends to be lacking in most business courses. One student said, "I've never had to do anything like this. It was pretty cool to get out and do something fun." Students also comment that this exercise challenges them to think differently about their idea and how to communicate it to others, which would have been difficult to reach by only writing a paper or preparing slides. Another student said, "To be honest, we were kind of winging it during the midterm presentation. But, to make the video, we had to actually think through our logic and capture that on video." Overall, it is a simple twist on current practices that is more fun, enhances creativity, and aligns with the future of investing.

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Creativity Exercises Within the Field of Entrepreneurship

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Abstract

The purpose of this article is to provide entrepreneurship educators with examples of exercises to foster creativity within their entrepreneurship programs. We discuss attributes that develop creativity as well as those that deter creativity. We also outline 10 specific exercises that instructors can use in their classrooms to stimulate creativity. The practical implications of the article will allow entrepreneurship educators to become more proficient in stimulating student creativity in today's ever-changing environment.

Key Words: Creativity, Exercises, Entrepreneurship, Education, Higher Education

Manuscript Subject Area: Entrepreneurship

Manuscript Subject Topic: Creativity

Student Level: Undergraduate & Graduate

Time Required: Depends on the exercise

Recommended Number of Students: (4-30)

INTRODUCTION

Creativity is an essential ingredient to successful entrepreneurship. Jack Ma, the founder of Alibaba, which just had the largest IPO in the history of business, failed his college entrance exams three times. When he did go to college, he studied English at a Chinese Teacher's College. Time and time again we hear stories of people who become successful entrepreneurs, despite having no formal education or training. A key ingredient in their ability to become successful is their ability to think differently than others. They have the vision to see where others see no opportunities. Warren Buffett said, "The most successful people I have ever met in business are the ones that do not have Ivy League degrees, but they are the ones who think differently or significantly outside of the box and have significant business experience" (Buffett, 2009).

There has been more attention being played towards creativity recently with the downturn in start-ups in the U.S. According to the Kauffman Index of Entrepreneurial Activity, since 1996, America's overall business creation rate declined from .31% of American adults per month starting businesses to .28% in 2013. A 2010 American Management Association study identified creativity and innovation as one of the four critical skills needed for business success today and in the future (Finkle, 2012; Schmidt, Soper, & Facca, 2012). CEOs identified creativity as the number one leadership competency of the future (Bronson & Merryman, 2010). As a result of the increased rate of change in technology today, creativity is a critical skill for recognizing and creating opportunities to satisfy customer needs (Allen, 2012; Finkle & Shrader, 2015).

Despite the obvious importance of creativity to our economy, research on integrating creativity into the entrepreneurial curriculum is sparse. We provide examples of 10 different creativity exercises to stimulate creativity in the classroom.

HOW TO STIMULATE CREATIVITY IN THE CLASSROOM

Students and Creativity

The modern college and university system emphasizes being the top in your class and having the highest GPA as the most important factors to measure and predict success. Because of this, students attempt to memorize and repeat material that they learn for an exam or paper, but do not look for various ways to solve problems (critical thinking or thinking creatively). They fear being wrong, which will hurt their GPA and their future career potential.

Entrepreneurship educators need to change the way in which they teach in order to stimulate creativity. More situations need to be created where students can test the waters of creativity and not fear the repercussions of being wrong. This does not mean that the current grading system needs to be abolished. It simply means that more diverse and optional assignments need to be integrated into the classroom. The benefit of the formal grading system is that it increases students' motivation and requires them to complete assignments, go to class and study for exams. However, we recommend a balanced classroom approach. We take the view that one of the better ways to stimulate creativity in the classroom is to have students work on projects in class (both individually and group). If students can eliminate their fear of trying something new, they are more likely to think outside the box and look for interesting ways to solve problems.

We now discuss 11 exercises that we have used to develop and stimulate student creativity in our entrepreneurship classes.

I.   New Venture Exercise

This exercise is an innovation from Professor Tina Seelig's $5 exercise at Stanford University (see Seelig, 2009). The instructor begins by breaking down the class into teams of four students. The instructor then gives the teams a sealed envelope with $20 dollars inside and tells them not to open the envelope. The instructor tells the class that they have to create a business

and make as much money as possible over a one week period and they have to do it legally and ethically and cannot borrow any money. After this, students open the envelope and are told that the $20 is a loan from the bank (instructor). Finally, they are instructed that they can use any utensils that they currently own (e.g., a bike, car, cleaning materials, computer, etc.) to perform their business.

