Teaching Resource

Managing and fostering creativity: An integrated approach

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ABSTRACT

After years of seeking students with leadership skills, companies today are putting similar levels of emphasis on those with creative capabilities. Such companies need creative people to help solve their most pressing problems, and to help generate new sources of value creation for firms that have suffered years of stagnant growth. A quick glance at recent business books and magazines shows that the need for such individuals is strong and growing, as global competition becomes the new normal and economies around the world become increasingly connected. As business educators we need to reflect on how we should go about designing classes and curricular that develop creative capabilities in our students. This paper outlines an integrated approach to enhancing creativity at the individual, group, and organizational levels that is used in a Creativity Course taught at a large University in the United States. In doing so it is presented in two parts. Part I describes the conceptual underpinnings of the course and the three module framework that is used to structure content. Thus, Part I focuses on describing what is taught and explaining why. Part II illustrates how the course is implemented through a series of both individual and group projects. Additionally, it reflects on key learning outcomes that have occurred through the delivery of multiple iterations of the course. Together Part I and II combine to create a complete learning resource for anyone interested in developing and delivering a course on creativity.

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1. Introduction

Some have suggested that Western society has been dominated by reductionist and analytical thinking for nearly a century (Pink, 2006). This type of thinking is shaped by an assumption that the whole is nothing more than the sum of its parts, and that we understand or build new systems by breaking them into many pieces, addressing the impact that each part has on the system and improving it in isolation, and then putting it back together (Gharajedaghi, 2011). This way of thinking has been useful for continuously improving existing systems and enhancing parts and products that already exist, but, arguably, it has been less beneficial for facilitating the creation of completely new systems, products, processes, and services that do not yet...
exist (Dunne & Martin, 2006). Furthermore, since much of the western world's education system has been shaped by a similar set of reductionist assumptions and rational decision-making paradigms, the importance of creativity today must not be underestimated and we must work to develop this important skill in our students (Armstrong, 1999). In fact, according to a recent survey by IBM that included responses from over 1500 CEO's from 60 countries and 33 industries, creativity is the essential attribute they are looking for in their leaders today.2

Fortunately, creativity might not be as rare of a capability as some believe: in fact, it exists within all of us. We just must learn to tap into and cultivate it (Seelig, 2012). Unfortunately, even though creativity is crucial to business and management success, higher education generally does not devote sufficient attention to it (Edwards, McGoldrick, & Oliver, 2006; Schmidt-Wilk, 2011). Fortunately, the course design that is presented in this paper seeks to assist in filling this gap. It is designed to encourage students to see that creativity and analytical thinking do not have to be mutually exclusive, and that creativity (like analytical thinking) can be developed and enhanced within ourselves and our organizations. To do so we need to think about creativity at multiple levels of analysis (individual, group, and organization) and show how one reinforces the other. Furthermore, creativity is not just something that you have, but it is something that you do. For this reason we present the following course that is in equal parts conceptual and applied. Students learn tools and techniques, as well as engage in the necessary self-reflection, to foster and manage their own creativity and the creativity of the organizations where they work. They discover how to generate great ideas, sharpen them to align more effectively to market opportunities, and move ideas forward through disciplined action.

The purpose of this paper is to illustrate an integrated approach for teaching creativity as part of a business school curriculum and to give insight into how such a course can be delivered. In doing so, we will present two key parts. Part I presents the conceptual framework that describes what is taught and why. Just as the course is structured, this section is structured along three core modules (Drivers Shaping the Need for Creativity, Enhancing Creativity, and Executing in a Creative Environment). After concluding Part I we will discuss how such a course can be implemented in Part II. In this section we discuss the experiential approach that we adopt for teaching this course, as well as offer reflections and key learnings to help instructors that might teach such a course in the future. We conclude by summarizing our paper and approach.

2. Part I. The conceptual framework: an integrated approach

We believe strongly in the importance of having a clear course road map that describes the journey that students and instructor will undergo as part of the course experience. Doing so helps students see the big picture, and recognize how individual units fit into the larger whole. Recent research has shown than students that partake in courses that employ such meta-structures made better connections with key concepts and were able to utilize the material in more applied and critical ways (Cast, 2008). As Fig. 1 below illustrates, the course is structured along three core modules. In module one, we investigate why creativity is so important in today's world and the drivers that increase its importance. In the second module we explore how to enhance creativity at three levels (individual, group, and the organization). Finally, in the third module we investigate how to be productive in a creative environment through disciplined action and execution.

2.1. Module 1: The drivers

The first book we read in this course is “A Whole New Mind: Why Right-Brainers will Rule the Future” by Daniel Pink. This is an excellent book that the students really enjoy. The first three chapters of “A Whole New Mind” coincide with the first module of this course: Drivers Shaping the Need for Creativity. The point of these chapters is to explain and describe the many forces that have combined to create a situation where, more than ever before, people, organizations, and social institutions need people that can think creatively. As the author notes, logical, analytical, left-brain thinkers have been most rewarded up to this point. But, as he will argue, things are changing. After a rather thorough discussion related to the science behind “Left” vs. “Right” brain thinking, Pink suggest there are three key drivers shaping the need for creativity today: Abundance, Asia, and Automation.

