

CREATING THE CREATIVE

Amos SCULLY

Rochester Institute of Technology, Rochester, NY, USA

ABSTRACT

This paper proposes effective techniques of imagination and creativity in education and examines these through classroom implementation. Creativity and imagination are key concepts of design in the applied arts. Current research along with proven business models in creativity are not being recognized in classroom practices. By asking the question: ‘How do we effectively instil creativity in beginning design students?’ This paper suggests that by examining creative industries outside of academia, a variety of traditional forms of teaching creativity such as critique can be complimented with promising adaptations. These examinations include rules of brainstorming and improvisation. Teaching in Industrial Design this author utilizes the time-tested pedagogical practices and experiments with methods in case studies that embrace practices used in industry and demonstrate promise.

Keywords: Creativity, imagination, design thinking, beginning design, ideation

1 INTRODUCTION

This paper poses the ongoing question of how to instil creativity in beginning design education by utilizing techniques of creative industries. Creativity is a concept open to many interpretations and means of assessment. For the purposes of the academic design program the key concepts laid out in the Torrance tests on picture based creativity consider; idea fluency, elaboration, originality, abstraction, and resistance to closure are appropriate. Frequently the term ‘ideation’ is aptly applied to creativity, yet it is important to note that decisions, judgments and evaluations are also elements of creative process (Runco, 2010). Much of the work of educating a first year undergraduate student continues to employ an understanding of creative process (Maier, 1980). Students must have a working understanding of the creative tools and processes they can utilize as they move past their beginning education and engage more complex problems as upperclassmen. Traditional approaches to creative problem solving recognize the importance of a struggle which embraces failure. Pedagogical use of critique embraces criticism and encouragement, are accepted as long standing effective norms in design education. Application of more recent use of brainstorming have been ineffectually applied in design education, and the recognition of creativity research and innovative design consultancies on imagination has not been incorporated. This paper examines published findings and techniques by creative industries in design and the arts to reveal how these findings are being applied in beginning design education. ‘Design’ in this paper correlates to the applied arts, a field that solves problems through planning with an emphasis on aesthetics.

The methodology was to examine current practices of design educators and compare those to recognized publications about creativity with relevance to the field of design. Creative student output was examined through project case studies in the course 3D Design. 3D Design is one of three studio based courses (3D Design, 2D Design, Drawing) that is common practice in many United States beginning design programs. These three courses were originated as a curriculum in the Bauhaus Group in Germany in the 1920’s. The Bauhaus established the curriculum basis for art and design fields of which Industrial Design (product design) plays a major role. ‘Beginning Design’ is the first year of undergraduate work in a four year program.

2 THE STRUGGLE

Inspiration is for amateurs. The rest of us get to work – Chuck Close

Genius is 1% inspiration and 99% perspiration – Thomas Edison

2.1 Embrace Failure

In 2006, the international architect Frank Gehry was asked by an interviewer why he kept generating new concepts and revisions even though the client was already happy with the design. He remarked “I guess I need to suffer a little bit” (Pollack, 2006). Gehry was speaking tongue-in-cheek, but there is a kernel of truth in his statement. Architects and designers often speak in terms of “suffering” or “failure” in describing the journey to an imaginative end product. In his book about the Industrial Design consulting group IDEO, Tim Brown the company CEO has arguably authored the current bible on *design thinking*. The famous dictum of IDEO states, “Fail early to succeed sooner” (Brown, 2009) Brown and his colleagues propose many elements of design thinking, but embracing failure as a creative standard within their thinking about innovation.

Conveying to students the understanding that creativity involves process of struggle, not just immediate answers, and that flashes of insight come after a struggle between hope and insight. As problems and projects are posed, beginning students are often highly enthusiastic about the answer that initially greets them. Students are often ready to pursue what initially comes to mind, and are unaware that many others will arrive at a nearly identical answer, the creative concept of resistance to closure. Conversely, some students are discouraged and feel burdened that an immediate unique answer does not present itself; this is where the concept of elaboration is not understood. Exploration, ideation, and idea fluency all refer to the creative search for numerous possible solutions. This is also referred to divergent thinking, an open ended process of creating of choices and possibilities. The creative process is a struggle, a struggle to be embraced and relished. Valuing creative process over predetermined end product is a long-standing tenant of art education practiced by seminal artists like Paul Klee. (Spiller, 1992) It is vital to value the creative process, letting it lead, if one fixates on the end product the creative process is lost and originality rarely obtained.