Instructors can alter the length of the exercise to fit the needs of the class. You can have students complete it over the weekend, a few days, hours, or even a week. We prefer a week as it gives students the time to brainstorm, strategize and implement their business. Our version innovates from Seelig by creating a rubric that evaluates the students on four factors: Creativity (35%), Sustainability (35%), Profitability (20%), and Social Responsibility (10%).

After one week, each team presents their business to the class. They tell the class how they came up with the idea (creative process, brainstorming, etc.). Then they have to explain to the class the group dynamics. Who was the leader(s)? How did they break down the tasks and why? Then they explain the operations of the business; i.e., sales, profitability, and how they satisfied the social responsibility aspect of their business. After all of the teams present, they vote on which team was the winner.

Students really enjoy this exercise and it generally identifies the stronger entrepreneurs in the class. It is recommended that instructors assign this during the first two weeks of the semester.

II.   New Product Exercise

The purpose of this exercise is to get students out of their comfort zone to think creatively about the creation and marketing of new products. The first step is for the instructor to acquire a variety of food products (usually 20-30). Some examples include: cereals, ketchup, mustard, different types of candy, chocolate syrup, marshmallows, nuts, milk, soy milk, almond milk, chocolate chips, Reese's peanut butter chips, sugar, sweet and low, etc. The instructor will also have to purchase some disposable bowls and plastic spoons.

Announce to the class that they will be participating in an exciting creativity exercise well in advance. On the day of the exercise, get to class early and set up all of the products in the class. Spread them out on a few tables as your students will need room to evaluate them. After the students arrive, tell them to take out a sheet of paper and a pen or pencil. Then explain to them that you want them to create a brand new product that will satisfy a need in the market based on a combination of the products that are spread out in class. Tell them that you want them to have a name and theme for their new product.

Have all of the students (at the same time) select any ingredients that they want and mix it into their bowl. Then have them return to their seat and write down all of their products in their bowl and brainstorm to come up with a new product. After 10-15 minutes of brainstorming on their own, tell them to form a team of three students to come up with a brand new product and theme. Additionally, tell them that they have to create a short television commercial to sell their product to the class that same day. Give each team another 15-20 minutes to work on their products, themes and commercials. After this, have the teams present their commercials to the class. At the end of the presentations, have the class vote on who had the best product and commercial. In our classes, this exercise has consistently sparked the most creativity during the semester.

III.   Picture Exercise

The purpose of this exercise is to get students to expand their minds creatively. At the beginning of class, students are told to take out a sheet of paper and a pen or pencil. The instructor states to the students that he/she wants them to write down 15 words in 15 seconds based on their perceptions of a picture on the overhead (the picture can be of anything). After they have finished, we discuss the words that came to their minds. Then the instructor tells the students that our responses based on our experiences in life. This is an individual exercise.

After this exercise, the instructor asks the students to take out another sheet of paper and divide it into three columns. In the first column, students are told to write down 15 words on

anything that comes to their minds when they are shown the same picture again. Then we discuss the difference in the words between the first time they looked at the picture and the second. This is also an individual exercise.

The instructor then shows the class two more different pictures and has them write down 15 words in 15 seconds for each picture. It can be any picture with a variety of things in the background. This is an individual exercise.

Students are then placed in teams of four. Each team is required to select a total of five words from each picture out of all of their words combined that they wrote down for that picture. They will have up to 60 words for each picture but are to choose only five. The students are to do the same thing for the second picture and the third picture. This is a team exercise.

Next the students are required to take the 15 words that they have selected and come up with the best business concept for a new business. The idea should represent a potential opportunity in the market. This is a team exercise.

What is a Business Concept?

