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Introduction to Creativity: A Lecture and Curriculum Framework for Students Who Identify Themselves as Creative

miriam kelley

International Center for Studies in Creativity, Buffalo State College, miriamkelley@gmail.com

Advisor

Susan Keller-Mathers

Department Chair

Gerard J. Puccio

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Buffalo State College
State University of New York
International Center for Studies in Creativity

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Who Identify Themselves as Creative

A Project
in Creative Studies
by
Miriam Kelley

Submitted in Partial Fulfillment
of the Requirements
for the Degree of
Master of Science

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Dr. Susan Keller-Mathers
Associate Professor

December 4, 2013



Miriam Kelley
Candidate

ABSTRACT

This project focuses on the creative person, process, product and press- the 4Ps of creativity as articulated by Rhodes (1961). A curricular framework was developed with an emphasis on enhancing the abilities of those who already identify themselves as creative, specifically undergraduate Freshmen and Sophomores looking to study various fields of Design at the university level. The objective of the framework is to not only identify the innate processes that may have led these students to identify themselves as creative- thereby choosing their major- but also to allow them to recognize, improve and be deliberate in those processes, to enhance their creative environments, and to allow them to see that creativity is transferable beyond their chosen craft or profession. This curriculum framework also focuses on identifying the knowledge-gathering, thinking, and decision-making skills that are the foundation for the type of innovation and problem-solving that is valuable in industry.



Miriam Kelley

December 4, 2013

Date

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ACKNOWLEDGEMENTS

While I believe I've been creative since I was a young child, I began my formal schooling in the study of Creativity between 1987-1989, when I received 27 credits toward my Master's Degree in Creative Studies at Buffalo State College. I stopped just six credits shy of my degree, yet continued my journey in applying my creative strengths as a designer, as a leader of creative people, as a spouse, and as a parent.

In 2012, when an unexpected break in my career happened, I turned to an old friend, Dr. Susan Keller-Mathers, who quickly became my mentor and advisor as she led me through getting readmitted to the Creative Studies program at Buffalo State and through this Master's Degree Project. For that, I thank her for her guidance and her patience. Thank you, Susan!

I also thank Dr. Gerard Puccio, head of the Creative Studies Department (whom I barely knew during my first time around in the Department) for the faith he had in my potential and for "bringing me back into the fold" after such a long time away. He and Dr. Cyndi Burnett were the first of the professors to see me through my creative redefinition in the classes I needed to retake as part of my readmission requirements. Also, thank you to Dr. Michael Fox and Dr. Burnett for letting a graduate student sit in an undergraduate class (*CRS 205- Introduction to Creative Studies*) and for feeling comfortable knowing that I was there to observe their creative teaching styles.

I also thank my daughter, Hannah, who thought it was a funny thing that her mother was a college student at the same time as she and her brother. Anytime I complained about citations or my general workload through texts or in person, she responded with, "Oh that's just so cute, Mother!"

Finally, I'd like to thank the Little People...really! Maggie was a character whose personality I developed for the beloved Little People brand at Fisher-Price Toys. She was the embodiment of my FourSight creative preference (Clarifier/Developer) for 15 of the over 28 years I was employed there and continues to be the character with whom I still identify. Then as well as now, she pops into my head each time I feel the need to gather more data, explain a decision, redefine, or question a problem.

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SECTION ONE: BACKGROUND

Purpose and Description

The purpose of this project was to design an introductory lecture and a framework for a curriculum that introduces college-level students to Creativity through the lens of the 4Ps (creative person, process, products, and press *or environment*) as articulated by Rhodes (1961). The students will be those who self-identify as creative due to their pursuit of majors or minors in “functionally creative” (Cropley & Cropley, 2005, p. 171) fields of Design (such as Graphic Design, Architecture, Animation, Industrial Design, etc.) where their career choices will inevitably lead to *creative products*. The curriculum framework was designed to bring awareness to their creative process- specifically to enhance their understanding of how they think, know, decide, and implement their ideas.

Evidence

As an Industrial Designer with over thirty years of experience, many of which were spent leading, coaching and mentoring younger designers on their creative process, I often noticed their decision-making process was very linear. Many times, while there were **facts** that were part of their process, there weren't enough **questions** that were part of their process. Sometimes, too much effort was spent on a problem before it was determined that ‘the problem’ wasn't really what needed to be solved. In fact, sometimes, the problem had yet to be identified.

There were also times that it wasn't about discovering the problem that needed to be worked on. Sometimes, the issue boiled down to communication and understanding each other's needs, styles of thinking and preferences for working out their problems- either as individuals or within a group when collaboration or delegation was necessary.

At the time of this project, I was the parent of a college-age son who attended an art college. I was very concerned to see him struggle when fleshing out his ideas and to hear him complain that “no one ever wants to build on ideas or hear constructive criticism.” This made me realize that it was quite possible that the culture of his school or, at the very least, some of his classes, promoted the myth of individual creativity that just happens “magically” vs. the deliberate nurturing of the creative process. As Keith Sawyer stated in a *Time Magazine* interview, this culture perpetuated “those romantic myths that creativity is all about being artsy and gifted and not about hard work. They discourage us because we're waiting for that one full-blown moment of inspiration. And while we're waiting, we may never start working on what we might someday create” (Russo, 2006, final question).

I also thought back to my own education as I pursued a Bachelors of Fine Arts in Industrial Design from Massachusetts College of Art and Design in Boston, Massachusetts. I cannot remember a single class where there was deliberate discussion on how to come up with and evaluate a good idea. The only time that I remember criticism- constructive or otherwise- was at the end of each semester when all of our work was put on display and inevitably judged on how “flashy” or “slick” the presentation was, rather than the quality of the thinking and decision-making that brought us to our final products. This led me to believe that the only thing that was important to them was how a product looked vs. how a product worked or how it would be used.

Definition of Industrial Design

This was an unfortunate point of view since Industrial Design, as defined by *Wikipedia*, is “the use of both applied art and applied science to improve the aesthetics, ergonomics, functionality, and/or usability of a product, and it may also be used to improve the product's marketability and even production. The role of an industrial designer is to create and execute design solutions for problems of form, usability, physical ergonomics, marketing, brand development, and sales” (“Industrial Design”, n.d.). Or, as Steve Jobs more succinctly defined it, “It’s not just what it looks like and feels like. Design is how it works” (Walker, 2003, para. 4). Both of these definitions, of all that I found, best describe the fact that design is so much more than the aesthetics and is, in fact, about the total experience of the product- not just the physical product itself.

Because of this, I determined that I wanted to create a framework for a curriculum that helped the student to identify different ways of asking questions and what is salient, and helped them to make good decisions along the way while still looking for novel and useful solutions. I thought this would be very beneficial as the student moved toward making career decisions. Also within this framework, creating awareness, understanding, and respect for the preferences that each individual possesses when problem solving needed to be a significant piece of the learning. I felt that a curriculum framework like this would show the value of thinking about each stage of the design process, including the aspects of the design that are not necessarily seen by the end user but are definitely part of the overall satisfaction of the experience of the product or service.

Professional Rationale

There are many people who may not understand, are afraid of, or are mystified by the concept of creativity. While there may be those who have never been exposed to creativity at all, there are others who associate creativity with a particular talent or skill (as in, “I can’t draw or “I’m not an artist”) or even associate it with either something rarified or a deficiency (as in, “only genius types are creative” or “really creative types are a little bit crazy”). However, even those who have been exposed to creativity through a particular talent and do identify themselves as creative may be unaware that there is a process behind their ability to create and, with guidance and tools, it could be made stronger. This population, undergraduate college students in Design majors (such as Architecture, Graphic Design, Interior Design, Industrial Design, Animation, etc.), was the one I chose as the project focus.

I felt that this same group may be unaware that their creative output was already connected to the environment in which they create. By understanding how this connection played a role in their abilities, they would be able to control, change, or enhance that environment. A specific curriculum created for students in this population would help them understand their own characteristics and preferences as a creative person making creative products. With this understanding comes knowledge about how to become more aware of their own thinking style and how it enhances or impacts their process both as an individual and within groups. Knowledge and understanding would also be gained in how to use cognitive and affective skills to gather knowledge before, during, and after their ideas were formed.

Because this course would be offered early in the student’s post-secondary schooling, an emphasis was placed on the skills needed to differentiate themselves within the careers in

which their pursuits may land. Employers are looking for candidates who can think creatively and innovatively, solve complex problems, as well as have teamwork skills and the ability to work collaboratively, as noted in results from an employee survey conducted by the *Association of American Colleges and Universities* (2013). And, even if a student was planning on staying “independent” or creating art for themselves only, they would be shown that there may be a need to “sell” their creative abilities as well as their products or services. Emphasis was placed on learning the process of and the skills needed for innovation, design thinking, and knowing how to make decisions all along the development of an idea or a solution as well as how to implement those decisions.

As an overarching goal, the student should realize that all of these skills and processes that may seem to focus only on their stated creative endeavors (eg., their chosen field of study) should be seen as transferrable to other parts of their lives socially, educationally, or personally.

Personal Rationale

As a personal goal, attaining my Master’s Degree in Creative Studies was something that was necessary for me to do after being laid off from a job that was in a profession I had identified as my “North Star” while still in college and had planned on retiring from. This goal was part of my “redefinition”, given that I had applied my creativity and leadership within the same industry for 30 years up until that layoff. I needed to prove to myself that these strengths were not just the result of familiarity with an industry I had so long been part of.

I had already attained 27 credits towards this degree from Buffalo State College between 1987 and 1989 but had stopped my graduate work due to the demands of my job. It

became my goal to take all of the knowledge and experience I gained over this time and combine it with the completion of my degree in Creative Studies. While I officially needed only six credits to complete the degree, I was first required to audit three classes I had previously taken before taking the credit-bearing classes. When I finished with the requirements of this degree in December of 2013, it was the culmination of one year of work that began in January of 2013, after a little more than one month of reflection after my layoff in November 2012.

I chose not to reenter the industry with which I was most familiar. Instead, I chose to go into consulting and teaching- two places that I believed my creative skills and strengths would be best-suited. By attaining the Master's Degree, I gained additional credentials to teach at the university level. The degree, along with my industry experience, has allowed me to work with students at all levels who were interested in pursuing creative careers as I knew I would be able to draw much from my history to help guide them.

My experience in leading designers, illustrators, producers, and animators to achieve creative solutions, and the fact that I'm the parent of two children in creative fields (animation and interactive media), has allowed me to gain credibility with students when I've spoken to them about creative styles and processes. Also, because of my interest in processes and how to improve and enhance them, my inherent abilities have allowed me to focus on training and facilitation in a variety of sectors ranging from industry, to government, to education, to healthcare, etc.

SECTION TWO: PERTINENT LITERATURE

Introduction

As I began researching the pertinent literature for my project, I determined there were three categories upon which I would focus. First, I wanted to determine if there were different perspectives between fine artists and designers as it relates to the 4Ps of creativity (the creative person, process, product, and press). Second, I wanted find out to what degree is creativity being taught to creative college students. Third, I wanted to research effective ways to introduce creativity to those who already identify themselves as creative.

Different Perspectives Between Fine Artists and Designers

In an unpublished paper, *How Do Artists And Designers Differ re: Person, Process, Press, And Product?* (Kelley, 2013), I explored the similarities and differences seen between fine artists and designers. Some of the differences noted between the two professions were that the designers had more constraints to deal with than the artists. These constraints could range from client needs, cost and other budget constraints, safety and regulations, and time, among other things. Fine artists, while they may deal with constraints such as finances, etc., had a higher level of freedom in the topics they chose to work on, their materials, and the amount of time spent working on their art as it was not always deadline or client-driven.

In *How Creatives Define Creativity*, Glück, Ernst, and Unger (2002) noted this level of “strong external constraints” that the designers have and how it may affect their freedom in their creative work (p. 55). Some of these external constraints such as expectation of evaluation or reward were named by Hennessey and Amabile (1988) and Hill and Amabile (1993) as hindering creativity. Other hindrances to creativity included whether the topic or material could not freely be chosen (Hennessey & Amabile, 1988) as well as the presence of competition (Hill

& Amabile, 1993). Glück, et al (2002) also maintained that, within the reality of professional creative work, limited financial resources, technical possibilities, and external demands regarding style of the creative product may take effect (p.55). However, the authors also maintained that time pressure and the idea of being paid does not necessarily reduce creativity and they give freelance creative professionals as an example of this (p. 56).

My research into the creative process of the fine artist put me in unfamiliar territory as compared to my comfort with the processes of the designer given my own schooling and experience. In my opinion, some research, such as that of Locher (2010), in *“How Does a Visual Artist Create an Artwork?”* did not get to **why** an artist created. Instead, the research presented an overview of “archival and real-life case studies...to provide insights into **the way** [bolded type mine] a visual artist creates” (p. 131). The methodologies of these studies consisted of measuring eye movement, sketch analysis, X-ray analysis, and brain scan research and focused primarily on technique and the processes of developing the art. That was not what I was looking for.

I realized I needed some firsthand information on **why** an artist creates- what the initial intention was for that artist. In my experience as a designer and working with designers, I believe that while they may vary in their creative processes, they are typically spurred to create because they are given an assignment, have a client, or have an idea for an invention, etc. I proposed that all of these reasons could be measured in their level of intent, especially in regards to the desired function of what they are creating (Kelley, p.10). This proposal of the intent of an Artist vs. a Designer was embodied in my *Creative Outcome Model: A Thinking Approach* (Figure 1).

In this model, I hypothesized that fine artists and designers begin their process with *intent* that ranged on a scale from internal (pure self-expression) to external (functional). This level of intent would then determine the type of thinking processes and which creative tools would be used to develop the product (defined as a *tangible* or *intangible* creative outcome). The environment provided the context within which the fine artist or the designer gains their inspiration, data, and motivation, etc. for creating.