In terms of abundance, Pink argues that we are inundated with “things”. Having a product at a low price is no longer enough. Now, to be competitive, companies can no longer just..."create a product that is reasonably priced and adequately functional. It must also be beautiful, unique, and meaningful" (pg. 33). As Pink argues, developing products and services that meet these criteria requires right-brain thinking. According to Pink, analytical work has continued to migrate to other parts of the world, such as Asia, leading to huge numbers of people that can perform this type of work for a much lower cost. Consequently, competing with Asian workers on the dimensions where they most excel might not make the most sense. Finally, computers and information technology continue to automate organizational processes. The more standardized a process is, the easier it is to automate. Yet, creativity and innovation are hard to standardize and therefore automate, leading to yet another reason that Pink argues for the importance of creative thinking in today's world.

Module 1 tends to be the shortest of all three modules. Its core learning outcomes are for students to walk away with an appreciation for how the world has changed and the skills that will likely be rewarded in the future. If these learning objectives are met, students will enter module 2 motivated and ready to explore how they can enhance creativity within themselves, as part of a group, and within their organizations.

2.2. Module 2: Enhancing creativity at three levels

2.2.1. Individual senses – design, story, symphony, empathy, play, and meaning

Pink offers six senses that individuals can develop to enhance their own creativity. Design speaks to the importance of moving beyond a pure focus on function in assessing the utility of our products and services. Elements such as aesthetic beauty, usability, and emotional connection are equally important criteria for assessment. Story speaks to the importance of fashioning a compelling narrative to influence and persuade, rather than making a simple argument. Symphony relates to systems thinking, to seeing the big picture by putting pieces of information together to uncover new possibilities, rather than be constrained by reductionist tendencies that focus attention too intently on the parts. Empathy speaks to the ability to get inside someone else’s shoes, to understand how they think and feel, and how their beliefs shape their actions. Doing so leads to products and services that people actually need and will adopt and use. Play brings to bare the importance fun, humor, games, and laughter for fostering our creativity. Being serious all of the time is likely an inhibitor to creativity; we just need to lighten up. Finally, meaning speaks to the fact that simply surviving is often not the sole motivator for people today. Instead, a quest for fulfilling work that aligns to an individual’s intrinsic interest is not only sought after more than ever, but also a necessary catalyst to propel individual into and through creative work.

2.2.2. Group process – design thinking (discover, interpretation, ideation, experimentation, evolution)

To guide our study of design thinking we turn to our second book of the course: “Change by Design” by Tom Kelly, the general manager of perhaps the best known innovation consulting firm in the world, IDEO. When it comes to defining ‘design process’, there are as many answers as there are designers. Many design firms maintain their own framework as a proprietary process that can be marketed to potential clients. Looking through the myriad of definitions, it is at least possible to see some commonalities in both structure and methods. IDEO has their ‘Design Thinking Innovation Process’ broken into five key phases: Discovery, Interpretation, Ideation, Experimentation, and Evolution. Design Concepts, a boutique firm in Madison, Wisconsin that is managed by a former IDEO design engineer has their own verbiage to delineate the phases of the design process: strategy, conceptual design, engineering, and transfer. In the Product Design textbook written by Ulrich, Eppinger, and Goyal (2011), the first three phases of the design process are: investigation of customer needs, conceptualization, and preliminary refinement. Others have taken an even simpler approach and broken it down to research, ideation, and refinement (Elevar, 2011).

Within these frameworks, there are common core ideas. First, there tends to be a research-oriented stage at the beginning. This includes, for IDEO and others, a problem definition and investigative portion. Second, there is a divergent, creative thinking phase where multiple ideas are created and explored. And third, there is a convergent, more analytical phase to realize the selected creative solution(s). At the core, most design ‘processes’ are a structure of methodologies applied in a sequence to create the right conditions for creative insights to take place. This is less like communicating a recipe, and more like fishing — establishing the conditions that improve the chances of success. Similarly, the sequence of the psychology of creative insight was clearly outlined by Csikszentmihalyi (1997). His five stages in the creative process are: preparation, incubation, insight, evaluation, elaboration. Taking a step back from design thinking, and looking more broadly at the
2.2.2.1. Discovery. There are two types of problems in design: given and discovered (Csikszentmihalyi, 1997). A given problem has been predetermined by the client: e.g. Company Y needs a new blender with X speeds. Given problems tend to be narrowly defined and therefore result in incremental solutions. Discovered problems lack definition and are therefore more difficult to solve. However, the potential payoff is much greater, as discovered problems offer more significant opportunities for innovation. Henry Ford said that, “If I had asked my customers what they wanted, they would have said ‘a faster horse’”. Discovering a need, or a problem that is looking for a solution, is often the first part of tackling a design project. The discovery process can take on many forms, and there are many design research methods available to choose from. Most of them involve a kind of applied cultural anthropology, trying to get into the minds and lives of consumers, identifying behaviors, experiences, and desires that they may not even be aware of. Some examples:

- **Say, Do, Make** — This method provides an in-depth way to develop empathy with users by examining not only what they say in response to a survey or questionnaire, but also observing what they do (see observational research below), and asking them to participate in creating solutions.
- **Cultural Probe** — This method involves users in a more personal way by having them journal and document their experiences, reflections, and thoughts regarding a set of questions or prompts using a diary, camera, sketchbook, or other tools.
- **Observational research** — Borrowing from psychology and anthropology, this method includes carefully watching what people do in a given context, which exposes unconscious and habitual behaviors — the things people do without knowing they’re doing it. This can be used in existing or simulated scenarios.
- **Participatory research** — Similar to the anthropology concept of ‘going native’, this method involves becoming the research subject as a way of developing empathy and insight by experiencing the context first-hand.