Writing a business concept statement is a critical task, whether starting a company or seeking to improve an existing venture. Students should be able to summarize a business concept in one to two pages. The business concept statement answers the following questions: What does the product or service do? How is it different from other products or services? Who will buy it? Why will they buy it? Price? Convenience? Provides sense of safety/security/well-being? Here is an example of a business concept. Rodger Johnson, quit his job with a big coffee company to create his own business called **"drinks for everyone".** Rodger custom-blends coffee according to each customer's personality and preferences then packages it beautifully and ships it all over the world. He also creates "signature blends" for companies to serve their guests and staff. The internet allows Rodger to instantly have a global business in a very specific niche market, in which he is an expert.

IV.   Famous Person Exercise

Seelig (2009) states the purpose of this exercise is to get students thinking outside of the box and to recognize someone for their contributions to society. Tell your students that you want them to write a letter or e-mail to someone famous. It can be to anyone famous anywhere in the world. In the letter tell the students that they are to thank the famous person for what they have done, acknowledging something that they have accomplished, asking a simple question or offering to help them in some way. For example, a student who is interested in technology and/or philanthropy could write a letter to Bill Gates thanking him and possibly asking for advice. If they receive any correspondence back from that individual, they are to tell the class about their experience.

V.   Failure Resume Exercise

One of the keys to being a successful entrepreneur is realizing your weaknesses. This exercise is based on Seelig's (2009) book called *What I Wish I Knew When I Was 20.* The purpose of this exercise is to get students to learn about their failures in life and how they dealt with them. Students are required to write a resume of their biggest failures: personal, professional and academic. For every failure, the student must write what they learned from each experience. For example some failures may be: Professional Failures: (1) Not paying attention and (2) Quitting too early. Academic Failures: (1) Not doing my best and (2) Relationship management. Personal Failures: (1) Avoiding conflicts and (2) Not listening to my gut. The student would then address each of these problems and discuss how they dealt with them. Steve Jurveston, a famous venture capitalist, describes failure as the secret sauce of Silicon Valley (Seelig, 2009).

After the students hand in their papers we get into a discussion about the assignment and I emphasize that a failure resume is a quick way to demonstrate that failure is an important part of our

learning process, especially when you're stretching your abilities, doing things the first time, or taking risks. We hire people who have experience not just because of their successes but also because of their failures. Failures increase the chance that you won't make the same mistake again. Failures are also a sign that you have taken on challenges that expand your skills. In fact, many successful people believe that if you aren't failing sometimes then you aren't taking enough risks. Additionally, it is pretty clear that the ratio of our successes and failure is pretty constant. So, if you want more successes, you are going to have to tolerate more failure along the way (STVP, 2014).

VI. Problem Exercise

Seelig (2009) came up with this exercise as an innovation from Terrance Brown who taught at the Royal Institute of Technology in Stockholm, Sweden. The instructor should come up with a problem that is relevant for the class. For example, a current problem could be the high cost of higher education. Then break the class into teams of three to four students to come up with the best and worst idea to solve the problem. Have the students hand in both ideas to the instructor. Then give back to the students the worst ideas to solve the problem and tell them to innovate upon these ideas to come up with a better solution. Allow the class 20 to 30 minutes for each team to talk about their solution to the problem. Students will then get into a big discussion about the best ideas. You can also do this with coming up with the worst idea for a problem.

VII. The Idea Exercise

Break the class into pairs. One person states that they have plans to have a party on Saturday night. The other person has to say no to every idea and they must give a reason why. Once this is done, the second person does the same thing and the first person agrees to every idea, but has to expand upon it (Seelig, 2009).

VIII. Identifying Opportunities Exercise

This exercise is based on Seelig (2009) where students are required to take out their wallets. Then they break up into pairs and interview each other about their wallets. They ask each other what they like and do not like about them paying special attention to how they store and use them for purchasing.

After the interview process each person designs a new wallet for the other person based on what they said. The design materials include nothing more than paper, tape, markers, scissors, paper clips, etc. They can also use whatever else they find in the room. This takes 30 minutes. After they are done they sell it to their customer.

IX. What is Success Exercise

Dr. Jeff Cornwall from Belmont University came up with this exercise. He states that there is a growing number of students from the Millennial Generation that are pursuing entrepreneurship education. However, a growing number of students are interested in social change. While some still want to be the next Mark Zuckerberg, many are looking to entrepreneurship as a path to help them enact social change or to gain personal control over their careers to allow them to live a more balanced life.