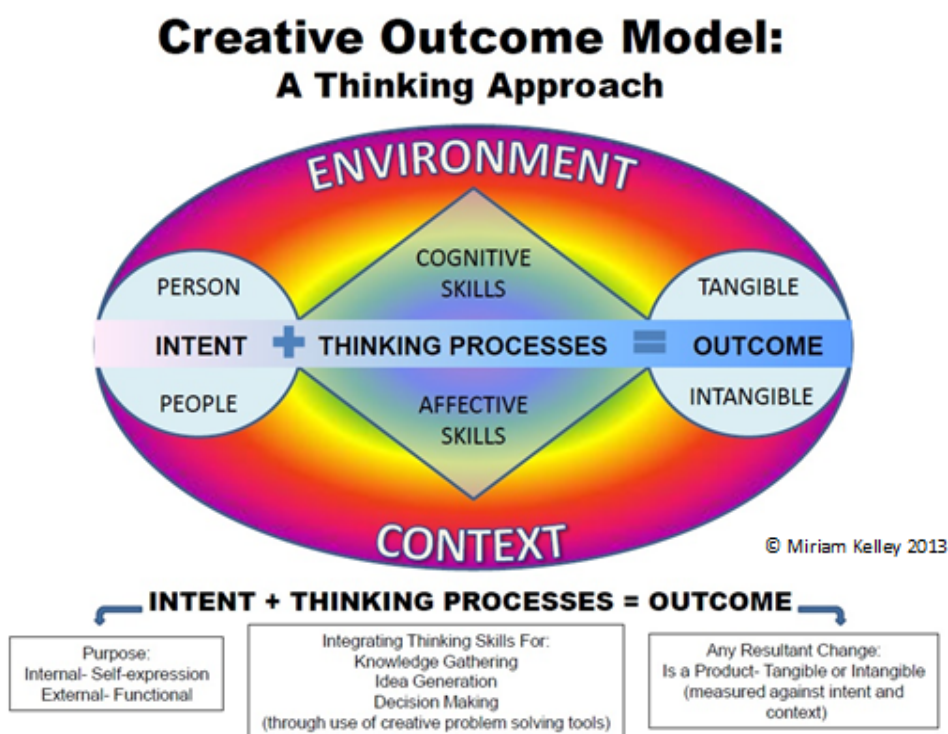


Figure 1. Creative Outcome Model: A thinking approach. This model looked at how intent plus thinking processes can affect outcome.

I furthered my research on the creative processes of fine artists by turning to social media, where I discovered an amazing fine art photographer named Ian Ruhter (www.ianruhter.com). I also met a local painter from Kenmore, New York named Bill Golba (www.golbaart.com). Both of these artists made choices in their lives whereby they didn't necessarily know where their next paycheck would come from, yet their financial living only

came from the creation of their art. Both of these artists were able to clearly convey the intrinsic motivations that led them to their creations.

Ruhter created large scale wet plate photographs using silver plate and the chemical collodion. This process is very similar to that of glass plate photography of the late 1800's. In his film *Silver & Light* (2012), which is largely autobiographical, Ruhter explained his choices, his motivation, and his reason for creating in a very open and accessible way.

On why he chose this process, he stated in the film, "When I started in photography I was using my hands to create images and it seemed like overnight digital came, and all of that came to an end. I didn't know it at the time but I lost something I loved. In the absence of that feeling, it sent me on a tremendous journey. It took me back to the beginning of photography...I just got tired of it. Everyone around me had the same camera; they had the same signature." This spurred him to create a camera built into the back of a delivery truck- one that he stands inside of to take pictures that are one-of-a-kind and whose results are unknown and can differ due to the chemicals, the weather, and unknown reasons that even he could not explain (Figure 2 & Figure 3).

Ruhter sold everything he had to create this camera and has been driving across the US and Canada to take pictures of people whose stories he discovered by travelling and talking since May 2012. His desire was to show that all people are connected through their stories that he tells through his photographs. As he stated in *Silver & Light*, "The stakes have become so high that I'm literally pouring my soul onto every plate." Throughout this film and his others (*Death Do Us Part*, February, 2013 and *American Dream*, November, 2012), Ruhter clearly

showed his tolerance for ambiguity, his ability to deal with risk, his playfulness, and his sensitivity to the environment around him among other affective skills.



Figure 2. Ian Ruhter's Camera Truck 1. This photo shows that the camera is created within a delivery truck.



Figure 3. Ian Ruhter's camera truck 2. This photo shows the detail of the camera built into the delivery truck.

The other artist, Bill Golba, who I interviewed by phone on September 12, 2013 and met in his studio on September 18, 2013, also talked about what motivated his creativity and attempted to describe his creative process to me. He is a painter who paints on canvas and glass. He also uses painted paper to create multiple layers of color and collage within his

paintings. His work is non-representational. In his online *Artist Statement* (www.golbaart.com), he explained his process this way:

The versatility of paper enables improvisation, from the priming of the support to the possibilities of collage. Paint is added and subtracted by using various tools including brush, drywall knives and rags. Placing the paper over various substrates while painting results in textures that produce unexpected results and add to the experimental nature of the work. The process then continues from uncharted spontaneity to that of a more analytical and controlled reflection. In some instances collage can become an evolver of those pieces I find lacking for any reason. Shapes, images and parts that I find interesting are cut out of these demoted or dormant skins of paper and the accumulated fragments are recombined, creating further tension or release from the act of painting.

In his interview with me (B. Golba, personal communication, September 18, 2013), Golba conveyed that his motivation to create seemed to be initiated by events that were out of his control such as the Fukushima Daiichi nuclear disaster (March, 2011), the Deepwater Horizon oil spill (April, 2010), as well as deaths of friends and family over the years. However, not all of his paintings were inspired by dark events. For instance, his series, "Garden Varieties", (<http://golbaart.com/2013/01/05/garden-varieties/>) was inspired by his wife's love of gardening. He stated to me that he sometimes creates themes that "I don't even understand" (Appendix B, Figure 17). His process doesn't involve sketching and he doesn't do any preliminary thinking except for the times titles come to him before he starts (and sometimes

during) painting. His intention with his paintings is to create a “universal feeling” in his audience versus needing them to understand his intention based on his titles and themes.

In our interview, Golba stated that he relied on experimentation and was very comfortable when “accidents” happen. He also felt that he had a “high tolerance for failure” which, in his opinion, may set him apart from many designers and even some painters. He never throws any of his accidents away and saves them for when he needs a certain color and texture and turns them into cut layers for collaging into his new paintings. He was not bound by deadlines and his financial support does not come from his paintings though they do sell to people as far away as Australia. See Appendix B for the notes I took in my interviews with Golba.

While I was intrigued by my interviews with Bill Golba and my discovery of Ian Ruhter, this quote from *Thinking Through Art* by Macleod and Holdridge (2009) summed up my feelings about interpreting an art product as well as the artist’s intentions for creating:

Art, like poetry, is not easily read. In our search for this sense of our *rereading* and the alienating intimacy of such a process... (Mieke) Bal’s writing, in particular...enters into our intimate and alien space of...anxiety; she is not sure of her ground...Do such meticulous acts of intimate interpretation generate renewed understanding of art *as* research? (p. 10)

This quote helped me realize that it was not my place to determine nor was it my desire to understand what the artist was intending or thinking about when creating. It also was uncomfortable for me. I felt it was not my place to analyze a process that was so personal for the efficiencies or deficiencies in an attempt to “teach”, “enhance”, or “bring awareness” of the

creative process to a fine artist. It was at this point that I decided that the focus of my project would be on designers only.

Creativity Curriculum at the Undergraduate Level

My goal with this category of research was to determine whether or not creativity was being taught in a deliberate way to creative students- specifically design students. To determine this, I chose to look at the specific curriculums that were offered to first and second year design students at the undergraduate university level. I picked the schools to research by first focusing on lists of the best schools that offer a Master's Degree in Industrial Design, Graphic Design, or Design Thinking and then hypothesized that those same schools would have undergraduate programs in those same areas. The lists I chose were from *Businessweek: World's Best Design Schools* (Wong, 2009) and from *Business Insider: The World's 25 Best Design Schools* (Dickey, 2012).

Each of these lists included colleges and universities with graduate degree programs from all over the world. I narrowed my focus to schools just in the United States. I also included a few other undergraduate institutions that were well-known for Design but didn't offer any Master's programs. The final list of the schools is included in Appendix A.

Overall, I found very few schools that deliberately taught creativity through the lens of the 4Ps to their students at the undergraduate level even after checking all of the liberal arts and other foundation courses available within the schools. In some cases, while it seemed as though creative tools were being taught, it was vaguely described. For instance, Syracuse University offered an Advertising course called "*The Big Idea in Advertising*" (ADV 208) and it was described as "a look at the most creative advertising strategies and advertising agencies.

Develop a critical understanding of a Big Idea in advertising; how it's developed, nurtured, exploited and the impact it can have” (Syracuse University, 2013). They also offered a junior year course called “*Problem Solving Strategies*” (CMD 351) in their School of Art and Design described as, “thinking, creativity, and communication theory as applied to design problem solving. Students are encouraged to explore and develop their own personal style of thinking and overcome obstacles inhibiting creativity” (2013). While this class spoke about “personal style”, I did not get the impression that the student would gain an understanding of what that personal style may mean beyond the individual. Specifically, there was no indication of how style affects the dynamic of how creativity happens within a group.

There were some schools that taught methods of researching from a user point of view that emphasized gathering less tangible data as part of the product development practice along with the value of iterative development. At the Cleveland Institute of Art, the “*Design Research Methods*” course (DES 353) was described in the course catalog this way:

The goal of this course is to explore the methods by which designers come to understand user needs, feelings, expectations, and values. These methods are a preparation for developing breakthrough products-tangible and intangible- as well as interactions and services. We will explore...the design process to develop new products and test their usability and efficiency...User experience has become a central, distinguishing feature of the best product development...we will learn how to interpret needs, generate and test ideas, visualize information, and choreograph solutions.

(Cleveland Institute of Art, 2013)

This class was one of the few classes in all of the undergraduate programs I looked at that embodied the philosophy of Design Thinking which was first introduced at the graduate level in 2007 in the d.school at Stanford University. Typically, Design Thinking is taught at the graduate level because of its interdisciplinary direction (usually combining Design, Engineering, and Business). At Stanford's d.school, *Design Thinking* is defined this way:

d.school courses and curriculum are based on the design thinking process. It draws on methods from engineering and design, and combines them with ideas from the arts, tools from the social sciences, and insights from the business world. The process provides a glue that brings teammates from vastly different fields together around a common goal: make the lives of the people they're designing for better.

Design thinking is best learned by doing, and our classes immerse students in an experiential learning environment. It is not a static process, but an approach to creative problem solving. Each team and individual develops their own process as they work on a problem, adapting and adding to it as they go. The key element is being mindful of how you work, not just what your outcome is. Regardless of the steps you take, the elements underlying the process are the mindsets of empathy, an attitude of prototyping, collaboration, iteration and feedback. We focus on the design process because we seek to equip our students with a methodology for producing reliably innovative results in any field. **Our focus is on creating innovators rather than any particular innovation.**

(Stanford University, n. d. a)

Most of Stanford University's undergraduate courses that focused on creative thinking, processes, team building and innovation were housed in the School of Engineering under Mechanical Engineering (ME). Design programs such as Product Design (PD) and Architectural Design (AD) were also offered through that school. Many of the requirements for PD came from the ME program. Of all the degree programs I found in design, Stanford's ME program had the deepest overall focus on the creative Person and the creative Process. And, because there is such a heavy emphasis on Design Thinking, Press is emphasized due to the emphasis on user needs, sustainability, and other social issues. Following are the many ME courses I found:

ME 10AX. Design Thinking and the Art of Innovation

This seminar will introduce students to techniques that designers use to create highly innovative solutions to wicked problems that cross domains. The project-based class will emphasize approaches to problem identification and problem solving. Along with a survey of tools such as need finding, structured brainstorming, synthesis, rapid prototyping, and visual communication, the class will include field trips to a local design firm, a robotics lab, and a prototyping lab. A secondary goal of the seminar is to introduce students to the pleasures of creative design and hands-on development of tangible solutions. Design has a unique approach to looking at both the problem domain and the solution domain in issues where technology, social issues, human behavior, and business needs overlap.

ME 18Q. Teamology: Creative Teams and Individual Development

Preference to sophomores. Roles on a problem solving team that best suit individual creative characteristics. Two teams are formed for teaching experientially how to develop less conscious abilities from teammates creative in those roles. Reinforcement teams have members with similar personalities; problem solving teams are composed of people with maximally different personalities.

ME 19. Pre-field Course for Alternative Spring Break: Design for Social Change

Focus is on applying design, technology and innovation to catalyze social change. Topics include identifying social needs, learning different brainstorming methods, developing an applicable service model or product, prototyping, implementation, and reiteration.

ME 26N. Think Like a Designer

Introduces students to techniques designers use to create highly innovative solutions across domains. The project-based class will emphasize approaches to problem identification and problem solving. Topics include need-finding, structured brainstorming, synthesis, rapid prototyping, and visual communication; field trips to a local design firm, a robotics lab, and a machining lab. A secondary goal of the seminar is to introduce students to the pleasures of creative design and hands-on development of tangible solutions.

ME 101. Visual Thinking

Lecture/lab. Visual thinking and language skills are developed creation of a functional, useful, and beautiful product. In this project-based seminar, students develop product

realization confidence and intuition using the rich array of tools available in the Product Realization Lab as well as industry-standard design engineering software programs and course readings in design/realization philosophy. Students develop a portfolio of products including soft goods, composite utensils, wearable electronics, mechatronics devices, and a final project of their own choosing. Interactions with the Stanford design engineering community as well as field trips to iconic Bay area design engineering firms round out students' experience. Learning Goals-Build confidence in transforming concepts into products through foundational texts and rigorous exercises-Master integrated design/realization software and tools through hands-on learning and practice-Engage with the Stanford design engineering community on campus and well beyond and exercises in the context of solving design problems. Exercises for the mind's eye. Rapid visualization and prototyping with emphasis on fluent and flexible idea production. The relationship between visual thinking and the creative process.

ME 103Q. Product Realization: Making is Thinking

Product Realization encompasses those processes required to transform a concept into the creation of a functional, useful, and beautiful product. In this project-based seminar, students develop product realization confidence and intuition using the rich array of tools available in the Product Realization Lab as well as industry-standard design engineering software programs and course readings in design/realization philosophy. Students develop a portfolio of products including soft goods, composite utensils, wearable electronics, mechatronics devices, and a final project of their own choosing. Interactions with the Stanford design engineering community as well as field trips to

iconic Bay area design engineering firms round out students' experience. Learning Goals

- Build confidence in transforming concepts into products through foundational texts and rigorous exercises
- Master integrated design/realization software and tools through hands-on learning and practice
- Engage with the Stanford design engineering community on campus and well beyond.

ME 104. The Designer's Voice

Course helps students develop a point of view about their design career that will enable them to articulate their design vision, inspire a design studio, or infect a business with a culture of design-thinking. Focus on the integration of work and worldview, professional values, design language, and the development of the designer's voice. Includes seminar-style discussions, role-playing, short writing assignments, guest speakers, and individual mentoring and coaching. Participants will be required to keep a journal.

ME 104B. Designing Your Life

The course employs a design thinking approach to help students develop a point of view about their career. The course focuses on an introduction to design thinking, the integration of work and worldview, and practices that support vocation formation. The course will include seminar-style discussions, role-playing, short writing assignments, guest speakers, and individual mentoring and coaching. Open to Juniors and Seniors of all majors. Admission to be confirmed by email to Axess registered students prior to first class session.