2.2 Critique

The creative process does not end with the conception of the product. It extends to the application of critique. The classic approach of ‘criticism and encouragement’ is at the heart of art school education. Critique has long been utilized by faculty as the evaluation of work both during and at the end of creative projects. Critiques judge the creative output with adherence to the project/topic of the assignment. Critique (crit) challenges a work to stand on its own beyond its creator and not be derivative, clichéd or functionally unclear. Engaging the evaluation through instructor and student peer students, critique has long been utilized in starting in the first year. In speaking about criticism and encouragement the esteemed Hans Haake of the Cooper Union School of Art in New York states “ I want them to think on their own. That requires that they are challenged by their peers as well as by me. They shouldn’t settle thinking they have made great invention when in fact it amounts to the reinvention of the mousetrap” (Adams et al, 2009) While there are numerous methods employed, the standard of critique does not shut down ones creativity, but challenges the individual behind the work to push, distil, or dump their ideas. For example, Pixar’s production meetings are notoriously harsh, with artists debating and tearing apart the work of their peers (Leherer, 2012). Yet the daily “crit session” at Pixar ultimately works as creative vehicle, yielding films that are huge sensations with longevity. While Pixar members reveal that after the session they are often uncertain how to proceed, they do proceed, and to great effect.

3 GROUPTHINK

3.1 Brainstorming

Working in a group (team) takes the creative struggle into a social context. Brainstorming, a group ideation process that most of us are familiar with at least in concept, is utilized in numerous settings of business and education. The brainstorming technique, put forward by Alex Osbourne in the 1930’s, asks participants to generate quantities of ideas and postpone judgment, leaving the group with an expansive list of possibilities to choose from. Brainstorming, at least in concept, is utilized for its

creative potential in higher education. Yet, the technique often fails as it is not properly executed. Students are often encouraged to kick off projects by breaking into groups to exert ideas, and discuss possibilities unchecked. However, experiencing ideation in a social setting where concepts are vetted through a set of peers can lead one to offer up safe or even predictable solutions avoiding personal risk. The search for numerous possible solutions may be dampened by the social setting. Offering an idea to classmates in this format can produce anxiety, and suspend risky answers. Despite brainstorming's popular acceptance as an effective means of delivering innovative approaches research has proven otherwise. Research by physiologists have demonstrated that brainstorming can produce an aversion to even offer speculative ideas. (Cain, 2012) Thus brainstorming sessions can often become 'groupthink' sessions where the goal is producing socially acceptable answers. Research referring to this as "social loafing", demonstrates that as more individuals are added to the group, the likelihood of creative output decreases (Runco, 2010).

Yet, the brainstorming paradigm does have proven industry record for effective creative results. For example, IDEO seems to have mastered the use of brainstorming. Mastery of the technique is what Tim Brown the CEO espouses, he states that in order to make it effective "it takes practice" (Brown, 2009). IDEO has implemented brainstorming as a powerful technique that enables a highly creative organization. Their simple rules are *Defer judgment, Encourage wild ideas, Stay focused on the topic, and Build on the ideas of others*. Brown reports that in order to make it effective the team must practice the technique with an emphasis on the last rule, *Build on the ideas of others*. There are educational possibilities to practice this technique in its proper form; the proper form where an atmosphere of risky answers are taken with delight. Currently, the term brainstorming is used in design education without creative effect. Brainstorming in higher education bears out the 'social loafing' results as it is not practiced effectively.

3.2 Blended Teams

Brainstorming in teams as per the IDEO method demonstrates that groups can produce creative output if there is adherence to a set of rules. Many educators have faced the difficulty of assembling effective student project teams, but rules can apply here as well. Highly functional teams exist in industry and should be included in beginning design. Outside of extracurricular activities, high school students rarely have produced work and possibly never creative work as part of a team. When examining the movement toward teams in the professional sphere, Benjamin Jones of the Kellogg Business School finds that team-produced papers are the most often cited inferring teams produce innovative or better quality work (Lehrer, 2012). Yet these teams are largely comprised of academics who live in distinct institutions and collaborate with little face to face time.