Cornwall's exercise challenges students to think about what being a successful entrepreneur means to them and begin to discern what drives them in business and in their lives outside of business. He has the students form teams of 3 to 4 students to share with each other what they hope their lifestyle will become in the first few years after graduation. After the teams discuss this for 10 minutes, they share what they talked about with the class.

Then they go back into their same teams to discuss the following: Assume that all of you are partners in a business that has been operating for about two years after graduation. The business has grown to a point where it is meeting your financial needs. You are contacted by a potential

customer about a sale that will result in an immediate tripling of your sales and doubling of your profits. This will require that all of you commit to working 80-90 hours a week for the foreseeable future. Should you take on this new contract?

After about 10 minutes of discussion the students share what they decided as a team. There are usually strong differences of opinion within the teams, so we explore how they might resolve such disagreements among partners.

Next the students get back in their teams to discuss the following for 10 minutes: Assume that your business is growing and very successful. You are contacted about selling your business. The sale will net about $1 million to each of you before taxes. Should you sell?

Again, the students share with the class what each team decided, and again there is often dissention. The exercise concludes with the following question to the entire class: Assume you sell the business. What will you do next? There are differences in the direction of the discussion depending on the class.

X.   The Obituary Exercise

In the space below, require students to write their own obituary. Tell them what would you would want written about you when you pass away many, many years from now. Tell them to write whatever comes to mind, even if it feels like stream-of-consciousness and use words, phrases, and sentences. Emphasize that students can re-visit this exercise again in the future, so do not try to perfect their answer now. I tell students to think big, be creative, and integrate their dreams and ambitions.

Questions they should ask themselves as they do this exercise:

What and/or who did you impact or change? Why?

What character traits and values did you consistently demonstrate over your life? At your core, who were you?

Who did you care for? How did you impact or change this person/these people?

What were major accomplishments in your life? At the ages of 40, 50, 60, 70?

What did you show interest in? What were you passionate or enthusiastic about?

What was your legacy?

XI.   Dumb Idea Exercise

Generate the stupidest idea you can…give it to another team and they have to turn that idea into something wonderful.

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Opening up to Creativity:
A must for students of the "Innovation Management in SMEs" program

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Abstract

The management of innovation in small or medium-sized enterprises is a challenge for any manager. A creative attitude, the ability to work in teams and good leadership are all behaviours to be encouraged in SMEs wanting to become, or remain, competitive in markets that are themselves increasingly competitive. This explains that as part of a specialized "Innovation Management in SMEs" program, we encourage the development of individual and organizational creative skills. We do so in the program's very first course, "Culture of Innovation", a class that is offered since January 2007. This article aims to illustrate a possible way to integrate creativity in a more global approach to innovation management and to discuss lessons learned by this experience, both for students and for teachers.

Keywords: Creativity, Innovation, SME, Entrepreneurial pedagogy

Subject Area: Creativity and innovation

Student Level: Graduate and Undergraduate

Time Required: 3 days

Recommended Number of Students: 20

Introduction

The context of innovation in small firms differs from that found in larger organizations, particularly because of the fewer resources available to them. Although innovation is possible in that environment through collaboration with various external partners and stakeholders, SMEs wishing to innovate at a large scale must possess certain organizational characteristics that will allow them to take advantage of the talent they have in-house. A positive attitude to creativity, the ability to collaborate and work in teams, effective business intelligence activities are all, to the same extent as innovation leadership from the management team is, characteristics of a necessary innovative culture in SMEs wanting to remain competitive in markets that are themselves increasingly competitive (Pullen *et al.*, 2009; Trépanier, 2005). This explains that as part of a specialized "Innovation Management in SMEs" program designed for professionals and managers already in the workforce, we encourage the development of individual and organizational skills in order to ensure the management of all the aspects of innovation within SMEs.