ME 139. Educating Young STEM Thinkers

The course will introduce students to the design thinking process, the national conversations about the future of STEM careers, and provide opportunities to work with middle school students and K-12 teachers in STEM-based after-school activities and intercession camps. The course will be both theory and practice focused. The purpose is twofold; to provide reflection and mentoring opportunities for students to learn about pathways to STEM careers and to introduce mentoring opportunities with young STEM thinkers. (Stanford University, 2013a)

I did find one course at Stanford that was not in ME. It was open to Stanford undergraduates and as a MOOC (Massively Open Online Class). It was offered by the Department of Management Science and Engineering and was called "*Creativity and Innovation*" (MS&E 277).

The course was designed to:

explore the variables that stimulate and inhibit creativity and innovation in individuals, teams, and organizations. The course uses many techniques, including classroom workshops, case studies, team projects, field trips, and expert classroom visitors. The philosophy of the course is that every problem is an opportunity for a creative solution. With this in mind, students are encouraged to try new approaches to creative problem solving in many different environments. In each class we focus on a different variable related to creativity, such as team dynamics, creativity under pressure, or managing creative individuals. Experts are invited into the classroom to help lead discussions and activities focusing on creativity in different environments. In addition to classroom activities, we will have three different design challenges. Each one is crafted to focus on

another aspect of creative problem solving. By doing three short projects, students get a chance to hone their creative skills and to master them. (Stanford University, 2013b)

This course was taught by Tina Seelig, the Executive Director for the Stanford Technology Ventures Program (STVP). The STVP is the entrepreneurship center at Stanford University's School of Engineering. She is also the Director of the National Center for Engineering Pathways to Innovation (Epicenter), which is dedicated to infusing entrepreneurship and innovation skills into undergraduate engineering in the United States (Stanford University, n. d. b).

Seelig, who earned her PhD in Neuroscience from Stanford, spoke at TEDxStanford in August 2012. Her video, *A crash course in creativity: Tina Seelig at TEDxStanford* (2012a) preceded her new book *inGenius: A Crash Course in Creativity* (2012b). In the video, she stated that “we are each inventors of our own future, and creativity is at the heart of invention” (2012a).

Another school offered a philosophy of Design that rivaled that of Stanford University. Carnegie Mellon University (CMU) has a philosophy called “*Design for Interactions*” (Figure 4) that has a significant emphasis on creating value through change. They call graduates of their programs “transition designers” and describe the School of Design as:

one of the few programs to offer a solid foundation in design studies, which is an academic discipline that addresses the ubiquitous nature of design and the complex activity of designing...In the fall of 2014, the School will introduce an important new area of study called Transition Design, which is based on the premise that designers can

play important roles in transitioning our societies to more sustainable futures. (Carnegie Mellon University, n. d.)

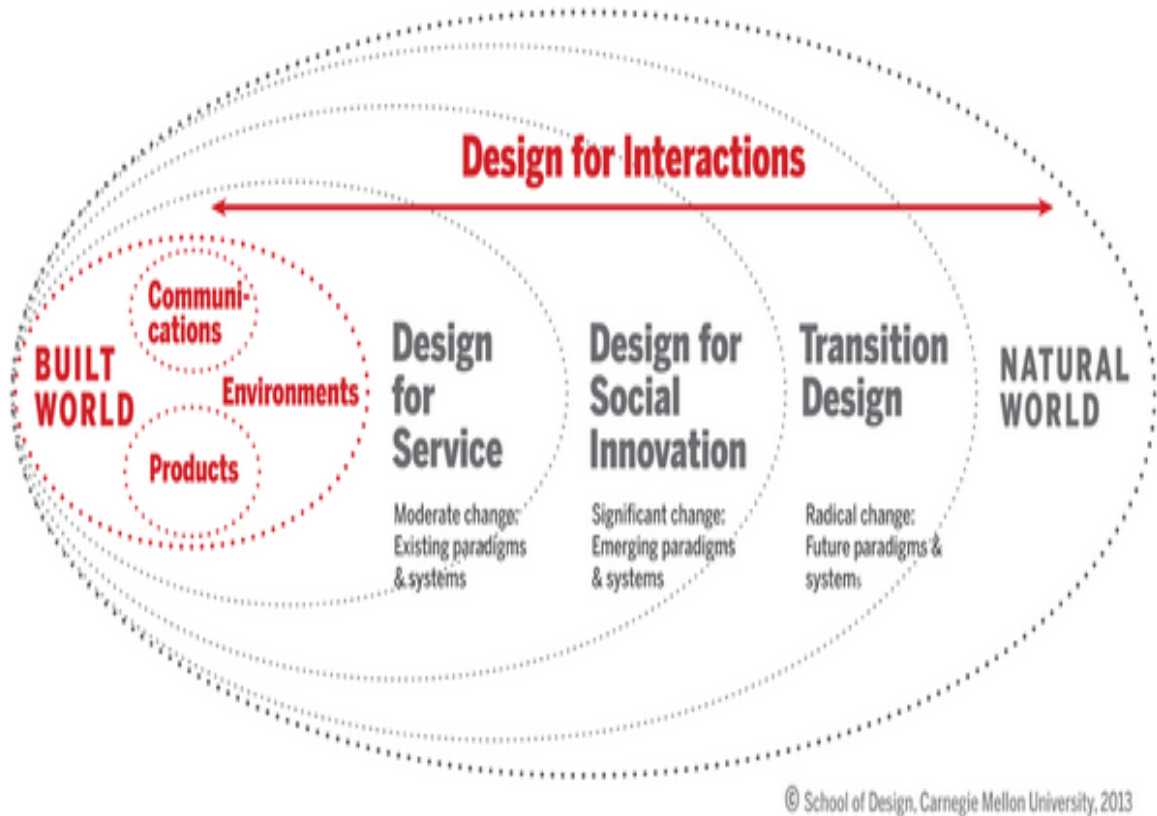


Figure 4. CMU School of Design: Design for Interactions. This model showed the different types design taught at Carnegie Mellon.

However, even with this very strong approach to design, which in many ways focuses at least on 3 of the 4Ps (process, product, and press), the classes in the first two semesters of the Bachelor of Design degree (Figure 5) are rather vague in their approach to describing the creative process:

BDes: Year One

Students learn how to explore and understand interactions in the built and natural worlds from a design perspective. Projects focus on skill development, quick prototyping, and design approaches while gaining exposure to the broad impact of design in the world.

1 Fall First Year

Studio: Survey of Design 9 units
Study the scale & territory of design

Visualizing 9 units
Learn the tools and methods to visualize ideas

Placing 9 units
Examine identity, values and worldview through the history of the local bioregion

CMU Computing 9 units
Required University course

English 9 units
Required University course

Psychology 9 units
Required University course

2 Spring First Year

Design Lab + workshop 12 units
Learn & practice design approaches, methods, & tools used in the design of products, communications, and environments via 5 week sessions

Collaborative Visualizing 9 units
Learn to work with others to visually generate, iterate, and refine ideas

Systems 9 units
Study models of interrelations to find where to intervene and how

Photo Design 9 units
Learn how to deconstruct and construct images in the world and in the studio

Global History 9 units
Required University course

Figure 5. CMU first year requirements for Bachelor of Design.

CMU (2013) did offer a “*Design Thinking Class*” (51-172) that was open to all Freshmen (though with a priority given to design students). Yet, this course was not required for a Bachelor of Fine Arts in Design:

This course uses the lens of sustainability to introduce you to the nature and history of design. The primary aim of the course is to introduce you to questions of what design can and cannot do, to the power and limitations of design in wider socio-technical contexts. The course reviews the wider conditions in which designing now take place, such as resilient ecosystems and peak resource economics. It case studies moments in European and North American design history to determine the extent to which design is to blame for current levels of unsustainability in our societies, and the extent to which design can be our 'savior.' Through the course, you will examine various aspects of

Design Studies, such rational problem-solving approaches to Design Methods, research of Design Expertise as reflective practice on materializing values, Material Culture Studies of designed artifacts and communications, Psychology of design-related social marketing and choice architecture and social research of everyday Socio-Technical Practices. The course involves one lecture a week, and one workshop a week, often informed by a reading. The assignments will get you to audit your personal ecological impacts and then information design them in order to identify opportunities for design-enabled change toward a more sustainable way of living and working. (n. d.)

CMU also had an offering called "*Design Methods: Analysis and Creativity*" (51-479) that focused on the history of design process. I didn't find any other course like this in the other schools. CMU is well-known for focusing on the user experience and this class is the foundation for that focus:

Most designers recognize that "process" is an important part of professional practice, yet the "methods" that try to capture design process are varied and often conflicting. The goal of this course is to explore design methods and their supporting techniques, seeking a better understanding of the pattern of inquiry upon which they are based. The course will include a close reading of works in the "design methods movement" of the 1960s and 1970s. This movement rightly occupies a central place in the development of design methods and methodology in the twentieth century. It is at times insightful, at other times confusing and dissatisfying. Nonetheless, it is essential to understand what was attempted and actually accomplished by individuals such as Bruce Archer, John Chris Jones, Horst Rittel, and Christopher Alexander. Our current understanding of

design methods, including the new forms of user research, is grounded on their work.

(n. d.)

The Art Center College of Design was one of the few schools that had classes that specifically mentioned creativity within the titles of the classes. The “*Creative Strategies course*” (PRD-249) was described this way:

This class will teach students a strategic approach to creativity that will stimulate, encourage and liberate their own creative potential. Through in-class exercises, they will learn how to break patterns, reframe problems and apply new conceptual thinking into their work. The homework assignments are designed to explore the theoretical components of creativity further and to discover their individual uncharted territories for new methods of problem solving. With the use of cross disciplinary evaluation techniques students will better understand their own learning process and be able to apply them to expand their range of creative thinking skills. (Art Center College of Design, n. d. a)

The Art Center also offers a “*Creativity Workshop*” (HHUM-001) with “no need to enroll/no credit. Open to all Art Center students (undergraduate and graduate), this workshop consists of one-on-one meetings with the creativity coach at times to be arranged. The focus is on releasing your untapped creative energies to make your work more alive, dynamic, original, and truly fulfilling. Creativity-enhancing processes are easily customized for your specific needs and goals. It's simple, fun, and free, and produces dramatic, immediate results for projects/assignments in all design disciplines” (Art Center College of Design, n. d. b).

Another class that seemed intriguing was one called *"Insights"* (HSOC-205). This class spoke to the holistic and interdisciplinary nature of design, touching upon the affective skills as well the cognitive skills needed to research and articulate potential opportunities in design and business:

As the role of the designer becomes more holistic and multi-disciplinary, we must develop the ability to think strategically about the markets we are designing for. This course teaches how to become insightful about the world around us by developing the strategic skills to translate information into innovative opportunities. It introduces the process of trend research, analysis, and articulation into potential design and business opportunities by understanding consumer technology and design trends that impact our world and how we, as designers, can respond to those trends in the future. Insights has been built around industry practice--from corporations like Nokia, Nike, Target, and Apple that have dedicated "Design Insights" teams, to consultancies that specialize in providing insight and trend information to their clients. You will research one topic, learning and following a specific process. At the end of the class you will prepare a visual communication piece summarizing your findings and pointing out the potential design and business opportunities to follow. (n.d. b)

There was one unique class at the Art Center which brought science into the realm of the imagination needed to get ideas. This class was called the *"Neuroscience of Imagination"* (HSCI-330). It combined updated research on the brain with visualization and artistic abilities such as sketching, drawing, and painting. It was described this way:

Seeing, visualizing, and dreaming are closely related; they are all perceptual experiences. In this course we will explore what is known about visual imagination (visualizing), as the neurological mechanisms of visual imagination offer a foundation for comparing it to other visual experiences. As often in neurology, we can learn from brain scan and brain lesion studies, allowing for examination of both normal visualizing and its disorders. Psychological studies investigate the role of visualizing and like other forms of imagination in cognition; as visualizing is a private experience, we will look at phenomenological analyses and compare them with our own first-person knowledge. Finally, we will explore what happens when we externalize visualizing in the forms of sketching, drawing, or painting. (n. d. b)

Ithaca College also offered a workshop that deliberately introduced tools to enhance creativity. This class, "*Creativity: Transforming Insights into Ideas*" (ICIC 13000), had no prerequisites and was described this way and included specific course goals:

Where do great ideas come from? Can we become better at generating them? This course poses a series of significant challenges, and, to meet them, introduces a rich variety of creativity techniques and principles. We will develop creativity skills that will apply in many contexts. (Ithaca, 2013)

In the syllabus (Rowland & Beissner, 2013), the goals were very process-oriented and were stated this way:

- begin to build a tool kit of creativity principles and techniques;
- apply creativity principles and techniques in authentic situations;

- bring to bear in these situations insights from disciplinary, multi-disciplinary, and interdisciplinary thinking.

This class and “*CRS 205: Introduction to Creative Studies*” (Fox, 2013a) offered at Buffalo State College were the only ones whose syllabi were easily accessible to me. Both of them specifically outlined and named the type of tools that would be introduced to the students. The tools listed in “*Creativity: Transforming Insights into Ideas*” (ICIC 13000) were: Breaking Ice, Make Things Worse, Notice Everything, Minding the Store, Walk Out/Walk On, Biomimicry, and others. The tools listed in CRS 205 at Buffalo State were: PPCo (Pluses, Potentials, Concerns, overcoming concerns), Brainstorming, Hits and Highlighting, Forced Relationships, Forced Connections, Morphological Matrix, Card Sort, Invitational Stems, and Guided Imagery.

Buffalo State College was the only school that offered an undergraduate minor specifically geared to the study of creativity. These classes were open to the general student population and the subject matter of creativity ranged from an introduction to the history and the research of creativity to the tools and processes and facilitation skills needed to help enhance one’s personal abilities as well as the abilities of others. The classes in this minor that specifically focus on creativity are described this way:

CRS 205- INTRODUCTION TO CREATIVE STUDIES

Recognition and nurturing of creative potential. Focus on the creative person, the creative process, the creative product, and the creative environment. Further emphasis on the interactive nature of these elements and individual application in personal and professional settings.

CRS 302- CREATIVE APPROACHES TO PROBLEM SOLVING

Creative problem-solving methods and techniques. Emphasis on the application of creative problem solving to challenges, goals, and opportunities students face in their personal and professional lives.

CRS 303- CREATIVE LEADERSHIP THROUGH EFFECTIVE FACILITATION

Learn and practice creativity concepts as they relate to leadership; examination of individual leadership styles and specific methods and techniques to apply concepts and skills.

CRS 304- DEVELOPING CREATIVE PROBLEM-SOLVING FACILITATION SKILLS

Develop and apply facilitation and leadership skills in a variety of settings. Participate in supervised practice using creative problem-solving techniques with groups and individuals.