2.2.2.2. Interpretation. Once opportunities have been identified through the discovery process, a design team must interpret the need/problem and define the task before them. This might also be described as ‘problem definition’. This not only helps to establish parameters, but also to set up permeable boundaries allowing room for exploration. Finding the right balance between an appropriately constrained problem definition and one that fosters creative inventiveness is a creative art unto itself. Interpretation is also about filtering research/discovery information and interpreting what is meaningful/valuable. The goal is to identify key insights that can then lead to a more defined problem framework.

Some possible methods for problem definition:

- **Boundary Examination** — This process helps explore assumptions by examining the key words in a problem definition and developing new possibilities for how to investigate the problem outside of the boundary of our assumptions.
- **Morphological Analysis** — This process helps explore the interrelationships between the different aspects of a problem. It starts by identifying the separate sub-problems/attributes/issues/etc. embedded in a given problem and clearly defining them as opportunities for investigation. Each of those areas is then explored separately, and later different solutions can be recombined to explore complete solutions.
- **Ideal Final Result** — This is akin to Appreciative Inquiry and seeks to investigate a problem by first imagining what the end result could be or what the ideal experience could feel like, then outlining the problem definition as a means to achieve that result.
- **5W1H, a.k.a. Who, What, When, Where, Why, How**: This approach probes into the fundamental aspects of a problem or situation by asking general questions, similar to the Socratic method.

2.2.2.3. Ideation. After the discovery and interpretation phases, the ideation phase begins and consists of two main components: divergent conceptualization and convergent analysis. In the cyclical nature of the design process, one is regularly

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3 We make the point often that whether there are three phases or five and though we study design thinking in a linear way, it is very much a non-linear, cyclical process — research, ideation, refinement… research, ideation, refinement…


8 The Howest Design Academy in Kortrijk, Belgium has compiled a very useful resource of design process tools called INNOWIZ, found at [http://www.innowiz.be](http://www.innowiz.be).


10 [http://appreciativeinquiry.case.edu/intro/whatisai.cfm](http://appreciativeinquiry.case.edu/intro/whatisai.cfm).

11 [http://changingminds.org/techniques/questioning/5w1h.htm](http://changingminds.org/techniques/questioning/5w1h.htm).
alternating between right-brained creative/divergent thinking, and left-brained analytical/convergent thinking. Those two sides are extremely useful, but must be isolated to really be beneficial.

If both the right-brain/divergent side and the left-brain/convergent side are engaged at the same time, this can lead to paralysis. This is true for an individual, just as it is true for a group. During a design process, if someone is suggesting far-out (right-brain) concepts when the group is trying to refine and test a singular solution, this can be disruptive. Similarly, a judgmental critic (left-brained) saying ‘that can’t be done’ when the group is brainstorming can shut down the creative mind, forcing the open-ended exploration into a mode of focused criticism. The left-brained analytical side will then be called on to narrow down choices and pick the best option among alternatives. Thus, for a group, it helps to establish a shared understanding of the design process being used in order to appropriately apply and foster left vs. right-brain methods at the appropriate times.

One of the best, and most useful, guidelines we have come across regarding creating the conditions for creativity, and thereby quieting the analytical side during early stages of ideation is ‘defer judgment’. This means that during brainstorming/conceptualization in a group, there is no judge shooting down concepts, only a willing partner in the playground of ideas. In the world of improvisational theater, this is the notion of ‘yes, and….’. Whatever someone presents you with; you accept and build on it. This keeps the game going, pushes all players further than they could have gone themselves. IDEO has the following five guidelines that we cover prior to brainstorming: Defer all judgment, Go for quantity, Far-out is good, Piggyback ideas, Document all ideas. For students who have not used a design process before, sharing those rules for brainstorming, and the ‘defer judgment’ rule in particular, has done more to create a positive and playful group dynamic than anything else we have seen.