Given the specificities of the program and its clientele, classes are conducted during intensive periods of one to two consecutive days, extending over twelve months during which the students, in closed cohorts, are presented with an overview of the different dimensions of innovation management in SMEs. Identification of opportunities, feasibility studies, product development, marketing, financing, risk management, human resources management are but a few examples of the topics covered by the courses. The first one, entitled "Culture of Innovation" is a 30-hour course, spread over two periods, that is four days, including a half-day evaluation in the form of a case study. This course aims to enable students to better understand the organizational environment conducive to the emergence of innovation and to become familiar with a number of management principles and practices that play an important role in the support of creative employees in a context where resources are often limited. To do so, students are introduced to individual creativity and to the various organizational practices that favour it. During these four days, they are also taught which tools support the development of such creativity, as well as the importance of a certain style of leadership and supervision that are propitious to innovation and help share the company's strategic vision. In order to achieve the various objectives of the "Culture of Innovation" course, we favour two main educational approaches. The first one, more conventional, uses a seminar formula in which students develop critical thinking skills through required readings in connection with individual, team-oriented and organizational creativity. The second, more innovative approach, favours different experiments requiring great personal involvement and an open attitude on the part of each student. This article therefore aims to illustrate a possible way to discuss the integration of creativity in a more comprehensive approach to innovation management.

The following sections present the underlying theories behind our approach and, more specifically, the educational strategies and tactics we use with our students. This active approach allows them, despite their already well established professional experience, to integrate the concepts of individual, team-oriented and organizational creativity necessary to their learning and, subsequently, to their evolving views on the management of innovation in all its aspects.
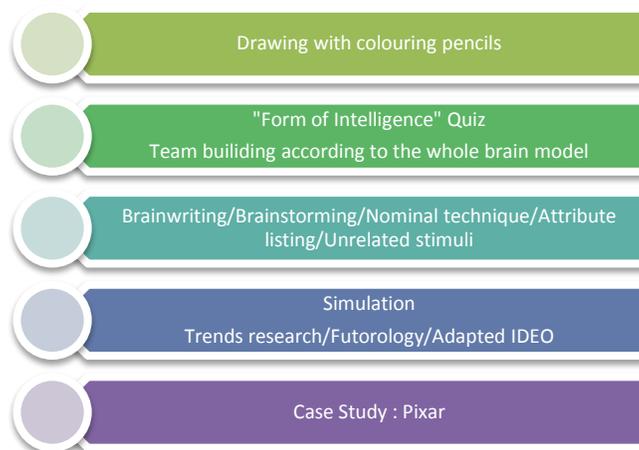
1. Theoretical Context: our starting points

In recent years, several teaching strategies in creativity or innovation management have proven their efficiency, especially in the context of training courses for professionals or managers already active in the workforce. Starting from the observation that being creative or innovative cannot be taught to anyone who remains stuck in his or her personal and professional paradigms, the strategy is to amalgamate and alternate different approaches: an introduction to the various techniques and tools for ideation or detection of business opportunities; case studies; experimentation, including project management; simulations and role plays; the use of different audio or video media; the reading of life accounts; and the introduction to various artistic disciplines such as dance, poetry, theater, sculpture or music (Carrier, 2000; Carrier, 2009; Desplaces, Gongden and Boothe, 2007; DeTienne and Chandler, 2004; Fernandes *et al.*, 2009; Kerr and Lloyd, 2008; Martinsuo, 2009; Mustar, 2009; Pinard and Allio, 2005; Pun, 2009). The exposed spectrum is reminiscent of the work of McFadzean (2001) which, for its part, brought together the different ideation techniques in a logical continuum, depending on whether the method of solving the proposed problem brings the participant to keep, stretch or replace the paradigms in which he is used to evolve.

From an individual perspective, trainings that favour creative or innovative educational strategies aim to develop the potential of imagination, intuition and discovery of students, to improve their self-confidence, improve their ability to work in blurry and imaginary conditions so as to make them more open to taking risks and, in the process, to improve their problem-solving methods (Carrier, 2009; Kerr and Lloyd, 2008; Pinard and Allio, 2005; Pun, 2009). In a more integrated logic, however, these courses aim to perfect the communications, leadership and teamwork skills of active professionals and managers (Desplaces *et al.*, 2007; Kerr and Lloyd, 2008; Martinsuo, 2009; Pinard and Allio, 2005). Let us note, however, that whatever the perspective, few of the available trainings promote diversified educational strategies or tactics.