CRS 320- APPLICATIONS OF CREATIVITY AND INNOVATION

Exploration of creative processes within a creative environment that produce novel and useful products. The nature of creative people; examination of personal experience in the application of creativity in the arts, science, education, and business. Personal creative ability developed through class activities, readings, and interaction.

CRS 389- TOPICS IN CREATIVE STUDIES: APPLYING INTERDISCIPLINARY PRINCIPLES

This interdisciplinary course examines major principles of creativity and their applications to everyday life-personal, social, professional, avocational. Explores the

nature of creative persons and those factors that encourage or inhibit creative expression. Examines research for its various implications and applications. Guest speakers from a variety of disciplines examine creativity from their diverse viewpoints. Participation in the creative process in a variety of ways. (Buffalo State College, 2013a)

Effective Methods for Teaching Creative Problem-Solving Process

As part of my research into effective methods for teaching the Creative Problem-Solving Process, I sat in on two Fall 2013 sections of "*CRS 205: Introduction to Creative Studies*" at Buffalo State College. These undergraduate classes were taught by Dr. Michael Fox and Dr. Cyndi Burnett from Buffalo State College's Creative Studies Department. Its course description is as follows:

The purpose of this course is to increase the degree to which students recognize and nurture their own creative potential based on their own skills, goals, and motivation. The course focuses on four aspects of creativity: the creative person, the creative process, the creative product, and the creative environment. It emphasizes the interactive nature of these aspects and provides for individual application in personal and professional settings. (Burnett, 2013, p. 1)

This course was part of a Creative Studies Minor though it is open to the general college population. It emphasized the universal nature of creativity in that everyone is in possession of some level of creativity. It was "designed as an introductory course to make students aware of the multi-faceted nature of creativity and to encourage them to explore and develop these aspects in themselves and others" (p. 1).

The course employed the use of many visual tools, such as videos, animations, and commercials to help illustrate creativity through the lens of the 4Ps (Burnett, n. d.). The course also had an invention component that was a hands-on way of illustrating the creative problem solving process. This experiential learning method, sometimes known as Project-Based Learning (PBL) can be an effective way of learning and transferring knowledge as stated in research conducted by the Buck Institute of Education (BIE) (2009). PBL allows the students to focus on their inventive thinking skills as they develop products that solve problems that are relevant to their everyday lives. The BIE study referenced research by Capon and Kuhn (2004) that showed that this type of learning was effective because it built deep content understanding, raised academic achievement, and encouraged and motivated students to learn.

Another curriculum that used many videos and whose subject matter was about understanding the bigger question of **What is innovation?** was called *"Innovation 101"* published by The Henry Ford (2011a). This course used videos of and quotes from relevant and current innovators within a variety of creative fields. Some of the innovators who were featured within this course were Elon Musk, founder of PayPal; Bill Gates, founder of Microsoft; and Steve Wozniak, co-founder of Apple, among others. This course also focused on the 4Ps (without specifically using those terms) with modules called *"Traits of an Innovator"* (pp. 12-19), *"Process of Innovation"* (pp. 20-23), and *"Keys to Innovation"* (pp. 24-31).

In my opinion, the Innovation 101 curriculum had a more relevant focus on Product than that of the CRS 205 class. With its focus on Innovation, it put creativity into the context of what is meant by, in Emmerling's words, "Innovation is creativity with a job to do" (Emmerling, n. d.).

"Innovation, Intellectual Property Rights and More" (Innovation 101, pp. 32-35) focused on discussions of how to protect one's ideas, the pros and cons of open source innovation and the differences between design patents and utility patents. In CRS 205, while there is some focus on the creative product, it is more general. There is class discussion about what makes a creative product but less discussion about the people who create product for a living and how they determine, as well as how the market determines, what is a creative product.

Because I felt it was unlikely that students within the demographic I was interested in had been introduced to or been made aware of their thinking processes in a deliberate way, I felt it was important that they were exposed to tools and assessments that may help them understand how they gather information, how they think, how they make decisions, and how they put their decisions into action.

The FourSight: Your Thinking Profile was an assessment tool based on Puccio's research (1999) and was first introduced by Puccio as a profile three years later (2002). I felt this was a very accessible tool that would help the students understand their preferences, both individually and within a group. Understanding how communication can be enhanced or derailed within a group was an extremely important component that I felt these students should be exposed to because much design development, both in school and in "the real world", relies on collaboration, teamwork, and open and healthy communication.

As a measure of the "mental processes for breakthrough thinking", the profiles for each type- Clarifier, Ideator, Developer, Implementer- are backed up by over two decades of research. The authors of the *"Your FourSight Presenter's Guide"* (Puccio, Miller, Thurber &

Schoen, 2012) stated that the insights gained by individuals, groups, or teams who take the FourSight assessment will allow the individuals or groups to be:

1. More strategic about how you problem solve;
2. More conscious about how you collaborate, and;
3. More deliberate about how you innovate. (pp. 1-3)

FourSight was always referred to in terms of a “self-report instrument...which identifies people’s preference for four fundamental activities with the creative process (i.e., Clarifying the Problem, Generating Ideas, Developing Solutions, Implementing Solutions)” (Puccio, Mance & Murdock, 2011, p. 253). These processes are then described as preferences- Clarifier, Ideator, Developer, and Implementer- along with their characteristics, needs, and how they might annoy others (Puccio, et al, p. 255). The FourSight preferences became the basis of my introductory lecture described later in this paper.

The Simplex Process is an earlier preference profile which was created by Min Basadur (1982). The Simplex Process recognized that process skills are closely connected to interpersonal communication skills and emphasized the importance of preparing people to work in teams. As Basadur stated, “teams cannot just be thrown together. To work effectively, they need group skills training before they begin. There may be a learning curve in the beginning but the process is designed to be simple and the impact of mastering such skills is significant. We have an equation that we use to underline the need for both process and process skills: $QUALITY RESULTS = CONTENT (What) + PROCESS (How) + PROCESS SKILLS (How Skills)$ ” (VanPatter & Basadur, 2003).

Basadur (1982) first published work on the Simplex process with the article *“Training in creative problem solving: Effects on ideation and problem finding in an applied research organization”*. In that article, he concluded that deliberate training in problem finding, problem solving, and solution implementation showed significant results when measured for preference for ideation in problem solving, practice of ideation in both problem finding and problem solving, and performance in problem finding. He popularized the Simplex Model in the book *The Power Of Innovation* (1995) and has since evolved it into the Simplicity Thinking System (Basadur Applied Creativity, n.d.) which includes tools, the 8-Step Process (Figure 6), and an assessment called the Basadur Creative Problem Solving Profile (CPSP) which was designed to describe individual methods of problem solving. Its aim was to describe how individuals solve problems, not to evaluate problem-solving ability.



Figure 6. Basadur 8-Step Simplex Model. This model lays out the 8-step process for problem solving as defined by Min Basadur.

Puccio, Murdock and Mance's (2005) Creative Problem Solving: The Thinking Skills Model (TSM) is similar to the Simplex process with the exception of how gathering and assessing data is handled. In the TSM (Figure 7), gathering data is a stated part of *all* of the steps with its central location, whereas in the Simplex model it seems to be indicated only as the second step of the 8-step process. While the Simplex model has a Problem/Solution focus and is broken up into three parts called Problem Formulation (steps 1-3), Solution Formulation (steps 4-5), and Solution Implementation (steps 6-8), the TSM evenly breaks its 6-step model down into the stages of Clarification, Transformation, and Implementation which I felt came across more holistically.



Figure 7. Creative Problem Solving: The Thinking Skills Model. This model breaks the process into three stages and six steps.

Another model that broke down the thinking process in a way that could be interesting to students in this demographic is called Integrative Thinking which was made popular in Martin's book *The Opposable Mind: How Successful Leaders Win Through Integrated Thinking* (2007). Martin defined Integrative Thinking in good leaders as "the capacity to hold two diametrically opposing ideas in their heads...without simply settling for one alternative or the other, they're able to produce a synthesis that is superior to either opposing idea" (Martin, Chapter 1, The Integrated Thinker's Advantage, paragraph 2).

Martin's model of Integrative Thinking emphasized that leaders should focus more on the question of "what should I think" vs. "what should I do", the latter being one that, according to Martin, was more widely shared by business theorists and practitioners. He believed that this "bias toward action" prematurely closes down options before they're even explored (Martin, Chapter 1, Doing or Thinking?, paragraph 4).

Martin illustrated the process of thinking and decision-making in 4 steps (Martin, Chapter 2, Figure 2-1):

1. **Salience**- What features do I see as important?
2. **Causality**- How do I make sense of what I see?
3. **Architecture**- What tasks will I do in what order?
4. **Resolution**- How will I know when I'm done?

Martin clearly explained that integrative thinkers, as opposed to conventional thinkers, have a "willingness to consider a broader set of salient [relevant] features, delve into more complicated causal relationships, and view the decision...holistically" (Martin, Chapter 2,

Resolution at Four Seasons, paragraph 4). More complicated causal relationships tend to be multi-directional and non-linear. While more complex, this type of thinking broadens the possibilities of a resolution that doesn't default to simplification for the sake of less messiness.

This book also provided relevant case studies that may be of interest to the students in this demographic and gave good examples that showed the need to really spend time to gather data- both tangible and intangible- at the beginning of the problem solving process. He advocated the need to embrace the complexity of the problem at the beginning as a way of saving time and getting an uncompromised final solution.

In her book *inGenius* (2012), Tina Seelig stated her reason for a new guide to creative thinking. She felt that her guide would show a clear difference between what is typically taught to children and has become the only formalized model of thinking they know:

The scientific method is clearly invaluable when you are trying to unlock the mysteries of the world. However, you need a complimentary set of tools and techniques- *creative thinking*- when you want to *invent* rather than *discover*...Like the scientific method, creative thinking uses well-defined tools, demystifies the pathway for invention, and provides valuable framework for creating something new. Successful scientists and innovators in all fields move back and forth between discovery and invention...**it is time to make creative thinking a core part of education from the time we are children, and to reinforce these lessons throughout our lives** [bold mine]. (p. 10)

The model and guide in Seelig's book is one that she teaches in her undergraduate Stanford class as well as in her MOOC. I found it to be the most interesting and relevant model of all that I researched in how it illustrated that all of the influences of the 4Ps can affect one's

ability to innovate. This model is called the *Innovation Engine* (Figure 8) and it is comprised of six elements that work together to enhance creativity. The six elements (three on the inside and three on the outside) are explained this way:

The three parts on the inside of your Innovation Engine are...

Your *knowledge* provides the fuel for your imagination.

Your *imagination* is the catalyst for the transformation of knowledge into new ideas.

Your *attitude* is a spark that sets the Innovation Engine in motion.

The three parts on the outside of your Innovation Engine are...

Resources are all the assets in your community.

Habitats are your local environments, including your home school, or office.

Culture is the collective beliefs, values, and behaviors in your community. (p.15)

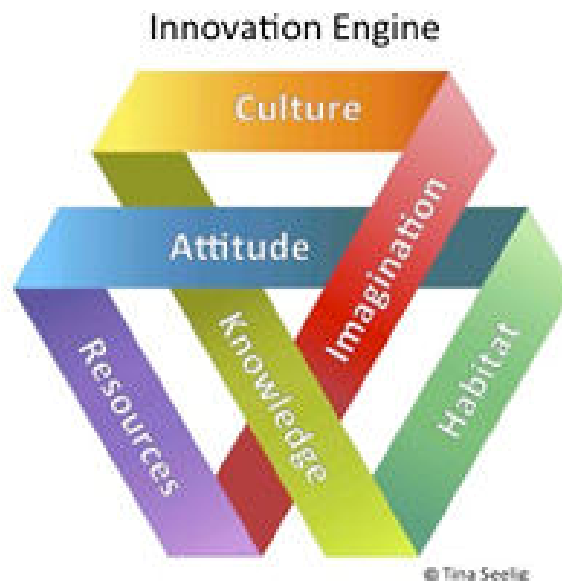


Figure 8. The Innovation Engine. This model illustrated the factors that affect the process of innovation.

After observing undergraduate students watching the videos provided by Dr. Burnett in her Creative Studies class, I noticed that they were able to make better connections to whichever module of the 4Ps they were working on at the time. They were especially interested in Caine's Arcade (Mullick, 2012) which illustrated a young boy's creativity in putting together a cardboard arcade and how a filmmaker who befriended him created a viral sensation by bringing attention to it through social media. Through classroom discussion, students were able to relate to the subject matter. They appreciated that the simplicity of the child's process could be transferable to anyone who used their imagination. They also related to the relevant use of social media as they were all familiar with flash mobs and large events created through venues such as Facebook.

Another example of a successful connection of a video to a creative tool was having the students use the convergent thinking tool Pluses, Potentials, Concerns, Overcoming Concerns (PPCo) by Miller, Vehar, and Firestien, (2001) on the YouTube infomercial for "*Pajama Jeans*" (2010). The PPCo helped teach the students to start positively when commenting on an unusual or unconventional idea and progress to imagining how this idea could be impactful, to then stating any concerns they have with the initial idea into problem statements (starting with "in what ways might it...," etc.). They ended the exercise by overcoming a couple of their key concerns with some ideation. I saw this as a very effective exercise because it is a tool whose usefulness can go into many different areas of a student's life.

As part of setting up a curriculum framework for those students who already identify as creative, I felt it was important to find even more relevant examples to show the 4Ps in a visual way. The "*Innovation101*" curriculum mentioned earlier came with a companion DVD (The

Henry Ford, 2011b) comprised of videos that illustrated each of the lessons and accompanying exercises. In *DVD Lesson 2: Traits of an Innovator*, the video features Steve Wozniak, the inventor of the Apple Computers I and II. In that lesson, Wozniak speaks about his approach to engineering as similar to how artists approached their work, “I was an artist at engineering (2:14-:15)...How can you know what you’re gonna do in advance...let’s go try it” (5:53-6:12).

DVD Lesson 3: Process of Innovation covers three different innovators. In “*Definition of Innovation*”, author William McDonough, explains how he differentiated between discovery, invention, and innovation. In “*Hiring the Right People*”, Steve Wozniak offers advice on what type of person might be best suited to challenge the norms and invent new things. In “*How Does Innovation Happen*”, architect Toshiko Mori explains how architects seek innovation through a combination of creativity and imagination.

DVD Lesson 4: Keys to Innovation poses the question “*Can an innovative mind-set be cultivated and practiced?*” There are many videos in this lesson listed under five different “keys”. Under “*Curiosity*”, Mitchell Baker speaks about the culture at Mozilla. William McDonough speaks about his childhood including the 19 different schools he went to before college. Bill Gates also speaks about what and who inspired him to love science as he grew up.