2.2.2.4. Experimentation. Good design does not happen within the four walls of a design studio. From investigative research discovery to getting user/expert input and feedback during ideation, the process regularly steps out of the office to engage a larger audience. This is the spirit of experimentation. This phase is similar to what a child does with a new toy as they figure out what it can do by testing limits in various scenarios. “What happens if I smash this with a hammer? Leave it in a car on a hot summer day? Introduce it to a different audience: people who speak different languages and come from dissimilar cultures, or people who are physically disabled? How do people respond if it is made of wood or aluminum, or painted pink or plaid?” The goal is to answer questions such as these from multiple perspectives in order to refine the initial idea and make progress towards a more complete solution. New perspectives can be accessed more quickly through experimentation. Nonetheless, the result of a design process can be a Frankenstein collage of disparate solutions, and it takes time to tinker, filter out and then distill the essential qualities of a successful design. Some methods for experimentation during the design process include the following:

• Storyboard — Used in film and theater, this approach is also useful for design because it helps tell the story about the user experience before, during, and after a specific solution.
• Soft model or sketch-model — A rapid-fire approach to manifesting ideas into physical objects. This approach is about making a physical model as quickly as possible with whatever materials are on-hand. Soft models don’t have to look good, just provide a skeleton to interact with and project further ideas onto.
• Visual model — Creating a visual model helps others understand the solution in context and from multiple vantage points, rather than abstracting from a sketch or rendering.
• Prototype or functional model — Setting aside aesthetics, it can be more useful to create a model that helps one test or demonstrate the functional attributes of a solution. This helps to separate aesthetic preferences from evaluations of function.

Guidelines for effective participation in a shared design process:

• No ownership
• Give it everything you can, even if it isn’t your idea
• Far-out is good
• Funny is good
• Negative is bad — focus on the positive.
• Communicate by whatever means necessary — if a sketch isn’t working, try silly putty…
• There is a time to diverge, and there is a time to converge

2.2.2.5. Evolution. Any idea opens the door to other related ideas, a concept Johnson (2010) calls ‘the adjacent possible’. While we may be able to conceive of an inventive solution, that response will be based on previously encountered information. As we create new ideas, we traverse further afield discovering connections that provide additional perspectives. By pursing the design process iteratively, the ideas evolve further and deeper. To a newcomer, this type of process might seem repetitive: why redraw the same concept again and again?! But with experience, it becomes clear that with each cycle there is greater depth: more research and investigation open up new sub-problems and issues that may confirm or dismiss assumptions developed earlier. Each new cycle of concepts generated gets further into the adjacent possible and opens up new conceptual territory, and each attempt to finalize a concept reveals elements that were unknown or not fully acknowledged and may expose ‘happy accidents’ as elements flow together in unpredictable ways. It should be noted that throughout this process, ideas don’t always get better. Sometimes you have to go too far in a direction to realize what far enough is, or to find a balanced
The five phases of the design process:

1. **Discovery**
   - I have a challenge.
   - How do I approach it?

2. **Interpretation**
   - I learned something.
   - How do I interpret it?

3. **Ideation**
   - I see an opportunity.
   - What do I create?

4. **Experimentation**
   - I have an idea.
   - How do I build it?

5. **Evolution**
   - I tried something.
   - How do I evolve it?

Fig. 2. IDEO’s design thinking process.

2.2.2.6. **Design thinking summary.** At the group level, there is great benefit to having a shared and defined design process in order to establish and take advantage of those conditions. Clearly, the specifics of a design process can vary, but the group should be working with the same ground rules and expectations. Individual artists tend to have their own creative processes, and these are often unspoken and somewhat unconscious. Sharing in that process can seem counter-intuitive, and even invasive, as it forces the individual to communicate what they are doing, when, and why. Anyone that has been in a band can explain the challenges of sharing creative authorship. For a design organization, however, this is necessary. By working together within a defined design process, the messy cyclical act of creativity becomes more organized, focused, and useful. The structure helps to guide the group, maintain morale, and to get the most out of the creative process. Designers are trained to share the creative responsibility of a project, and to use the benefit of a shared design process to take advantage of the symbiotic creative power of the group (Fig. 2).

2.2.3. **Organizational levers — space, structure, culture**

Individual and group level creativity often does not take place in isolation; rather, such activities are typically embedded in an organizational context. For this reason the last part of module II focuses on organizational “levers” that impact creative behaviors. The notion of organizational levers is alluded to in the three books recommended as part of this class design, however, this is one part of the course where it is useful to draw from additional sources to deepen the coverage in these areas. There are a number of factors that one can focus on at the organizational level, but when driven by the premise of “less is more”, we recommend focusing on three that are especially crucial: space, structure, and culture.

2.2.3.1. **Space.** To encourage creativity and provide a place where collaboration can occur, the physical space in which such activities play out must be considered (Van Den Eede, 2010). According to David Kelly, “Regardless of whether it’s a classroom or the offices of a billion-dollar company, space is something to think of as an instrument for innovation and collaboration. It’s not an initial, given condition, something that should be accepted as it is. Space is a valuable tool that can help you create deep and meaningful collaborations in your work and life” (Doorley & Witthoft, 2012). When covering this section of the course it is good to not only point out companies that take space seriously, like Google, Pixar, and IDEO, but to have students reflect on how their own educational spaces have evolved from their early memories of grade school until now, their college environment. As Seelig suggests,

> “In Kindergarten] rooms are filled with manipulatives such as blocks and Legos, there is an abundance of brightly colored books and games, and the furniture is designed so that kids can work independently, in groups, or as an entire class... Unfortunately, as children get older, classrooms get less and less inspiring. Eventually, in high school and college, desks and chairs are usually lined up in rows and bolted to the floor, facing the front of the room, where the teacher lectures while students passively take notes. They have sadly graduated from an environment that is designed to stimulate their imagination to one that inadvertently crushes it.”