2. The "Culture of Innovation" course: a comprehensive and incremental approach

Based on previous pedagogical advances, we have opted, in the "Culture of Innovation" course, for a comprehensive approach, as well as incremental in educational strategies and tactics. In doing so, the goal is to make students aware to what extent they can stay stuck in their paradigms, but also how they become creative when they are in an environment where, for example, allowing oneself to make mistakes is part of the game. Over the years, we have trained many Quebec cohorts and three European ones. In each case, we adjusted to the number of participants, which varied between six and twelve, and used the same educational strategies and tactics, in the same order, as Figure 1 illustrates. Let us now see in more detail what we do in this course, which also has the implicit objectives of creating an atmosphere of camaraderie and of fostering a sense of belonging among students entering the "Innovation Management in SMEs" program.

Figure 1: Continuum of activities

Drawing with colouring pencils
"Form of Intelligence" Quiz Team builiding according to the whole brain model
Brainwriting/Brainstorming/Nominal technique/Attribute listing/Unrelated stimuli
Simulation Trends research/Futorology/Adapted IDEO
Case Study : Pixar

As with any training program, the first hour consists in presenting the general context and clarifying the modalities of the course. Students are thus quickly made aware that they will face some unusual situations, which may at first seem futile, useless or even uncomfortable. From the outset, the psychological contract is clear: we will achieve the course objectives, provided they give us their complete trust during our four days together. With that contextual setting well established, we directly hand out colouring pencils. In some cases, we asked students to draw an animal, a plant, or an object representing them and which they used to introduce themselves to the group. In other cases, we have asked them to draw a hen, mentioning that all the drawings would be exposed on the classroom walls. So no matter the task, students are brought to understand to what extent they will soon be forced to leave their comfort zones. In both cases, a discussion follows on their reactions to this warm up exercise, forcing them to realize how their reflexes may hinder their creativity.

The second educational tactic involves Ned Herrmann's work (1992) on brain preferences, Howard Gardner's work (2007) on multiple forms of intelligence and Carrier's work (1997) on the process of creativity, all of which, in an integrated logic, explain how the creative process is maximized when teams are made up of members that may at first glance seem incompatible. During this part of the course, students complete a "mini-test" that allows them to compose teams whose members are as complementary as possible rather than being as compatible as possible. Students also learn *de facto* that they have to work with their team until the end of the course, despite the conflicts they will inevitably face during subsequent sessions.

After being familiarized with the concepts of innovation, creativity and ideation, the students, still working in teams, are introduced to different techniques that will allow them to think differently. For each of the compulsory exercises, students are given a document describing the equipment they need, the time they have and the steps they must strictly follow to achieve goals such as finding new products made of plastic, the name of a new product made of foam, etc. Many of these exercises have also been inspired by the work of VanGundy (2005). To ensure a good understanding and personal integration of the role of facilitator, each team chooses, at the beginning of each compulsory exercise, a different member to take on this often difficult task. Furthermore, always with the aim to get them out of their comfort zones, the exercises combine several ideation techniques and become more complex as students develop their skills. We usually begin with a conventional technique allowing them to stay within the frame of their usual

paradigm, such as brainstorming, and we conclude with a technique forcing them to think "outside the box"; such as the notion of unrelated stimuli.

The fourth educational tactic takes up a full day and a half of the "Culture of Innovation" course, that's three periods of three hours each, the last two periods occurring two weeks after the first half day. It comes under the form of a behavioural simulation. We were inspired in this by Stumpf and Dutton's use of the dance metaphor (1990) to understand the dynamics involved in behavioural simulations. In their case, dancing, which is an individual activity practiced in groups, allows everyone to judge his or her own performance and seek to improve it. The goal here is to put students into action by asking them to meet a challenge. Let us examine what this activity specifically consists of.