According to this DVD lesson, the other 4 keys that need to be present for innovation to happen are: “*Break the Rules*”, “*Collaboration*”, “*Meet True Needs*”, and “*Embrace Risk*”. The innovators who speak about breaking rules are Pierre Omidyar, founder of E-bay, and Elon Musk, founder of PayPal and Tesla Motors, and, more recently, the proponent of the Hyperloop project (Musk, 2013).

All of the innovators and business leaders featured in *Innovation 101* are well-known and established. I felt there was a need to feature another innovator who was closer in age as well as in educational experience to the student population to whom I would be speaking. I wanted to find someone who could clearly articulate the personal aspect of creative process, motivations for creating, where creativity took place, etc. in a way that was relevant and on topic to the 4Ps of creativity.

Jane ni Dhulchaointigh, who was a student at the Royal College of Art in London in 2003 studying Industrial Design, realized that she was more interested in fixing things than designing things. She also was very interested in creating new materials vs. new products. She invented a new material, Sugru, and formed a company to create it. At a recent *99u Conference* by Behance, her journey was explained this way:

Jane was studying product design at the Royal College of Art in London in 2003, when she had a big idea. What if, instead of having to buy new things all the time, people could fix and improve the things they already had to work better for them?

From that initial spark of an idea, she led a long and dedicated scientific development process involving a small team of material scientists, designers and business people to develop an entirely new material that could make the idea a reality. The result after 6 years of R&D was sugru - a brand new silicone that's like play-doh or modelling clay that the user can form into whatever shape they like before it air cures into a tough, flexible, colourful silicone rubber. Used in this way, it can make all kinds of products more comfortable, safer or simply better.

Jane is passionate about promoting a culture of fixing, creativity and resourcefulness, and sees it as an antidote to the throwaway mindset. Her passion is hitting a chord with the growing number of people looking to live more sustainably and three years after launch there's already a vibrant 100,000-strong world-wide community building around the product. (Behance, 2013a)

The video, *The Magic is in the Process* (Behance, 2013b), where she explained her 10-year journey is engaging and irreverent. She clearly articulated the wonder as well as the tedium of inventing and all of the work and creative problem solving it took to create this new compound described as, “the new self-setting rubber for fixing, modifying and improving your stuff...(because) the future needs fixing” (Sugru, n.d.). She also explained how she created an online company after determining how best to market and manufacture the product and how Sugru has inspired a community of “fixers” that she features on her company website.

This inclusion of the social component of creativity known as open-source innovation is also of relevance given the trend of creative products and start-up companies being crowd-funded on websites such as *Kickstarter* (www.kickstarter.com) and *Indiegogo* (www.indiegogo.com). There is also a trend of using a social component in designing products that may be of interest to this student population such as the online company *Edison Nation* (www.edisonnation.com) or designing sustainable solutions and experiences such as through *Open Ideo* (www.openideo.com).

Conclusion

I found that my research cast a large net. It ranged from classic research on Creativity such as that of Rhodes and Amabile, to more current applications of research such as that of Puccio (Thinking Skills Model and FourSight), Basadur (Simplexity Thinking Process), and Seelig (Innovation Engine). The research also covered what was happening in many of the design colleges around the country as it pertained to how creativity was being taught currently. All the research also led me to find other ways beyond the existing curriculum to help in my quest to create a curriculum framework and lecture for my selected population: undergraduate freshmen and sophomores who have chosen creative majors or minors.

SECTION THREE: PROCESS PLAN

Process Definition

I determined that my tasks within my project would be comprised of five very separate categories. Those categories would be researching, observation, interviews, writing, and presenting. The research was comprised of determining the appropriate body of work on the 4Ps, style and creative perspectives of artists and designers, and current and effective curriculum for design students. The observation was comprised of attendance, note-taking, syllabus comparison, and discussion with professors who were currently teaching Introduction to Creativity through the ICSC at Buffalo State College. The interviewing was comprised of a series of discussions with fine artists, docents at the Albright Knox Art Gallery in Buffalo, and Industrial Designers to get their perspective on creative process. The writing was comprised of the Master's Project document as well as a curriculum framework for a class, and the creation and presentation of a lecture on creative styles and preferences. The lecture was presented to two audiences: a graduate level Creative Studies class at Buffalo State and a mixed audience of college-level designers, artists, and professors at Villa Maria College.

Process Timeline by Month

My timeline started in August 2013 and ended in December 2013.

August 2013

- I began the Concept Paper for my project which outlined the general concept for an introductory lecture on Creative Thinking Styles which was planned for students and teachers at Villa Maria College in Cheektowaga, NY for October 2013;
- I received the syllabi and course contract from professors in the Buffalo State College Creative Studies Department (Dr. Jon Michael Fox, 2013a & Dr. Cyndi Burnett, 2013) for

their *CRS 205: Introduction to Creative Studies* class which was to be offered in Fall/Winter 2013 and Spring 2014;

- I began observation of Dr. Fox' class in late August 2013. This class met two times per week for the Fall semester, and ended in December 2013.

September 2013

- I completed and submitted my Concept Paper draft and met with my advisor at Buffalo State College, Dr. Susan Keller-Mathers. Her feedback helped me begin my first 3 chapters of the project;
- I alternated my observation of Dr. Fox's class with that of Dr. Cyndi Burnett to determine if there were style or content differences in how the classes were taught and whether that would affect the design of my future framework;
- I outlined and completed the first draft of my first three chapters which covered the Background, this Process Plan, and the Pertinent Literature for this project;
- I researched Design Schools to determine what is currently being taught to students as it relates to their creative processes;
- I researched and interviewed fine artists, docents at the Albright Knox Art Gallery, and followed fine art photographers on social media to determine whether my curriculum should focus on fine artists as well as designers;
- I created the lecture "Everything You Wanted to Know About Your Creative Thinking Style (but were afraid to ask!)" in preparation for a practice presentation to be held on September 28th, 2013;

- I presented the lecture on September 28th, 2013 to a class of graduate students in the International Center for Studies in Creativity (*CRS 670: Foundations in Teaching and Training Creativity*) at Buffalo State College;
- The feedback from this class allowed me to refine the lecture for a final presentation in late October at Villa Maria College;
- Formatted remaining chapters, appendices, table of contents and resubmitted all, along with finished sections 1-3;
- I received guidance from my advisor in person and through email;
- I met with Dr. Cyndi Burnett to discuss intuition and affective skills and how best to teach the concepts.

October 2013

- Requested permission from all owners of the cartoons and models used in my lecture;
- Inquired and received permission from FourSight and Fisher-Price as to my rights to the use of their assets;
- I began Sections 4-6 for my Master's Project which included the development of the 4Ps framework;
- I continued refining my lecture;
- I used Creative Problem-Solving to come up with different ideas of how to introduce the process of creativity to students who already defined themselves as creative;
- I used Creative Problem-Solving to come up with different ideas of how to introduce affective skills and intuition to students who already defined themselves as creative;

- I met with my advisor;
- I presented my lecture to students and teachers at Villa Maria College on October 24th, 2013.

November 2013

- I completed the lecture and included ways to modify it, depending on the make-up of the audience;
- I solicited and incorporated final feedback from my advisor regarding the content of the curriculum framework;
- I completed all appendices and citations;
- I wrote up and submitted sections 4-7.

December 2013

- I submitted final project for approval;
- Final corrections were made;
- Final submission.

SECTION FOUR: OUTCOMES

Introduction

There were three separate outcomes as a result of my research and observation. They were an Intro to Creative Styles lecture, a table showing current curriculum at the Undergraduate level that compared “infused creativity” to “deliberate creativity” in their content, and the curriculum framework for a new course on Creativity and Innovation. The following sections describe them in depth.

Creative Styles Lecture

I created the lecture “Everything You Always Wanted to Know About Creative Styles (but were afraid to ask!)” as an introduction to creativity through the lens of two of the 4Ps of Creativity- Person and Process (Lecture Slides, Figures 9-14). The reason I chose this topic is because I felt that my initial intended audience (undergraduates and their professors at Villa Maria College, Cheektowaga, NY) was ideal for this type of presentation. This college has many arts-based undergraduate majors and minors, such as Animation, Fashion Design, Graphic Design, Interior Design, Photography and a variety of Fine Art and Music choices. While the students have many choices of creative majors and minors, there are no classes in any of the curriculum requirements that are deliberately teaching about creativity or creative thinking processes.

The lecture specifically focused on the FourSight profile and the four main preferences for problem solving within it: Clarifier, Ideator, Developer, and Implementor. It provided examples of the traits and needs for each of the preferences. According to the National Association of Colleges and Employers (NACE, 2012), teamwork, interpersonal skills, creativity,

and tactfulness are among the top 20 qualities that employers are seeking in job candidates so this lecture also placed an emphasis on how people work best in groups. The presentation described the four main preferences as well as the Integrator preference and provided examples of the positive qualities of each preference. It also showed how some of those same qualities could become annoying to others when each of these preferences were represented in a team environment.

The presentation also provided specific examples of how each of these preferences showed the styles of thinking with humorous one-panel cartoons and comic strips. Also included in the presentation were two 5-minute videos from Fisher-Price. The two videos featured Little People characters (Maggie and Michael) in stories that showcased their thinking preferences. I developed the personalities of each of these characters as part of my Supervising Director role in the development of the Little People Big Discovery Series for Fisher-Price from 2001-2010. By including the humorous cartoons and videos in my presentation, my intention was to give the audience the ability to relate my examples to examples within their own lives.

This presentation also provided an introduction to the creative thinking process. While the Foursight profile highlights thinking preferences, those descriptors also relate closely to what the *FourSight Presenter's Guide* authors felt were the general stages of the process itself: Clarifying, Ideating, Developing, and Implementing (Puccio, et al, 2012, p. 3-handouts-1).

To prepare for my final presentation at Villa Maria College, I first presented it to a class of graduate students in the International Center for Studies in Creativity (ICSC) at Buffalo State College. This class, *CRS 670: Foundations in Teaching and Training Creativity*, was led by Dr. Keller-Mathers and was comprised of students who wanted to:

gain Practical experience in using principles of creative learning, Creative Problem Solving (CPS), and leadership to facilitate groups; guided practice and independent work in realistic teaching/training situations to develop independent learners and reflective practitioners; use of CPS facilitation skills to develop instructional designs and examine ways to modify teaching and leading with CPS in various groups or situations. (Buffalo State College, 2013b)


Following are the slides included in the presentation. The two Fisher-Price videos and the Calvin & Hobbes cartoon (which described how an Implementor thinks) are not included due to size constraints and permissions not granted for publishing the cartoon within this paper. All permissions for publishing can be seen in Section Seven, Appendix D.

Lecture Slides


CREATIVE THINKING STYLES


*Everything you ever wanted to know
about your creative thinking style
(but were afraid to ask!)*






Independent Creativity Consultant
FOURSIGHT
certified









Meet Maggie

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DISCOVER your THINKING PREFERENCE
Are you a thinker or a doer?

Reynolds

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Figure 9. Lecture slides 1-6. These slides introduced the concepts of thinking preferences.




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Figure 10. Lecture slides 7-11. These slides described the stages of creative problem solving.



The definition of creativity...




Defining our terms...

Creativity = novelty that's useful

Innovation = something new that is implemented. It adds value and usually requires many skill sets (a team or a collaboration)

FourSight Profile = a profile of 4 very distinct thinking preferences to help you understand where you gain energy in the creative problem solving process




Research tells us...

The creative thinking process is universal
 It has discrete steps
 Each step requires unique mental skills

Most of us prefer some over others
 Preferences show up as strengths AND potential blind spots when solving problems

Know your mind



Person meets process

FourSight preferences



Clarifier **Ideator** **Developer** **Implementer**

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Figure 11. Lecture slides 12-16. These slides introduced the definitions and FourSight preferences.



So, what's a Clarifier?

- Clarifies the problem**
- Doesn't jump to move to solutions**
- Wants to address the right problem**
- Gathers information**
- Looks at details**

WATCH OUT! **May over-analyze & not move forward**

Clarifiers

Clarifiers are...
focused, methodical, orderly, deliberate, serious, organized; may analyze to the extreme and not move forward

Clarifiers need...
order, the facts, an understanding of history, access to information, permission to ask questions

Clarifiers can annoy others by...
asking too many questions, pointing out obstacles, identifying areas that haven't been well thought out, overloading people with information, being too realistic



How Clarifiers think...



THE FAMILY CIRCUS By Bill Keane

"Why do I have to keep writin' in these K's when they don't make any noise anyway?"

So, what's an Ideator?

- Looks at the big picture**
- Toys with ideas and possibilities**
- Stretches the imagination**
- Takes an intuitive approach**
- Thinks in more global terms**

WATCH OUT! **May overlook the details**



Ideators

Ideators are...
playful, imaginative, social, adaptable, flexible, adventurous, independent may overlook the details

Ideators need...
room to be playful, constant stimulation, variety and change, the big picture

WATCH OUT! **Ideators can annoy others by...**
drawing attention to themselves, being impatient when others don't get their ideas, offering ideas that are too off-the-wall, being too abstract, not sticking to one idea



How Ideators think...



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Figure 12. Lecture slides 13-18. These slides explained the Clarifier and Ideator preferences.

So, what's a Developer?



- Puts together workable solutions**
- Plans steps to implement an idea**
- Analyzes and compares potential solutions**
- Examines the pluses and minuses of an idea**

WATCH OUT! **May get stuck in developing the perfect solution**

Developers



Developers are ...
reflective, careful, pragmatic, planful, patient, dedicated, discerning; may get stuck in developing the perfect solution

Developers need ...
a chance to consider and evaluate the options, time to craft and develop ideas into useful solutions

Developers can annoy others by...
being too nit-picky, finding flaws in others' ideas, getting locked into one approach

How Developers think...




So, what's an Implementer?



- Gives structure to ideas**
- Brings ideas to fruition**
- Focuses on workable solutions**
- Takes the 'Nike' approach ('Just do it')**

WATCH OUT! **May leap to action too quickly**

Implementers



Implementers are ...
persistent, decisive, determined, assertive, action-oriented; may leap into action too quickly

Implementers need ...
the sense that others are moving just as quickly, timely responses to their ideas, control

WATCH OUT! **Implementers can annoy others by...**
being too pushy, readily expressing their frustration when others do not move as quickly, overselling their ideas

How Implementers think...




Permission not granted for electronic reproduction of Calvin & Hobbes

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Figure 13. Lecture slides 19-24. These slides explained the Developer and Implementor preferences.


So, what's an Integrator?