There is some novel research on the importance of space for fostering creativity if instructors want to dive deeper into this area. One such book is Make Space: How to Set the Stage for Creative Collaboration by Doorley and Witthoft from the Stanford Design School.14

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13 There are great images on the Internet of these spaces to illustrate the importance of space for students.
14 There is also an interview with the authors that can be listened to at: [http://blogs.hbr.org/2012/01/designing-spaces-for-creative/](http://blogs.hbr.org/2012/01/designing-spaces-for-creative/).
Table 1

<table>
<thead>
<tr>
<th>The White Hat</th>
<th>The Yellow Hat</th>
<th>The Black Hat</th>
<th>The Green Hat</th>
<th>The Blue Hat</th>
<th>The Red Hat</th>
</tr>
</thead>
<tbody>
<tr>
<td>These individuals want “just the facts”, often looking for more information.</td>
<td>Optimistic individuals that see positive aspects of ideas and encourage future development from this perspective.</td>
<td>Tend to be cautious and critical. Such individuals are often great at pointing out why something will not work.</td>
<td>Creative individuals that constantly look for alternative possibilities and new ideas.</td>
<td>Blue hats tend to be process oriented and focus on next steps in a sequential order.</td>
<td>Such individuals have strong intuitions and hunches. They pay attention to their own (and others) emotions.</td>
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2.2.3.2. Structure. Organizational structure can consist of many elements, but we focus this conversation on constraints, incentives, team dynamics, and organizational design. Focusing the discussion on constraints simply illustrates the point that deadlines, fixed financial and human resources, and even competition between teams can all be useful for encouraging creativity. For instance, without deadlines, the design thinking process could go on indefinitely. There is no such thing as a perfect product or service, at some point the design process needs to end and products need to ship, leaving improvements to be made in future iterations. Similarly, human and financial constraints focus attention and provide a space to work within. One point to emphasize here is that constraints are nothing to fear, but actually are a designer's friend if looked upon in the right way.

When discussing incentives we highlight the fact that a significant amount of creativity research has been conducted over the last 30 years, and a dominant logic has emerged. Intrinsic rewards (that is, being driven by an interest in the task itself and the enjoyment that can result) are seen to enhance creativity whereas extrinsic rewards (being driven by an interest in achieving an outcome only) are thought to lessen creativity. Of course, incentives are designed into an organization structure and can therefore be intentionally designed to shape more creative behavior.

We cover team dynamics under organizational structure for a couple of reasons. First, we discuss where innovative ideas often come from in organizations, making the point that breakthrough ideas often come when disparate teams come together and combine their knowledge. Thus, organizations need to create structures that intentionally bring teams together to integrate their knowledge. Additionally, we discuss the relationship between an organizational environment and creative output (Zimmerman & Gallagher, 2006). Finally, when discussing team dynamics under organizational structure we introduce the notion that teams likely have people that wear different “hats” and thereby approach creativity and innovation in different ways. At this point we introduce Edward de Bono's work on the Six Thinking Hats (see Table 1) and, in addition to pointing out the importance of simply being aware of these personal tendencies when part of a creative team, we make the point that teams may need to be intentionally structured to have representation across a diversity of thinking styles.

2.2.3.3. Culture. Organizational culture guides interpretation and action in organizational settings as it provides a shared mental model that shapes collective action (Ravasi & Schultz, 2006). It includes the values, norms, beliefs, etc. that are all important aspects of an organization's culture. A culture that encourages risk taking, views failure as a learning opportunity, values diversity, and encourages collaboration can help to foster creativity at the organizational level. In the spirit of using metaphors, we like to think that organizational culture is to creativity as soil is to plant life. You can have the most creative individuals that follow the design thinking process with discipline, but if both of these creative elements are encapsulated in a culture that is not geared towards creative discovery, organizational creativity will surely falter.

2.3. Module 3: Executing on creative ideas

The final module focuses on executing in a creative environment, or as the title of the book that shapes this part of the course calls it, “Making Ideas Happen”. The author of this book, Scott Belsky, divides the book up into the following three parts; all focused on helping individuals and organizations transform ideas into true innovation: organization, community, and leadership.

2.3.1. Organization

Belsky believes strongly in Thomas Edison's words, “Genius is 1 percent inspiration and 99 percent perspiration”. Thus, making ideas happen is less about coming up with lofty ideas and has more to do with getting things done. In this first part of the book Belsky essentially offers project management techniques (such as the action method) that can be applied in a creative context to help move ideas from the whiteboard to the real world. Such techniques help individuals learn how to organize the considerable amount of information that is required to turn a great idea into something real. The action method is broken up into three elements. First, action steps are the specific actions that are needed to move an idea forward. Second, “references” are all of the documents, notes, sketches, etc., that are generated along the way. Belsky offers a method for organizing all of the references. Third, “backburner” items relate to the many ideas that are generated throughout a creative
project, but that will not necessarily move the existing project. Though these ideas may be good ones, they can be saved for a later day, thereby letting one focus on completing what is already in front of them.