In the first half-day devoted to this simulation, teams must first consider the major trends in their environment and identify the new opportunities these trends foretell. They must have team discussions about these trends, prioritize them, pick a few and evaluate their potential more precisely. This part of the simulation is carried out using the prospective card method developed by Carrier (2008). The second step of the simulation spans an entire day. Each team must make a choice and focus on a single idea or project with the IDEO tool of Schmitt,

Gallais and Bourguiba (2008), which we adapted to our clientele. Students thus enter into a logic of in-depth exploration of an idea or of project management, without any constraints, the impossible being impossible. To accomplish that, the students, after being informed of the day's schedule, are made fully responsible for the management of their team, including how they will handle the allotted time, for breaks and lunch, for instance. Throughout the day, every team faces several challenges for each step of the simulation; this session begins with a written reflection on the selected idea or project and ends with its representation using Lego blocks.

Finally, the fifth and final tactic, more classic, is to look back on the winning conditions of the culture of innovation through a business case in which the organizational environment and management practices are particularly conducive to the exercise of creativity and to the development of innovation. For example, the Pixar case (Cattmull, 2008), which tells of how teams are working on a project creatively, has been used several times. This can after all serve as a context of innovation management in an SME, albeit Pixar is far from being one[2]. To do so, after reading the case of the difficult birth of the film "Toy Story 2", students, still in teams, identify what makes Pixar unique in terms of managing individual, team-oriented and organizational creativity. This is then the subject of a large group discussion in order to review and deepen all of the subjects studied since the beginning of the course.

3. Lessons drawn from our experience

All these trainings have systematically been the object of a written evaluation by students after the course ended. It is important to note that they are free to express themselves since, especially for Quebec cohorts, the university ensures them that the results of this anonymous

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[2] Unfortunately, we do not yet have enough cases of high-performing and creative SMEs that have documented in detail the favoured practices and contexts that allow continuous and brilliant innovation. However, one may surmise that the practices of large, highly innovative companies like Pixar, Gore and Google are transposable in SMEs. Indeed, what often surprises most are the practices that they favour and which, through the large place they leave for creativity and individual autonomy, are usually not widely used in large enterprises.

evaluation will only be sent to the teacher after he has delivered the final list of students' results. This has several advantages for us as trainers. First of all, it allows us to assess student satisfaction, both in terms of content and of teaching strategies used. Let us humbly point out that the student satisfaction rate has been very high ever since the first year, as Table 1 reveals. Moreover these students, all into management positions while they undergo the training, are very demanding; they expect training whose content they can quickly put to good use in their functions.

Table 1
The evaluations: an overview

	Number of students	Satisfaction Level	Examples of students' comments
Cohort 1	15	5.81/6	"For my part, I found this course particularly interesting and well structured. In addition, it worked in favouring nice team cohesion and a very good team spirit as well as fostering a great amount of respect among participants." "The course was very dynamic, practical and it encouraged participants to come together."
Cohort 2	12	5.77/6	"It was great fun and extremely informative, about ourselves, first, and on our knowledge of fundamental concepts such as good team building." "A lot of listening, sharing and respect for students, the trainer keeps the group involved in order to find the answer to some issues, keeps a mysterious approach, does not disclose everything right off the bat, but pushes us to think a little more, the tone used is calm and encourages students to listen."
Cohort 3	11	5.81/6	"Pretty special course in its pedagogic approach, which I endorse 100%. A lot of work in groups that makes students aware of the importance of being autonomous and encourages them to work in groups with different people. Great way to understand the creative process. Personal experiences are also part of the lessons learned, as well as many tools; it's up to us to use them as best we can."
Cohort 4	9	5.85/6	"The way the course unfolded was excellent. We all could express ourselves and question the notions and other elements of the course. The exchanges were fruitful for everyone." "Team exercises were very appropriate and allowed me to assimilate theory more easily and even to learn about myself."

These evaluations also provide the other important advantage of being able to better assess the elements of the course that students have taken the time to identify as having been particularly

important to them in the last part of the questionnaire[3]. Some of these elements have been mentioned in one way or another by many participants. Most of these learned elements valued by students come in the form of insights, the first of which is often about their own creative potential. When training begins, many are worried and say they are not at all creative. Over the course of the exercises and simulations in which they participate, they realize that they are able, when properly prepared and integrated in a context that invites them to use their creative imagination, to produce interesting and valuable ideas. This is an achievement that appears to us as fundamental. Indeed, Davis (2004) analyzed all the research that has identified the characteristics of creative people and out of all these studies, the first such characteristic that emerges is the individual's consciousness of his own creativity. It seems that individuals' confidence in their own creative skills will push them to use these skills when needed or when the opportunity arises. And according to Davis, it is one of the first characteristics that we can seek to stimulate and support through experiments or training.