Easily relates to each preference
Even energy across four preferences
Concerned about group harmony
Bridges style differences and plugs gaps

WATCH OUT! **May lose own voice by pleasing others**

Integrators





Integrators are...
 steady, flexible, inclusive, team players, stabilizing influences; may lose their own voice to accommodate team

Integrators need...
 cooperation, collaboration, energy from others, to feel others are committed to the challenge

WATCH OUT! **Integrators can annoy others by...**
 pointing out what's not being done, not allowing their voices to be heard, being overly flexible, becoming peace-makers

How Integrators think...


Don't confuse ABILITY with PREFERENCE

Ability can and should be gained through practice





Don't confuse ABILITY with PREFERENCE

Ability can and should be gained through practice



Meet Michael



Thank you!
 miriamkelley@gmail.com

Future workshops...

- How2 Boost Your Creative Intelligence
- Tools to Fit Your Style
- Understanding Your Creativity (who, what, when, where, & how to enhance it)


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Figure 14. Lecture slides 25-30. These slides explained the Intregator preference and introduced other examples.

Current Curriculum Comparisons at Undergraduate Level

After gathering the information I needed about creativity curriculum currently available (as of Fall, 2013) at the Undergraduate level, I realized that the best way to present my data was in table form (Table 1). In compiling the table, I saw a distinct difference in how creativity was taught and named the two approaches *Infused Creativity* and *Deliberate Creativity*.

I defined *Infused Creativity* as teaching creative thinking through the specific subject (such as Product Design, etc.) of the curriculum. I defined the approach as *Direct Creativity* when creative thinking was itself the specific subject matter. Also included in this table was the following information:

- Institution Name and Location;
- Inclusion on Businessweek/Business Insider lists;
- Class Name(s) and Catalogue Number(s);
- Infused Creativity/Deliberate Creativity;
- Description Page # (in Pertinent Literature).

Table of Existing Curriculum											
Institution	City & State	Businessweek & Business Insider lists	Class Name	Infused Creativity	Deliberate Creativity	Catalogue #	Undergrad Class	Description/ Page #			
Stanford University	Stanford, CA	Yes	Creativity and Innovation	Yes	Yes	MS&E 277	Yes	23			
			A Crash Course on Creativity	Yes	Yes	MIDD	Yes	23			
			Design Thinking and the Art of Innovation	No	Yes	ME 10AX	Yes	19			
			Teamology: Creative Teams and Individual Development	No	Yes	ME 18Q	Yes	20			
			Pre-field Course for Alternative Spring Break: Design for Social Change	Yes	Yes	ME 19	Yes	20			
			Think Like a Designer	Yes	Yes	ME 28N	Yes	20			
			Visual Thinking	Yes	No	ME 101	Yes	20			
			Product Realization: Making's Thinking	Yes	No	ME 103Q	Yes	21			
			The Designer's Voice	Yes	No	ME 104	Yes	22			
			Designing Your Life	No	Yes	ME 104B	Yes	22			
Carnegie Mellon University	Pittsburgh, PA	Yes	Educating Young STEM Thinkers	Yes	Yes	ME 139	Yes	23			
			Design Thinking and the Art of Innovation	Yes	No	51-172	Yes	26			
			Design Methods: Analysis and Creativity	No	Yes	51-479	Yes	27			
Art Center College of Design	Pasadena, CA	Yes	Visualizing	Yes	No	51-350	Yes	26			
			Design Lab & Workshop	Yes	No	51-103	Yes	26			
			Creative Strategies	No	Yes	PRD 249	Yes	28			
			Creativity Workshop	No	Yes	HHUM 001	Yes	28			
			Neuroscience of Imagination	Yes	No	HDC 205	Yes	29			
Syracuse University	Syracuse, NY	No	The Big Idea in Advertising	No	Yes	HSCI 330	Yes	29			
			Problem Solving Strategies	Yes	No	ADV 208	Yes	16			
			Design Research Methods	No	Yes	CMD 361	Yes	17			
Cleveland Institute of Art	Cleveland, OH	No	Design Research Methods	No	Yes	DES 363	Yes	17			
			Creativity: Transforming Insight into Ideas	No	Yes	ICIC 13000	Yes	30			
Ithaca College	Ithaca, NY	No	Introduction to Creative Studies	No	Yes	CRS 206	Yes	31			
Buffalo State College	Buffalo, NY	No	Creative Approaches to Problem Solving	No	Yes	CRS 302	Yes	32			
			Creative Leadership Through Effective Facilitation	No	Yes	CRS 303	Yes	32			
			Developing Creative Problem Solving Facilitation Skills	No	Yes	CRS 304	Yes	32			
			Applications of Creativity and Innovation	No	Yes	CRS 320	Yes	32			
			Topics in Creative Studies: Applying Interdisciplinary Principles	Yes	Yes	CRS 389	Yes	32			

Table 1. Existing curriculum comparisons at undergraduate level.

Curriculum Framework: Intro to Creativity and Innovation

The third outcome of my project was the proposed curriculum framework for the class. It contains the description of the class as it would be found in a course catalogue and the reason for its addition. Also included are the student's learning outcomes, how those outcomes will be assessed and outline of the course content. The format of this outcome was based upon a template used for course submissions at Buffalo State College (Buffalo State College, n. d.):

Course Name: Creativity to Innovation: Understanding the 5Ws and the H

Credit Hours: 3; In Class Instructional Hours: 3; Labs: 0; Field Work: 0

Catalog Description:

The purpose of this course is to increase the degree to which students recognize their creative preferences individually and within groups and to understand that enhancing their creative abilities can strengthen their future success. It further emphasizes that creative thinking is the path to innovation and therefore studies successful people and their processes in various creative professions. The course focuses on four aspects of creativity: the creative person, the creative process, the creative product, and the creative environment. The interactive nature of these elements emphasizes the application of creative problem solving processes in personal and professional settings.

Reasons for Addition:

This course responds to the need for graduates to have a strategic advantage in the global marketplace. Employers are seeking candidates who show proficiency in skills over and above the technical skills required for their chosen fields. They are looking for

candidates that exhibit teamwork, interpersonal skills, creativity, and problem-solving abilities.

Student Learning Outcomes

Student Learning Outcomes	Content Reference	Assessment
Students will be able to: 1. Describe the dimensions of creativity and innovation	I., II.	Class Discussion; Assignments and exercises; Exams
2. Summarize the key aspects of historical and current frameworks of creativity and innovation	I., II.	Class Discussion; Assignments and exercises; Exams
3. Construct personal philosophy of creativity	III.	Assignments and exercises
4. Illustrate understanding of one's creative thinking process and styles	III.	Assignments and exercises
5. Demonstrate understanding of strength and weaknesses of creative thinking preferences	III., IV.	Class Discussion; Assignments and exercises
6. Describe impact of differences in styles on team dynamics	III., IV.	Group Project; Class Discussion; Assignments and

		exercises
7. Describe the dimensions of effective teaming	V.	Class Discussion; Assignments and exercises; Exams
8. Summarize key aspects of historical and current frameworks of group development	V.	Class Discussion; Assignments and exercises; Exams
9. Apply cognitive and affective skills	V.	Participation in group project; Evaluation of experiential activities
10. Demonstrate effective oral and written communication	I., II., III., IV., V.	Class Discussion; Assignments and exercises; Exams

Table 2. Student learning outcomes. This table outlined the key outcomes and how the student's learning would be assessed.

Course Content

<p>COURSE CONTENT:</p> <p>I. DIMENSIONS OF CREATIVITY</p> <p>A. Definitions</p> <p>B. Historical/Current framework and models</p>

II. DIMENSIONS OF INNOVATION

- C. Definitions
- D. Historical/Current framework and models

III. YOUR CREATIVE SELF

- E. Influence of your background
- F. Self-awareness in creative thinking
- G. Personal creativity philosophy
- H. Personal creative styles/preferences

IV. UNDERSTANDING OTHERS

- I. Working in diverse organizations
- J. Multicultural awareness
- K. Team dynamics
 - 1. Style
 - 2. Individual talents and expertise

V. EXPERIENCES IN GROUP DEVELOPMENT

- L. Models for group development
 - 1. Definitions
 - 2. Historical/Current framework
- M. Dimensions of effective teaming
 - 1. Communication
 - 2. Conflict Resolution

<ul style="list-style-type: none"> 3. Collaboration <p>N. Skill development for effective teaming</p> <ul style="list-style-type: none"> 1. Problem-solving preferences 2. Cognitive skill development 3. Affective skill development <p>O. Group performance indicators</p>

Table 3. Course content. This table outlined the five sections of key content within the curriculum framework.

Resources for Curriculum framework

In an unpublished draft revision for *CRS 205: Introduction to Creative Studies*, Fox (2013b) proposed the following Resource list which is also appropriate for this curriculum.

Following this list, I have provided additional sources.

Classic and Current Scholarship in the field

Amabile, T. M. (1983). The social psychology of creativity: A componential conceptualization.

Journal of Personality and Social Psychology, 45, 357-376.

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Noller, R. B., & Parnes, S. J. (1972). Applied creativity: The creative studies project: Part III– The curriculum. *The Journal of Creative Behavior*, 6, 275-294.

Osborn, A. (1953). *Applied imagination*. New York, NY: Charles Scribner's Sons.

Puccio, G. J., Firestien, R. L., Coyle, C., & Masucci, C. (2006). A review of the effectiveness of creative problem solving training: A focus on workplace issues. *Creativity and Innovation Management*, 15, 19-33.

Puccio, G. J., Murdock, M. C., & Mance, M. (2007). *Creative leadership: Skills that drive change*. Thousand Oaks, CA: Sage Publications.

Reiter-Palmon, R., & Illies, J. J. (2004). Leadership and creativity: Understanding leadership from a creative problem-solving perspective. *The Leadership Quarterly*, 15, 55-77.

Rhodes, M. (1961). An analysis of creativity. *Phi Delta Kappan*, 42, 305-310.

Scott, G. M., Leritz, L. E., & Mumford, M. D. (2004a). The effectiveness of creativity training: A meta-analysis. *Creativity Research Journal*, 16, 361-388.

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Periodicals

Creativity and Innovation Management

Creativity Research Journal

International Journal of Creativity and Problem Solving

Journal of Creative Behavior

Psychology of Aesthetics, Creativity and the Arts

Thinking Skills and Creativity

Electronic Resources

<http://www.buffalostate.edu/creativity/>

<http://www.creativeeducationfoundation.org/>

<http://www.creativitypool.com/>

<http://www.cre8ng.com/>

<http://www.educationscotland.gov.uk/>

<http://www.edwdebono.com/>

<http://www.enchantedmind.com/>

<http://www.hua.umf.maine.edu/creativity/creativitylinks.html>

<http://www.mindtools.com/>

<http://www.odysseyofthemind.org/>

<http://www.thinksmart.com/>

Additional Resources

Classic Scholarship in the Field:

Basadur, M. (June, 1995). *The power of innovation: How to make innovation a way of life & how to put creative solutions to work*. Essex, UK: Financial Times Prentice Hall.

Basadur, M.S., Graen, G.B., & Green, S.G. (1982). Training in creative problem solving: Effects on ideation and problem finding in an applied research organization. *Organizational Behavior and Human Performance*, 30, 41-70.

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Electronic Resources:

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Johnson, S. (2010). Where good ideas come from [Video file]. Retrieved from

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<http://www.youtube.com/watch?v=0JUFJTOM32g>

Seelig, T. (2012, August). A crash course in creativity: Tina Seelig at TEDxStanford [Video file].

Retrieved from <http://www.youtube.com/watch?v=gyM6rx69iqg>

The Henry Ford, (2011). *Innovation 101: Digital education module [DVD]*. Detroit, MI:

theHenryFord.org.

<http://www.brainpickings.org/>

<http://www.chindogu.com/>

<http://www.edutopia.org/schools-that-work>

<http://www.futurelab.org.uk>

<http://www.sugru.com/manifesto>

<http://www.tonywagner.com/tag/videos>

SECTION FIVE: KEY LEARNING

Introduction

This section outlines all that I learned from this project. It covers what I learned from my pertinent literature, my research of the existing curriculum, the lecture I designed and presented, and from the curriculum framework that I created.

Key Learning: From Pertinent Literature

My research on the literature led me to some particular key learnings. After researching the process of fine artists Ian Ruhter and Bill Golba, I came away impressed and even intimidated by the depth of their creative processes. Their motivation for creating came from a depth of self that I was unused to in my professional experience. Because they seemed to create from a place that was so personal and devoid from the influences of clients and other parameters unique to the industry of design, I decided not to focus on artists even though that focus had been part of my original intent. I truly felt it was not my place, nor was it my desire, to make them anymore aware of or to improve upon their creative process.

Another key learning from my literature research was learning about different models for creative problem-solving and how to explain the different stages in the process in a way that was relevant to my audience. I went into the research knowing about Puccio's Thinking Skills Model and came out with knowledge of others that I also found would be relevant to my curriculum framework for this project.

FourSight clearly explained the general **stages** of the process but, more importantly, explained how **preferences** in how one approaches problem-solving can affect group dynamics both positively and negatively. Tina Seelig's *Innovation Engine* was an interesting way to explain the impact of one's environment and resources on one's attitude, knowledge, and imagination

and vice versa. I felt this model was also the best in connecting creativity to the potential of innovation.

My favorite “process of thinking” model was Roger Martin’s *Integrative Thinking* as described in *Opposable Mind*. That model was the clearest in speaking to the importance of taking as much time as needed up front to gather data before beginning the ideation process. This model advocated “the capacity to hold two diametrically opposing ideas in their heads...without simply settling for one alternative or the other... to produce a synthesis that is superior to either opposing idea (Chapter 1, The Integrated Thinker’s Advantage, paragraph 2).”

Key Learning: From Existing Curriculum

I found it very interesting that only a few of the top design schools in this country grounded their students on why they were creative and how they could enhance their creativity by deliberately teaching tools and processes for creative thinking. I was happy to see that the Art Center College of Design in Pasadena had a course called *Creative Strategies* that was very deliberate in taking a strategic approach to stimulating and liberating the student’s creative potential.

Among the design schools, Stanford University did the best job with their breadth of curriculum due to their focus on Design Thinking, which, by definition, focuses heavily on the process of thinking about the problem, the users, and the end results. This would cause the students to learn to think with skills that were both affective and cognitive. Stanford had many courses that emphasized the thinking process involved in being creative. Stanford also had the most undergraduate courses (vs. those typically found at the graduate level) that focused on Design Thinking.

Most of the curriculum in the design schools that didn't make my list and table seemed to focus on the technical and tactical tools needed for designing products. I saw that not enough focus was being put on defining the problem and gathering the data needed to determine if, in fact, they were even solving the right problem. However, to be fair, with only catalogue descriptions and without the actual syllabi from most of these classes, I can't know if there weren't exercises that focused directly on problem definition.