2.3.2. Community

In this section of the book, Belsky works hard to break the myth of the lonely creative, by stating “Your success will depend on how well you harness the efforts of others”. As part of the discussion on community, Belsky takes this opportunity to discuss issues of team chemistry, and perhaps most important, “hoarding ideas”. The point is that there is a natural tendency to want to hold onto one’s idea, perhaps so tightly because we don’t want others to take it and run with it. Or, on the other hand, we often feel like the creative process might be hijacked once you introduce your idea to the opinions of others. This is natural, since we often want to protect our ideas at all costs, often after falling in love with them through the many hours that we have spent with them. Yet, the author encourages us to see the dysfunction in these natural tendencies, and instead to shift our mindset to see the power of community for sharpening our ideas, staying focused on the end goal, and executing to completion.

2.3.3. Leadership

Traditional reward systems often force us to focus on short-term objectives. According to Belsky, part of being a creative leader is having the wisdom and courage to develop new reward systems that might lead to more long-term pursuits and ultimately to more meaningful work. Doing so will keep you and other members on your team more focused on long- (as opposed to short-) term pursuits, which is often required to cultivate transformational innovations. Belsky again alludes to the importance of team chemistry in creative contexts by challenging leaders to design teams that are “harmonious”, thereby having team members that have complementary skill sets and that combine to create both breadth and depth of experience and knowledge. Finally, creative leaders need to be self-aware, enabling them to reflect on their experiences to identify opportunities for continuous improvement.

3. Part II. Course implementation: an experiential approach

Given the nature of the content covered in this course, we strongly believe in an experiential approach to engaging with and learning the material. Therefore, though discussion and traditional lectures are used to cover daily content, the course emphasizes a series of projects that allow students to practice the concepts and skills we cover and then reflect on their experiences. It is this reflection on doing that reinforces key concepts and helps students enhance their own creativity. There are both individual projects and a large group design project that coincide with the content covered throughout the course (see Appendix I for course structure).

3.1. Individual projects

The individual projects are meant to help students develop the six attributes that Pink discusses in his book (design, play, meaning, symphony, story, empathy). At the back of each chapter Pink offers a series of exercises to choose from to help students further develop these attributes. For the most part we pick one assignment per attribute, and sometimes make slight adjustments as needed. For instance, the most comprehensive individual assignment is the “Design Notebook”. For this assignment students are asked to make 12 entries into their notebooks where they highlight an example of a good design and a bad design that they have experienced the past week. This exercise is powerful because it gets students to begin critiquing the designs (of products, processes, services, even experiences) around them, and encourages them to start challenging the assumptions that often keeps them from seeing new possibilities for such designs. After a couple of entries it is amazing to see their “design mentalities” sharpen as they begin to see that opportunities for innovation are truly everywhere. Tim Brown has a great video on Ted.com titled “Tales of Creativity and Play” where he discusses the importance of Play for engendering creative ideas. Therefore, for the play assignment we have students watch this video and reflect on the points Brown emphasizes. Similarly, Rowling has an inspirational commencement speech that can also be found on Ted titled “The Fringe Benefits of Failure”. In this video she discusses the relationship between imagination and empathy, so we have students watch this video and reflect on their own notions of empathy, how it can be developed or cultivated within them through imagination, and its role in the design process. Symphony relates to seeing the big picture and making connections between concepts. So the symphony project asks students to identify three distinct relationships that exist between concepts already covered in class, and write up their reflections. Other individual assignments are of a similar nature, all designed to reinforce the individual level attributes that Pink discusses. Students then bring this new found creativity to the largest project of the semester, the group design project.

3.2. Group design project

For the group design project students are asked to apply the design thinking process that we study to generate a product, process, or service innovation aimed at solving a real problem in the world. Classes in this part of the course tend to be divided in half. The first half of class will be lecture or discussion oriented and focused on the design phase we
are currently covering and the readings for the day. The second part of class tends to be very hands on where student teams practice the design thinking skills we have learned for the day. They do so by applying such skills to their design project.

To enhance the realism of the project we began seeking out a “customer” on campus that needs design help. The most recent customer was the Director of Sustainability on campus. After meeting with the director, we learned that his core focus was on lowering the total carbon footprint of our campus. In fact, they have pledged to have a neutral footprint by a recent customer was the Director of Sustainability on campus. After meeting with the director, we learned that his core focus was on lowering the total carbon footprint of our campus. In fact, they have pledged to have a neutral footprint by reducing waste and investing in carbon offset initiatives within a five year period. After further discussion with the director we learned that the University’s study abroad initiatives account for almost 7% of the total carbon footprint, and therefore was a big area of concern. Of course, like most real world challenges there were conflicting interests at play, as exposing students to global travel is high on the list of the University’s strategic priorities. Consequently, simply reducing or eliminating study abroad programs was not a viable option. With the problem in hand, student teams were formed and asked to apply the design thinking concepts that we covered to generate a solution for the Director of Sustainability on campus. Weekly activities and deliverables coincided with the phase of the design process we were studying at a given time. Team solutions were presented at the end of the semester to the class and our on campus customer (see Appendix II for project directions).