So how does a magnificent team come into being? When does collaboration produce creative output exceeding the talents of the individuals? The make up of a team with synergy may rely on at least one factor described as the 'Power of Q'. The Power of Q is the result of the research by Brian Uzzi a sociologist Northwestern University. He found that creative success depends on the familiarity of the team members. Through studying successful Broadway musicals of the past century, Uzzi discovered a correlation between the creativity of the production and the right balance of intimacy of the team. Teams that have long standing repeat relationships stifle creativity, teams that have no prior relationship lacked creativity, and teams that had a "mix of relationships" from old friends to newcomers were highly imaginative (Lehrer, 2012). Uzzi refers to the blend of familiarity as a low Q (unfamiliar), high Q (close companions), or intermediate Q (blend of unfamiliar and close); Q refers to the measure of social intimacy. In short, the rules of assembling a creative team proves to be a blended team (intermediate Q) one with unfamiliar members together with those of close social intimacy.

4 THINKING FAST

4.1 Stream of thought

It is hard to deny that some people create great work deep in thought late at night. Musing on an idea is very unlike that of social brainstorming. This paper does not discuss the magnitude of creativity in isolation. There certainly is no denying the creative value of 'thinking it over' in a state of mind that comes through solitude. Yet this may be only one way to gather unedited thoughts. Gaining access to a stream of consciousness may come through meditation as a waking state for discovery for stream of thoughts with its feelings and dimensions. (Richards, 2010) While using meditation in coursework

might prove difficult, the possibilities of a state of mind with unedited associations remain open for exploration.

Methods for how to engage a stream of creative thought or a new state of mind, are at the heart of theatre improvisation. In learning theatre improvisation (improv) at the highly regarded Second City improvisation school in Hollywood students perform a series of exercises to change their mindset. The exercises start with lighthearted children's games and move toward confessionals and 'conducted rants' Working past these stages improv students come to a heightened state where "they're going to say the first thing that pops into their head, even if it seems silly or stupid. Because the inner voice that tells you *not* to do something – that is the voice that kills improv." States Joshua Funk of Second City. Saying the wrong thing is bred out of the mindset and one comes into an open dialogue on stage referred to as "leaving your mind." In this on stage dialogue improv students speak unedited. This technique conjures a mental state of positivism Funk refers to as "Yes, and..." Using the freeing concept of 'Yes' is engaging a state of elation, and confidence that enjoys an unedited free association. By its nature it is fast and reactionary, it is the speed and immediacy that creates an act of improv that opens the actor to free thought. This altered state of consciousness makes the actor feel they are not even themselves (Leher, 2012). By losing the inner voice that closes down imagination, improv is able to expose thoughts cultural and historic connections normally suppressed. Cultural connections may include anything from references to history, pop culture, taboos, or media.

The free thought of improv where actors react has parallels to brainstorming where the inner voice of 'not to do something' is suppressed. And like brainstorming as Brown argues, improv must be practiced. Improv is practiced with a set of actors, brainstorming has been effectively practiced in design with a team. Beginning design students must learn the skill of spilling out ideas. Students often are embattled with what not to do, this kills the unedited thought process. Being unedited affords idea fluency a key concept of creativity, the improv methodology also affords the inclusion culture and there has been a call for cultural inclusion to have an increasing role higher education in art (Pujol, 2009).

5 CASE STUDIES

5.1 Stream of thought

In a case study by the author, the strategy of a 'mix of relationships' in the Power of Q was implemented in student team based projects. The projects engaged students from 1st and 2nd year Industrial Design(product design) program. Six teams were formed each comprised of four members on a design/build project in conjunction with a visiting architect. Each team was a blended mix of four members; two members of the 1st year '3D Design II' course with two members of the 2nd year Industrial Design 'Form II' course. Students from the distinct courses were in their second term of a sequential course, and therefore had already spent a term in a studio course with the faculty and students with ten weeks of interaction. The blended teams were chosen by the faculty, and after the project launch met for the first time. Teams went through a rapid divergent and convergent ideation phase, decided on a site and concept, and produced an architectural structure in a scale model. In the opinions of the collaborating faculty (including the author), and the opinion of the visiting architect, the final pieces were remarkably strong with a strong conceptual basis. The teams had creative synergy and tremendous work ethic, producing highly imaginative, creative and thoughtful projects.

When questioned about their heightened creative output, students responded that the team dynamic provided:

- 'with unfamiliar teammates ideas were thoroughly debated'
- 'forced us to think beyond the familiar'
- 'made for increasing clarity of design intentions'
- 'identified personal strengths'

5.2 Blitz State

This student project takes inspiration from improvisation techniques by creating a classroom situation that is directed at an unedited stream of thought. The object of this classroom session is to voice the first thing that pops into your head. In order to create a unique mindset in the classroom, the author attempts to break the mental editing of students through time constraints. This open-ended creative thinking exercise utilizes a classroom setting with a timer and a single material object for expression.