There were few schools that focused purely on creativity itself. Most of the classes, because they were part of design or engineering programs, integrated teaching creativity (usually focusing on process) with the subject of design. Buffalo State College, with its minor in Creative Studies, had the most breadth and depth when it came to teaching creativity. Those classes focused on all of the 4Ps: the creative person, process, product, and press.

Key Learning: From Lecture

In the summer of 2013 and before I started my Master's Project, I received certification to administer the FourSight Profile. This tool and the research behind it was of great interest to me as it helped clarify (no pun intended!) much of what I had already observed in both my professional capacity as a designer, mentor, and leader as well as my personal capacity as a spouse and parent. Having this additional knowledge of the pros and cons of one's creative problem-solving preferences and the effect on one's self and the team was very powerful to me.

I designed my lecture on creative styles because I felt most people would enjoy being "enlightened" by this knowledge given what I feel is a human desire to analyze what makes people (especially one's self) tick. I presented this lecture twice during the course of my project

and felt that the reaction (through a PPCo evaluation of my first presentation and by body language such as smiles and head nods in both) was very positive.

I also learned, as with any good presentation, that it's very important to tell stories. Therefore, I made sure that my presentation included stories that related to my audience. These stories included memories from when I was a design student, to examples of products I designed or led others to design. Also included were other visual examples to help illustrate the topics I was presenting. These ranged from videos that I developed which illustrated thinking styles both individually and within a group as well as illustrations of well-known comic characters that showed examples of each of the FourSight preferences. I believe that the inclusion of the stories and the visual examples were successful in their intent. I also think that it would be very easy to slightly modify the verbal part of my presentation to audiences that are not students or professors and still relate the visual content to those in other professional capacities.

Key Learning: From Curriculum Framework

I found this part of my project to be the most difficult as I had never considered designing curriculum until this point. However, with specific guidance from my advisor, I was able to deconstruct the elements involved in this task. I combined them with the many ideas I had for either creating a new class to help introduce creativity and innovation to creative students or modify an existing class such as *CRS 205: Introduction to Creative Studies* which is offered at Buffalo State College.

I learned how to break the curriculum down into student outcomes (what the student is expected to learn) and how the student would be assessed to determine how much of the

learning took place. I also learned how to break the content down into specific goals using the verbs from Bloom's Taxonomy (Wilson, 2006). Finally, I needed to understand how these goals fit within the learning outcomes that I desired so I could include them as part of the framework.

SECTION SIX: CONCLUSION

Introduction

As I concluded this project, I realized that it had been an eye-opening experience for me. I've been a creative person in creative industries all of my life but truly had never thought I'd be in a position where I would be analyzing my experiences to the extent that I did for not only for the purposes of attaining my Masters Degree in Creative Studies but for the potential of a new professional path. This whole journey led me to figure out how I could separate myself from a career I had prepared myself for since college. It led me to realize that all the knowledge and experience I gained from the things I designed, the people that I led, coached and mentored, and my role as a spouse and a parent could prepare me to study creativity and leadership with both a personal and professional perspective. I applied my new knowledge to my existing knowledge and have created a new future for myself. I confirmed that my strengths and successes were not only a result of my time in my previous job, but that my time in my previous job was also successful because of my strengths. And this has allowed me to move forward and explore how else I may be able to learn and share and grow as a person and as a professional.

Next Steps

There are many things I want to do beyond the scope of this project which will help me gain more experience teaching undergraduates (and possibly high school students) about creativity and innovation. I believe that by gaining teaching and curriculum design experience it will also help me in my other professional endeavors. Most of the next steps focus on gaining curriculum design knowledge and teaching experience.

GAIN TEACHING EXPERIENCE

- Teach or team-teach CRS 205 at Buffalo State College to gain more teaching experience;
- Consult with experts on how to create the modified CRS 205 curriculum;
- Include different videos/exercises in modified CRS 205 class.

GAIN CURRICULUM DESIGN EXPERIENCE

- Gain experience in curriculum design through analysis of a variety of existing curriculum;
- Apply new knowledge in curriculum design to complete the curriculum for the new course (syllabus, exercises, etc.);
- Partner with Villa Maria or Buffalo State College to push for the new course to be included in their Design, Business, or Creative Studies curriculum.

MODIFY THE CURRICULUM FOR AGES AND VENUES

- Determine how to modify the university-level curriculum for high school students;
- Determine new venues to do existing lecture (schools, businesses, etc.);
- Design new lectures that focus on the 4Ps, creativity, and innovation;
- Apply my new knowledge to my new position on the Board of Western New York Invention Convention;
- Lead Invention Convention Committee to design workshops for elementary and middle school programs that focus on enhancing problem-solving and thinking skills.

MARKET MY SKILLS

- Create a website to showcase my experience;

- Use lecture as intro as Marketing tool for administering FourSight Profile within businesses and other groups (such as government, healthcare, etc.)

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SECTION SEVEN: APPENDICES

Appendix A: Design Schools

Appendix A is comprised of the schools I researched to determine whether there were offerings to students that deliberately or obviously taught creative problem solving processes. The first list is comprised of Graduate schools determined to be the best in their offerings of Design Thinking by Venessa Wong of Businessweek (2009) and Meghan Rose Dickey of Business Insider (2012).

The second list is comprised of the schools I included in my pertinent literature section which were winnowed from the first lists based on the following criteria: they were based in the United States, whether or not these Graduate schools had related offerings at the Undergraduate level (could include offerings in Design, Communication, Business, Engineering, or Art). These schools were also the ones that had curriculum that I felt taught creativity either separately or integrated within the specific majors.

The third list is comprised of Undergraduate schools well-known to this author that do not have an association with the initial list but do have classes that deliberately teach creative problem-solving process.

List 1: GRADUATE DESIGN SCHOOLS

BUSINESS WEEK LIST (BW)

1. Art Center College of Design/INSEAD- Pasadena, California (Also on BI List)
2. California College of the Arts- San Francisco and Oakland, California (Also on BI List)
3. Carnegie Mellon University- Pittsburgh, Pennsylvania (Also on BI List)
4. Case Western Reserve University- Cleveland, Ohio

5. Chiba University- Chiba, Japan
6. China Central Academy of Fine Arts- Beijing, China
7. Cranfield University/University of the Arts London- Cranfield, U.K., London, U.K.
8. Delft University of Technology- Delft, the Netherlands
9. Domus Academy- Milan Italy
10. Helsinki School of Economics/ Aalto University School of Art's, Design and Architecture/
11. Helsinki University of Technology- Helsinki, Finland (Also on BI List
12. Hong Kong Polytechnic University- Hong Kong, China (Also on BI List)
13. Illinois Institute of Technology- Chicago, Illinois
14. Imperial College of Design London- London, U.K.
15. Korea Advanced Institute of Science and Technology- Daejeon, Korea
16. National Institute of Design- Ahmedabad, India
17. Northwestern University- Evanston, Illinois (Master's in Product Development)
18. Northwestern University- Evanston, Illinois (Dual degree MBA and Master's in
19. Engineering Management)
20. Pontificia Universidade Catolica do Parana- Parana, Brazil
21. Pratt Institute- New York, New York (Also on BI List)
22. Royal College of Art/ Imperial College London- London, U.K. (Also on BI List)
23. Savannah College of Art and Design- Savannah, Georgia (Also on BI List)
24. School of Visual Arts- New York, New York (Also on BI List)
25. Shih Chien University- Taipei, Taiwan
26. Stanford University- Stanford, California

BUSINESS INSIDER LIST (BI)

1. Georgia Institute of Technology- Atlanta, Georgia
2. Institute of Design- Chicago, Illinois
3. UCLA Design Media Arts- Los Angeles, California
4. University of Illinois at Chicago School of Art and Design- Chicago, Illinois
5. University of California at Berkeley School of Information- Berkeley, California
6. Copenhagen Institute of Interaction Design- Copenhagen, Denmark
7. New York University Tisch School of the Arts- New York, New York
8. Cooper Union- New York, New York
9. Cranbrook Academy of Art- Bloomfield, Michigan
10. Rochester Institute of Technology College of Imaging Arts and Sciences
11. Carnegie Mellon Human Computer Interaction Institute- Pittsburgh, Pennsylvania
12. D School: Institute of Design at Stanford University- Stanford, California
13. Parsons The New School for Design- New York, New York
14. University of Cincinnati (College of Design, Architecture, Art & Planning)- Cincinnati, Ohio
15. Massachusetts Institute of Technology Media Lab- Cambridge, Massachusetts
16. Rhode Island School of Design- Providence, Rhode Island

List 2: UNDERGRADUATE SCHOOLS INCLUDED IN PERTINENT LITERATURE (w/stated criteria)

1. Stanford University- Stanford, California
2. Carnegie Mellon University- Pittsburgh, Pennsylvania
3. Art Center College of Design- Pasedena, California

List 3: UNDERGRADUATE SCHOOLS NOT FROM LIST 1 (w/stated criteria)

1. Syracuse University- Syracuse University
2. Cleveland Institute of Art- Cleveland, Ohio
3. Ithaca College- Ithaca, NY
4. Buffalo State College- Buffalo, New York

Appendix B: Artist Interview Notes

Following is a copy of the notes I made while speaking with fine artist Bill Golba:

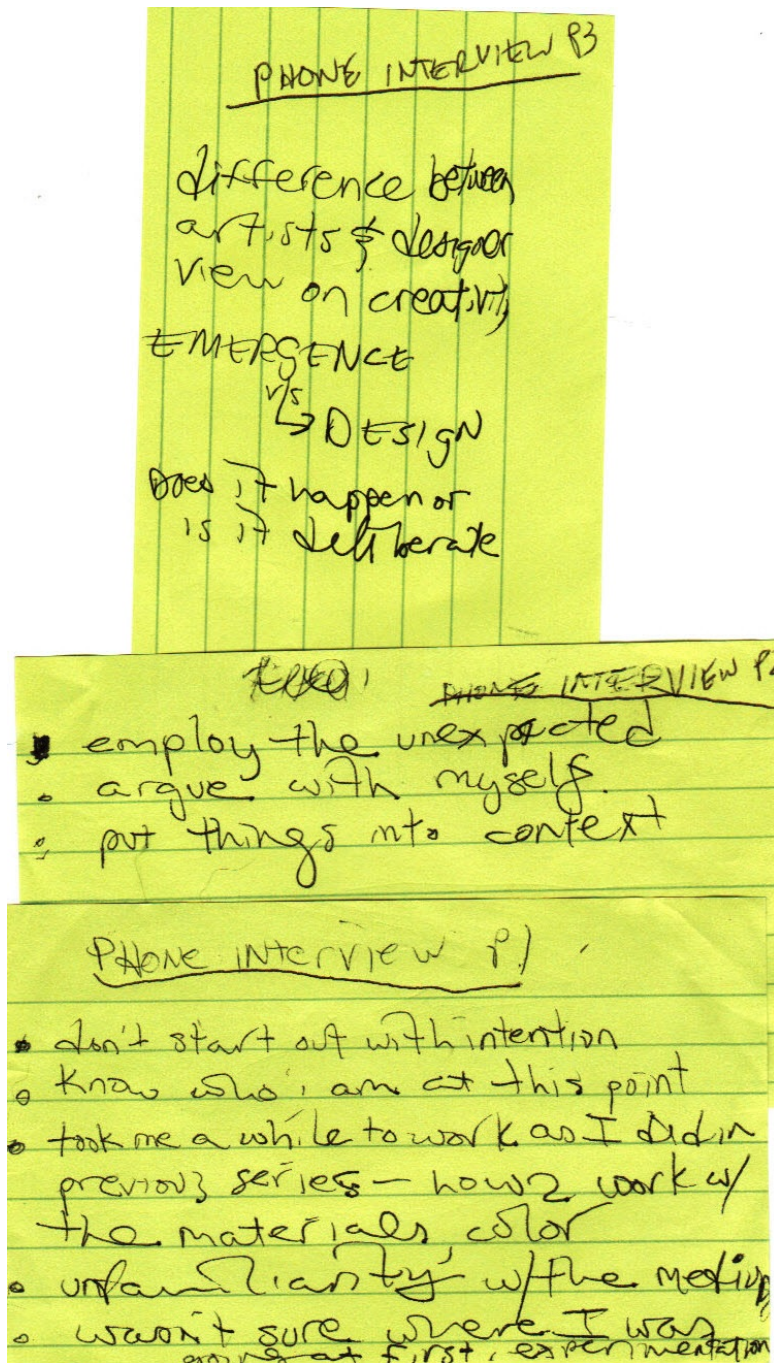


Figure 15. Phone interview notes with Bill Golba (fine artist).

IN PERSON INTERVIEW - P1
 Titles come to you
 as work is done
 then concept comes

- negative dark concepts
- cause need to go lighter

→ associated w/ world events

- Syria
- transatlantic number
- earthquakes

IN PERSON INTERVIEW P. 2

- constant until variety of reasons
- change direction of series
- ↓ theme
- some time representations but goal is abstract
- artist, hope for a universal feel vs. "recognizing" shapes

IN PERSON INTERVIEW P. 4
 wrapping had to think about function during the process - "a little uncomfortable"

pile of paper w/ no concept just hitting the paper with paint

events

- governmental loss (death)
- Syria
- Fukushima
- Sweden
- Spill in Gulf - Burning land

titles came first

IN PERSON INTERVIEW P. 3

- physically walk around it before orienting it
- write titles during painting to keep from forgetting
- always painted
- manipulating mediums
- capitalized red on mistake of how paint dried
- picked square to keep it from being judged

Figure 16. In-person interview notes with Bill Golba (fine artist). Page 1

IN PERSON INTERVIEW P5

Some themes "I don't even understand"

winter

grinding pastels into
gesto

- used accidents

- "I like the experimentation & experience"

IN PERSON INTERVIEW P6

evolution of creativity

- always experimenting

- ~~retroactively~~

- geometric shapes / stuff

- some "classical" drawing

- not teaching me

what I was interested in

some people are discovering

- w/ painting "ended with minimalism"

IN PERSON INTERVIEW P7

no sketching

no preliminary except
titles first

can't worry about what
people think

function - framing
preparing
for show

curator

color, cut paper, $\frac{1}{2}$ wrap
glue, research

Figure 17. In-person interview notes with Bill Golba (fine artist). Page 2

Appendix C: CRS 670 PPCo of Lecture (Compilation)

On September 28th, 2013, I presented my lecture “Everything you wanted to know about creative styles (but were afraid to ask!)” to Dr. Sue Keller-Mathers’s CRS 670 class. Each of the students was kind enough to fill out a PPCo (Pluses, Potentials, Concerns, overcoming concerns) as an evaluative tool for me. Their feedback allowed me to change some aspects of my lecture in preparation for the next presentation that took place on October 24th, 2013 at Villa Maria College. Following is a compilation of the forms I received:

PLUSES:

I like how Miriam used personal examples and experience
 I like the comics
 I like the movies
 I like how the presentation was direct and to the point
 It may make students want to know more about FourSight
 A lot of information
 Definition of creativity
 Animations
 Not too many words on slides (great)
 Group dynamics
 Importance of a team/collaboration
 Showed collaborations through animations
 Little newspaper clips were great examples
 Great stories and lead in to the content
 Kept reminding audience of her purpose
 Understands the material inside and out
 Very approachable and friendly
 Keep smiling!
 Cartoons could be used to promote CPS to kids
 Storylines of CPS + Foursight could be sold
 Based on over 20+ years of experience
 Brings together interest in Product/Process
 Very clear slides; not too much info
 Great graphics!
 Great Cartoons!
 Stresses not confusing ability with preference
 Stresses ability gained through deliberate practice
 Very focused

Character- Meet Maggie (personality)
 Creativity Carnival- advice: "just have fun"
 Preferences- no right/ no wrong
 Left/ Right handed signature activity- good application
 Cartoon references to Foursight Preferences
 Statement- "Don't confuse ABILITY with PREFERENCE"
 Good knowledge base of subject
 Reference story regarding chess set for the blind
 Character- Meet Michael (personality)
 Strong background of innovation
 Focus on Process (scientific aspect)
 Helps to understand how people think
 There is not one definition of creativity
 Helps to work collaboratively

POTENTIALS: (IM stands for "it might")

IM lead to opportunities outside of your intended audience
 IM help others identify and understand different thinking styles
 IM get your audience interested in Creative Studies at Buffalo State College
 IM lead to future job opportunities
 IM be useful to have a wider range of examples of each type (not only cartoons)
 IM be useful to ask for clarification along the presentation
 IM help to understand more clearly the connection between character and the presentation
 IM be helpful to allow the audience to share their perceptions on the cartoons and movies
 IM lead to better facilitation sessions with certain groups (more technical or high-level intellect) to see how creativity, CPS, and thinking preferences work
 IM lead to facilitation in other areas, eg. Bullying, that can be more universally presented
 IM create a spinoff cartoon series
 IM develop into an internet page for kids
 IM lead to landing more clients
 IM lead to a book- "How to recreate the creatives?"
 IM lead to use in implementing CPS in schools- primary/ elementary/ middle
 IM clarify someone's understanding on creativity
 IM encourage them to be in the preference- it's OK
 IM lead you to a consulting job at Villa
 IM lead students into wanting to research creativity
 IM give you feedback on your work
 IM make students realize that creativity can be learned

CONCERNS: (H2 means “How to”)

H2 be more interactive with your audience
 H2 engage your audience more
 H2 show audience props/photos of products you wrote about
 H2 fix/debug any technical issues during presentation
 H2 engage audience more
 H2 be better prepared for technical aspects of presentation- screens, volume, videos
 H2 introduce creativity & creative problem solving at beginning of lecture, prior to going into FourSight
 H2 overcome low sound with laptop
 H2 not be entirely slide-based
 H2 incorporate and heighten anticipation with activity
 H2 incorporate an anecdote to illustrate process- a story that moves through the stages of CPS
 H2 incorporate a creative product to present creativity definitions
 H2 cover the FourSight combinations- Driver, Early Bird, etc. and include examples
 H2 keep the group motivated, engaged
 H2 find activities that engage the listeners
 H2 explain how all this blends in

OVERCOMING CONCERNS: (most of the participants provided ideas on how to overcome their top concerns)**H2 be more interactive with your audience**

Move while you talk
 Have the audience share their experiences
 Ask more questions
 Create a handout; highlight the essence
 Have the audience fill out a PPCo
 Ask for volunteers to help with technology

H2 engage your audience more

Start with an interactive icebreaker
 Create a small quick activity in pairs
 Create an activity for each preference
 Give out food and correlate food with your presentation
 Create an exercise within the Maggie movie (such as stop the movie and create a welcome sign)

H2 show audience props/photos of products you wrote about

Bring photos and props!
Post them in PowerPoint
Show toy ads
Show photos of prototypes

H2 fix/debug any technical issues during presentation

Make sure to go through the presentation on both PC and MAC systems
Make sure links are up and running

H2 engage your audience more

More audience engagement

H2 be better prepared for technical aspects of presentation- screens, volume, videos

Understand and use technology with better ease for flow by practicing the run through of the powerpoint

H2 introduce creativity & creative problem solving at beginning of lecture, prior to going into FourSight

Add a base slide on Creativity and CPS

H2 overcome low sound with laptop

Plug into better audio system

H2 not be entirely slide-based

Collage, Tinker Toys, Poster, Sculpture, Little People Village

H2 incorporate and heighten anticipation

Open with an activity (collage, toys, legos). Let them see it.

H2 cover other FourSight combinations

Add slides of combos
Illustrate how Maggie demonstrates a few preferences

Appendix D: Permissions

Following are the permissions I received for using the cartoons, model images, Mattel/
Fisher-Price videos and images, and FourSight assets:

FourSight

After explaining to Sarah Thurber how I was using the FourSight assets provided to me as part of my FourSight Certification, she indicated to me that the visual assets were not copyrighted and to make sure I cited the original research, which I did.

Mattel/ Fisher-Price

After explaining that I would be using the Fisher-Price images and videos for educational purposes, Fisher-Price VP and General Counsel agreed that this was considered Fair Use.

However, they requested that I do not link the videos to the electronic submission of my final paper.

Miriam,

I understand that you have requested permission to use two of the episodes from a Fisher-Price Little People video featuring Maggie and Michael (Volume 7 "Discovering Creativity") for a lecture as part of your Master's Project at Buffalo State College. Fisher-Price grants you permission to show the two Episodes or clips from the Episodes as part of the lecture but we ask that you include either a visual or audio statement that the clips of the Little People Videos are used with permission of Fisher-Price, Inc. We will send you a more formal letter for your files at a later date but wanted to get you the permission so you can hand your paper in by the deadline. Good Luck.

Dennis

Dennis M. Wesolowski
Vice-President and General Counsel
Fisher-Price, Inc.

CMU School of Design- Model of Design for Interactions

I received permission to use the *Design for Interactions* model from Terry Irwin who is the Head of the School of Design at Carnegie Mellon University.

Terry Irwin <tirwin@andrew.cmu.edu>

October 6, 2013

Dear Miriam,

Yes of course. You must have found it on our website, which will also include more context for the model.

Best Regards,

Terry

Head, School of Design
Carnegie Mellon University
Margaret Morrison 110
Pittsburgh, PA 15213
412.268-2828
www.design.cmu.edu

On Oct 6, 2013, at 10:59 AM, miriam kelley <miriamkelley@gmail.com> wrote:

Hello Ms. Irwin,

My name is Miriam Kelley and I'm pursuing my Masters Degree in Creative Studies from Buffalo State College in Buffalo NY.

As part of my project, I'm doing an analysis of which courses/majors teach creative problem solving to their students.

In your catalog, I found this image for the model of Design for Interactions <http://design.cmu.edu/content/research-foci-0> and would like to have permission to use it in my paper. Will this be possible under Fair Use?

Thank you,
Miriam Kelley

8-Step Simplex Model- Min Basadur

I received permission to use the *8-Step Simplex Model* from Brenda Andrew from Basadur Applied Creativity.

Brenda Andrew <bandrew@basadur.com>
Hi Miriam:

October 7, 2013

Thank you for your interest in our work.
Please go ahead and use the 8 step process wheel image in your project and good luck with your studies.

Best Regards
Brenda Andrew
Basadur Applied Creativity

From: miriam kelley
Sent: October-06-13 12:03 PM
To: Brenda Andrew
Subject: permission for use of image

Hello, I am pursuing my Masters Degree in Creative Studies at Buffalo State College in Buffalo, NY. My project covers what I believe are effective models for illustrating the creative problem solving process. I would like to know if, under Fair Use, I may have permission to use your image of the 8 Step Process found on your "How we do it" page.

Thank you,
Miriam Kelley (graduate student)

Creative Problem Solving: The Thinking Skills Model

I received permission to use the image of the *TSM* image from Dr. Gerard Puccio, the Chairman of the Creative Studies Department at Buffalo State College.

Puccio, Gerard <pucciogj@buffalostate.edu>

October 6, 2013

Hi Miriam,

Actually the authors retained the copyright to the *TSM* image. So you simply need to check with us, with me, and I hereby grant permission for use in your MSc project.

Gerard

Gerard Puccio, PhD
Chair & Professor
International Center for Studies in Creativity
Buffalo State
www.buffalostate.edu/creativity

From: miriam kelley

Sent: Sunday, October 06, 2013 12:34 PM

To: Puccio, Gerard

Subject: Permission Request

Hi Gerard,

I'm writing to Sage Publications to get permission to use your image of the CPS: Thinking skills model for my project. Unfortunately, I don't know the journal or the book it first appeared in with Sage to go through their website. Would you be able to help me with that info?

Thanks!

Miriam

Innovation Engine

I received permission to use the *Innovation Engine* image from Tina Seelig, PhD, who is the Executive Director of the Stanford Technology Ventures Program at Stanford University.

Tina Seelig <tseelig@stanford.edu>

October 6, 2013

Hi Miriam,
Thanks for asking... You are welcome to use the image with attribution.
All the best with your project!
-Tina

Tina Seelig, PhD
Professor of the Practice
Management Science & Engineering
Executive Director
Stanford Technology Ventures Program

On Oct 6, 2013, at 10:08 AM, miriam kelley wrote:

Hello Professor Seelig,
My name is Miriam Kelley and I'm pursuing my Master's of Science Degree in Creative Studies from Buffalo State College in Buffalo, NY. In my Master's Project which is entitled: **Introduction to Creativity: A Lecture and Curriculum Framework for Students Who Identify Themselves as Creative**

I am putting together a table of courses and majors that I believe are effective in teaching students how to creatively solve problems. While researching, I discovered your class and your book *InGenius: A crash course on creativity*. I also discovered your TEDxStanford talk. It was through your talk that I came across your model called the Innovation Engine, which has quickly become one of my favorite as it is very accessible to any level of "student".

I am writing to ask permission if I can reproduce the image of your model for my project. It will be used in 2 ways: It will be housed in Buffalo State's digital commons as a record of my project's completion and will be in a future powerpoint lecture that I will give to undergrads as an intro to creative problem solving.

I have also requested permission from Harper but I like the color version better!
Thank you in advance,
Miriam Kelley

Thinker....Doer (cartoon)

I paid Dan Reynolds, the illustrator of the cartoon, for the privilege of using his cartoon for educational purposes.

<dan@reynoldsunwrapped.com>

September 29, 2013

This would simply require a \$25 usage license fee. You can send fee to me at Dan Reynolds
PO BOX 444, Brewerton, NY 13029 or via paypal using this email address.
Best,
Dan

---- miriam kelley wrote:

Dear Mr. Reynolds:

My name is Miriam Kelley and I'm a Graduate Student at Buffalo State College in Buffalo NY. I'm working on my Master's Project to receive my degree in Creative Studies. I am interested in possibly using one of your cartoons to illustrate thinking styles in my project which is called:

"Introduction to Creativity: A Lecture and Curriculum Framework for Students Who Identify Themselves as Creative"

It would be used in the classroom as part of the curriculum which I'm planning for Undergrads and their professors and it would also be published as part of the digital commons for Buffalo State College. Can you please advise me as to how to use your cartoon in the educational setting?

Thank you,
Miriam Kelley

Beetle Bailey and Family Circus (3 cartoons)

Following is the permission granted by King Features Syndicate for the use of the *Beetle Bailey* and *Family Circus* cartoons.

**King Features Syndicate • North America Syndicate Permissions
A UNIT OF THE HEARST CORPORATION**

P.O. BOX 536463
Orlando, Florida 32853-6463
(407) 894-7300 Ext. 246 * (800) 708-7311 Ext. 246 * Fax (407) 894-9768
Federal ID #: K.F.S. 13-3920863

October 1, 2013

Miriam Kelley
Buffalo State College
169 Dorchester Road
Buffalo, NY 14213
Phone: 716-949-8352
Email: miriamkelley@googlemail.com

Dear Miriam,
Thank you for your request for permission to use King Features material for:

USAGE: Presentation for Masters Degree

The total is gratis for the following details:



PROPERTY	PRICE
FAMILY CIRCUS	\$0.00
BEETLE BAILEY	

Credit line should read:
FAMILY CIRCUS © 1987 BIL KEANE, INC. KING FEATURES SYNDICATE, INC, WORLD RIGHTS RESERVED
[BEETLE BAILEY: 2013 KING FEATURES SYNDICATE, INC, WORLD RIGHTS RESERVED](#)

As a condition of purchasing these rights, you agree that the publication in which the material is used will not be derogatory to or critical of the comic feature from which the material is taken or of anyone involved in the creation or production of the comic feature or of King Features or the comic industry.

Thank you.
Susan White
Permissions

□

Pearls Before Swine (cartoon)

Under Fair Use in an Educational setting, *Pearls Before Swine* did not require permission.

The screenshot shows two views of the Universal Uclick website. The top view displays the 'Pearls Before Swine' cartoon by Stephan Pastis, with a navigation menu and a search bar. The bottom view shows the 'Educational/Classroom Usage' section, which states:

Educational/Classroom Usage:

There is no need to request permission if you wish to use a cartoon for educational or classroom usage. Classroom use refers to public and private schools, home schooling, dissertations, thesis papers and other restricted college usage only. They **MAY NOT** be used in presentations outside of the classroom, as handouts for non-student use or in any manner that is not a classroom setting. All other use will be charged a permission fee. You may use up to seven (7) cartoons per year at no costs as part of our fair use policy. If you wish to use more than seven, please contact us. There will be a fee of \$25.00 (USD) per cartoon over seven.

Calvin & Hobbes-

Permission was not granted for reprinting the *Calvin & Hobbes* cartoon for use on internet or intranet. However, under Fair Use in and Educational setting it is OK for use within a PowerPoint presentation.

The screenshot shows the 'Classroom Usage Statement' section of the Universal Uclick website. It includes a navigation menu and a search bar. The main content area contains the following text:

Classroom Usage Statement

There is no need to request permission if you wish to use a cartoon for educational or classroom usage. Classroom use refers to public and private schools, home schooling, dissertations, thesis papers and other restricted college usage only. They **MAY NOT** be used in presentations outside of the classroom, as handouts for non-student use or in any manner that is not a classroom setting. All other use will be charged a permission fee. You may use up to seven (7) cartoons per year at no costs as part of our fair use policy. If you wish to use more than seven, please **contact us**. There will be a fee of \$25.00 (USD) per cartoon over seven.

PLEASE NOTE: Calvin and Hobbes cartoons cannot be used on web pages, on-line, email or intranet - **no exceptions**.