3.3. Reflection on course

This course has now been taught four times and there has been some significant learning to be shared. Perhaps the most significant change we made is dropping an entrepreneurship course prerequisite that was initially in place. Due to this initial requirement, the first cohort of students was 90% entrepreneurship majors. Entrepreneurship students bring energy and creativity to the course, but we lacked sufficient diversity in the class with this first group of students. By removing the

<table>
<thead>
<tr>
<th>Design Phase</th>
<th>Common Challenges</th>
<th>Solutions</th>
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<tbody>
<tr>
<td>Discovery</td>
<td>• Getting students to listen and observe objectively, with limited bias.</td>
<td>• Give students far-away target markets (e.g. 75-year old in a wheelchair or blind 2-year old). This pushes them to consider different perspectives, needs, and contexts.</td>
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<td></td>
<td>• It is often difficult to accept that there is no question to answer, therefore there is no correct answer. This ambiguity can be unsettling.</td>
<td>• Swap contexts with another student after some discovery has been completed.</td>
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<td></td>
<td>• Unbiased documentation</td>
<td>• Require multiple research methods (e.g. video observation + survey + expert interview). Multiple perspectives push the more divergent thinking.</td>
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<tr>
<td>Interpretation</td>
<td>• Looking past the obvious — avoid the ‘low-hanging fruit’</td>
<td>• Discussion and editing after students compose a problem statement. Wordsmithing.</td>
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<td></td>
<td>• Finding real insights, problems that do not yet have solutions</td>
<td>• Try defining the problem in terms of the Ideal Final Result (IFR), focusing on the functions/attributes/desired results, rather than the current problem or existing solutions.</td>
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<td></td>
<td>• Defining the problem with room to discover solution (not with a known solution already in mind)</td>
<td>• Exploring the ‘adjacent possible’ — discuss and introduce this concept with mind-maps.</td>
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<tr>
<td>Ideation</td>
<td>• Can be difficult to generate multiple, far reaching, new and innovative solution</td>
<td>• Applying specific brainstorming/creativity tools (e.g. INNOWIZ, Harvey Cards, etc.)</td>
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<td></td>
<td>• Can be difficult to break ‘fixation’ as students become attached to a solution (a.k.a. ‘one-and-done’)</td>
<td>• Demand multiple solutions — 30 or more (a quantity that seems impossible at first). If a student has to come up with more ideas, they are more likely to explore new territory.</td>
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<tr>
<td>Experimentation</td>
<td>• Finding objective everyday experts (rather than asking friends/family).</td>
<td>• Encourage wild/ridiculous ideas (and cultivate a class culture that celebrates this). It’s easier to make a far-out concept believable than it is to make a mundane concept amazing.</td>
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<td></td>
<td>• Testing specific attributes and variations, rather than and overall yay/nay evaluation.</td>
<td>• Require students find outside mentors or research subjects/respondents.</td>
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<td></td>
<td>• Bring an expert into class to review/critique ideas. Students seem to respond better to outside experts vs. their known instructor.</td>
<td>• Prototype multiple variations in order to explore/test specific attributes — pushing a concept further. This also helps identify the key kernels of a successful idea rather than throwing out the whole thing if rejected. (A prototype can be a sketch, model, video, or anything that helps present the idea to an outside person and get meaningful feedback.)</td>
</tr>
<tr>
<td>Evolution</td>
<td>• Willingness to change/improve an idea</td>
<td>• Swap projects with another student — this forces a different person to reinterpret the solution outside of your influence or bias.</td>
</tr>
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<td></td>
<td>• Willingness to throw out a favorite idea that is failing</td>
<td>• Add a new project requirement/constraint (e.g. use recycled materials, cut costs by 80%, etc.) in order to shake up the paradigm of the assignment. This forces active re-evaluation of the solution in order to meet new criteria.</td>
</tr>
</tbody>
</table>
prerequisite we opened the course to anyone around the university. As a result, the second course welcomed students that were majoring in interior design, photography, art management, psychology, as well as traditional business and entrepreneurship students. This mixture made a significant difference in the quality of class discussion, the energy in the class, the diversity of thought and experience, and the overall learning experience.

Overall, the three modular structure works very well. The first module helps to motivate the topic and offers students the opportunity to reflect back on their educational experiences. Doing so seems to further motivate the topic at hand. The second module helps to actually develop and cultivate creativity by exploring it at three levels, obviously a key objective of the class. Finally, the third module emphasizes the importance of being able to implement creative ideas, and offers students skills and techniques to improve their productivity in a creative environment. Since the class is heavily focused on experiential and project based learning, the third module on implementation seems to be especially well enforced. In terms of the projects, the individual assignments are well received by the students and seem to help them enhance their own creativity. The design notebook and empathy exercises seem to be the most beneficial to students as we have had numerous students suggest “After twelve entries I truly look at the world in a different way…” in regard to the impact of the design notebook assignment. Furthermore, many students continue to reflect on the importance of empathy as they traverse the design thinking process in their groups. It is just one of those topics that is covered early and seems to come up often throughout the semester. In contrast to the smoothness in which the individual projects have been implemented, the group project has required a little more iterative development to address some keep challenges along the way.