In the trials to date the author implemented rubber bands and apples as vehicles for expression. Each student is seated in their familiar classroom setting and asked to bring a knife and a bag of apples. In successive three-minute rounds one after another the students are asked to create a work with apples, they are verbally instructed that what they produce has “no rules”. Student work is at first tentative and cautious and unclear what creatively to do. With every three-minute round the instructor keeps up the mantra, “No rules. Another idea” Constructions start out with safe predictable visuals such as faces or patterns carved from apples. With continued round after round the imaginative play quickly becomes manic and electric. Students become experimental with free-associations, doing performance, or utilizing the room itself. Between each round the class quickly circles the room and call out notable constructions. The point of this whole manic hour is to breed an understanding that students intuitively generate concepts and mistakenly self-edit. This open-ended, boundless exploration demonstrates how one can achieve expansive thought simply by letting go. Actions are not predetermined, so they are not edited and with time constraints one poaches and builds off of ideas of the other like a theatre improvisation. Like theatre they draw on contemporary culture and history or raw action. Like theatre improv it simply ‘feels’ right at the time. Tapping that genuine intuition is powerful way to bridge unlikely associations.

6 CONCLUSIONS

Establishing an understanding of methods of creativity in a beginning design student undergraduate education builds a platform for future creative output. Underscoring the creative process over an end product is essential for faculty who teach creativity in beginning design. Faculty should continue to emphasize creative techniques over the introduction of skillsets in software or graphic visualization in beginning students. Creative industries employ the use of traditional approaches utilized in design education, and techniques that are commonly misapplied such as in brainstorming or alternatives such as in improvisation. As demonstrated by creative entities such as IDEO, Pixar, Frank Gehry education should continue to embrace the time-honoured use of a struggle with failure and critique as critical to a creative process. These traditional methods have been underscored by masters of creative expression such as Hans Haake and Paul Klee who have played leading roles in seminal creative institutions. Beginning design education should examine the use of teams for idea generation by employing effective use of brainstorming and by using blended teams comprised of familiar and unfamiliar members. Techniques in parallel creative fields such as theatre improvisation offer potential for generation of unedited thoughts.

Findings on the production of creativity:

- Failure/ struggle is a vital part of a creative process
- The creative process embraces undermined outcomes
- Effective critiques balance criticism with encouragement
- Brainstorming effectively works if practiced and with adherence to rules
- Teams offer potential for innovation with a mix of social intimacy or distance relationships
- Unedited thought streaming can be induced through fast paced ideation

REFERENCES

- [1] Adams, D., Bos, S., Haake, H. Conversations. In Madoff, S. H. (ED) *Art School: (propositions for the 21st century)*. 2009, pp.258-269 (The MIT Press, Cambridge).
- [2] Brown, T. *Change by design: how design thinking transforms organizations and inspires innovation*. 2009 (HarperCollins, New York).
- [3] Cain, S. The Rise of the New Groupthink. *New York Times, Sunday Review*. Jan 15th, 2012, pp.1-6.
- [4] Leher, J. *Imagine: How Creativity Works*. 2012 (Houghton Mifflin Harcourt, New York).
- [5] Maier, M. *Basic principles of design*. 1980. (Van Norstrand Reinhold, New York).
- [6] Pollack, S. (Director). *The sketches of Frank Gehry*. (Documentary). 2006. (Sony Pictures Classics, Los Angeles).
- [7] Pujol, E. On the ground: Practical Observations for Regenerating Art Education. In Madoff, S. H. (ED) *Art School: (propositions for the 21st century)*. 2009. (Harper Collins, New York).
- [8] Richards, R. Everyday Creativity: Process and Way of Life –Four Key Issues. In Kaufman, J.C. & Sternberg, R.J.(ED) *The Cambridge Handbook of Creativity*. 2010, pp.189-215. (Cambridge

University Press, New York).

- [9] Runco, M.A. Divergent Thinking, Creativity, and Ideation. In Kaufman, J.C. & Sternberg, R.J.(ED) *The Cambridge Handbook of Creativity*. 2010, pp. 413-446. (Cambridge University Press, New York).
- [10] Spiller, J. *Paul Klee notebooks: volume 1, The thinking eye*. 1992. (Overlook Press, Woodstock).
- [11] Wallschlaeger, C., Busic-Snyder, C. *Basic visual concepts and principles for artists, architects, and designers*.1992. (Wm. C. Brown, Dubuque).