Students are also made more aware of their own paradigms, including a number of beliefs or attitudes transmitted by their professional environment: for instance, the notion of not wasting any time just playing with ideas, that of getting things done quickly, the importance of avoiding risk, reducing the value of creativity to the mere step of ideation, which initiates an innovation process, or valuing activities that seek to improve operations more than the exploration activities that can generate more fundamental innovations. Students also become aware of their tendency to seek the right answer as quickly as possible. As emphasized by Robinson (2009), it is after all what our education systems and pedagogical practices taught them throughout their studies, particularly at the primary and secondary levels.

As has also been noted by Kerr *et al.* (2008), and Pinard and Allio (2005) as part of their respective creativity trainings, feedback from our students show that several have changed or questioned their usual way of thinking about creativity and innovation. For some, who saw creativity as something of a game, the great discovery was to realize all the time and discipline needed to explore the full value of an idea or of several ideas. For many of them, a major learning is how crucial organization and discipline are in order to innovate successfully. In this regard, Pinard and Allio (2005) note how participants start to understand the importance of teamwork in fostering better individual and organizational creativity. This is what allows us to postulate that knowing their strengths, understanding their limits, making mistakes, working with people of different stripes, finding meaning in the tasks in front of them or giving themselves time to find original ideas are among the benefits seen among students; benefits that necessarily bring about a change in each student's attitude towards creativity and innovation management in SMEs.

Finally, as trainers, we found other benefits worthy of note over the years. Among them is the team spirit that springs up during training and extends all the way to the end of the "Innovation Management" program. This may help explain a very high retention rate among students, less than a dozen of them have left the program since the very beginning. As mentioned by Desplaces *et al*. (2007) and McFadzean (2001), a clear psychological contract between instructor and students, a climate of trust and mutual respect, the great quality of listening, regular feedback, adequate space, the autonomy given to teams, the number of students per cohort and their homogeneity are some of the factors we bring forward as having favoured such a success rate. Of course, not all the students felt comfortable with the pedagogical strategies and tactics used in this training. For example, the little guidance provided can be unsettling for

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[3] At the end of the course's evaluation questionnaire, students are invited to freely discuss elements they particularly liked and/or disliked.

some, especially if they work in environments where making mistakes is unacceptable. Nevertheless, at the end of the course, all admit to have learned how important it is for SMEs to promote certain management practices (Pullen *et al.*, 2009; Trépanier, 2005) enabling them to boost the potential of in-house creativity.

Conclusion

This article aimed to present the pedagogical strategies and underlying theories that we use with our students, allowing them to integrate, despite their well-established professional experience, the concepts of individual, team-related and organizational creativity necessary in their learning and in their change of attitude vis-à-vis creativity and innovation in general. As mentioned in the introduction, our goal was not to show the effectiveness or the merits of our approach, but rather to illustrate a way that, after all, has given excellent results to date. Our wish is that it inspires colleagues who, like us, want to bring their students to think differently and act more creatively in the company that employs them, or in launching their own company. In this logic, we believe it would also be interesting that more opportunities be given to us, in the various conferences or events in which we are invited, to discuss more intensively with others pursuing the same objective and who could share their strategies, which would allow us to further enrich ours.

Providing such training can of course generate anxiety for the trainer who begins to experiment with it, but this is largely compensated when one considers the relatively significant changes that occur in the attitude and behaviour of participants throughout the training session. As teachers in management, we ourselves, not unlike our students, have been strongly encouraged to adopt more rational problem-solving and exploration methods. In this sense, such training forces us to get out of the paradigms in which we ourselves have been trained and find some comfort. Finally, let us mention the mark that such training seems to leave on many of the participants. As the course of which we talked about here is the first in the Innovation Management in SMEs program, it is not uncommon that we are again in contact with these students or that we are told of their various achievements through which they continue to use the new attitudes and skills found in the starting course. This, we must admit, is a return that is more than rewarding for a teacher or trainer who invests generously in a training of this nature because he wants to make it a success.

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