The first challenge with the group project has been the balance between autonomy and structure. In the first iteration of the course the teams were pretty much given free rein to design a product, process, or service solution that solved some problem in the world. The benefit of this approach is that students could focus on something they were interested in, and therefore tap into the energy that often comes from intrinsic pursuits. However, the downside of this approach is that students often seemed overwhelmed and lost without a more focused problem given to them. In the most recent iteration of the class we focused the problem very well for the students, introducing them to a real customer (The Director of Sustainability on campus) and providing a real problem (carbon emissions as a result of study abroad programs on campus). For some students this focus was great as the problem was clear and well defined, yet other students found it “school like” where they were once again being told exactly what to do (the antithesis of creative freedom). So this balance between autonomy and structure continues to be a difficult one, and the quest will continue to structure the group projects so a suitable balance is reached.

The second challenge with the group project is simply the complexity of the design process and the difficulties students have as they go through the design process for the first time. Through our experiences we have been able to generate Table 2 below that highlights common challenges we have observed from students during each design phase, and solutions we have generated to help them work through such obstacles.

4. Conclusion

A quick browse of recent business books and magazines shows that the need for creative individuals is strong and growing, as global competition becomes the new normal, economies around the world become increasingly connected, and firms search for new sources of value creation (e.g. Florida, 2004; Granet, 2012; Kotz, 2011). As business educators we need to reflect on how we should go about designing classes and curriculums that are meant to develop important creative capabilities in our students. Doing so requires that such a process be shaped by the same intentional design approach that we try to teach our students, rather than by simply compiling a plethora of fun and quirky activities that offer enjoyment, but no long lasting change in our students.

The word “intentional” is particularly important because it focuses our attention on the “purpose” of designing a class or curriculum that will help foster and cultivate creative skills in our students. In business schools we often succumb to the notion that organizations exist primarily to “compete”, rather than to create value. This logic of competition is deeply embedded in our DNA, but it must be challenged at its core if we want to foster and cultivate creativity in our students. The purpose of the course design presented here is to help students tap into the energy that comes from working on projects that are meaningful to them and are focused on solving real world problems by tapping into their own creativity and leveraging the power of the design thinking process. By engaging in such a program students develop the tools of a designer so they can shift from simply seeing themselves as a competitor, to experiencing the joy and energy that comes from being a value creator.

Appendix I. Course schedule

Course Books
- A Whole New Mind: Why Right-Brainers Will Rule the Future by Daniel H. Pink
- Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation by Tim Brown
- Making Ideas Happen: Overcoming the Obstacles Between Vision and Reality by Scott Belsky
Appendix II. Design thinking project directions

Increasing sustainable behavior

Applying Design Thinking to Generate Novel Solutions to Real Problems
Directions for MGT 3170 Team Project

Project overview

Congratulations! You are part of a design firm (our class) that has been hired by the Director of Sustainable Development at Appalachian State University, Ged Moody. Mr. Moody has sought our services in an attempt to increase sustainable behavior on campus. Though there are many areas of worry around campus for Mr. Moody, he has asked us to focus on one core area of concern: Carbon Emissions that result from ASU’s Study Abroad initiatives. As can be seen in Fig. 1, nearly 7% of ASU’s total carbon footprint results from our Study Abroad initiatives. Yet, simply eliminating Study Abroad programs is obviously not an option for ASU, as it relates to a core strategic initiative of our school (click here). For this project, your team needs to design a creative solution that can lower carbon numbers in this area. Your solution should be designed to meet the following objectives.

Project objectives

- Design a product, process, or service that will help to lower ASU’s carbon footprint related to Study Abroad.
- Design the product, process, or service based on documented research, addressing demonstrated need and behavioral drivers, appropriate aesthetics, and taking into consideration issues of form, function, and emotion.
- Design consistent branding and marketing for the product that reflects your target market, including: logo, packaging, point-of-purchase display, etc.
- Create strong visual communication of and about the product using infographics and storytelling skills.
- Create a prototype of the product, process, or service that you design and show how it helps to reduce ASU’s carbon footprint in this area.

To design your product, process, or service innovations we will follow the Design Thinking process, which is a structured way to generate novel solutions to pressing problems. As part of the process there will be individual deliverables that will coincide with each stage of the Design Thinking process. Please pay attention to the following key deliverables.
Timeline and deliverables

Major deadlines
- 10/6 Design Brief
- 10/13 Observe People Worksheets
- 10/27 Form Insights & Frame Opportunities
- 11/3 Brainstorm Ideas
- 11/10 Storyboards, Prototypes, and Experiments
- 12/4 Solution Presentations
- 12/8 Written Findings and Recommendations

It is very likely that you will experience a high level of ambiguity as you traverse this process for the first time. As is always the case when coming up with something that does not already exist and that is worthy, it is often a messy, difficult, and time consuming process. I will be here to help and steer you along the way, but you will be your biggest asset as you move through this process. Stay calm. Work hard. Have fun. More detailed directions will come as we navigate each stage of the process.
References


