KIE handbook of creativity

edited by
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KIE Handbook of Creativity

Guest Editor
Fredricka Reisman, PhD

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KIE Handbook of Creativity

KIE Conference Books

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PREFACE

EVERGREEN CREATIVITY

Why does a human being look up to the night sky and wonder what makes the stars bright and the earth spin? What causes someone to watch another at work, then go off and build a tool to make the task easier? What moves someone else to gather together pigments and sit outside at dusk to capture images of the fading light? Where do ideas come from? The thing that separates us from other creatures on earth is our ability to invent... We are the only creatures who seem capable of spontaneous invention, of making something from nothing, of thinking something up and making it so. It's our glory as a species; it may, as well, lead to our destruction. Such is the power of creativity. - Chris Petty (2001, p. 1)

That power of creativity as succinctly captured by Chris Petty remains evergreen ever since Joy Paul Gilford (1950) set ablaze contemporary interests in creativity research to the pioneering efforts of Ellis Paul Torrance (1962, 1974). And despite the fact that subject experts and investigators do not 'share' a language for creativity (Welsh, 1973; Ford & Harris, 1992; Parkhurst, 1999; Joubert, 2001), the *evergreen* nature of creativity, as Sternberg (2006) posits, continues to endure the subject to hearts and minds of creativity enthusiasts across our world. And why not?

Of course no-one expects subject experts and investigators to share a language for creativity after all creativity is never a single variable, but as Reisman (2013, 2014) demonstrates, a complex multifaceted and multidimensional process that might not be easily straitjacked in definition and application.

Yet, there a general agreement among investigators that creativity—at least a varying degree of traits of creativity—not only exist in every human, but it is also a 'decision that anyone can make ...' (Sternberg, 2006, p.97); and that the attributes of creativity can be so subtle in humans as to make an individual oblivious of his or her creative behaviour and practices. Craft (2001) underlines the significance of the latter point in what she characterises as 'little c creativity'.

Think about a twenty first-century woman who, in the course of her everyday life, negotiates or divides her time between work, home, family and possibly part-time education. Creativity in her case is used daily as a 'coping strategy', an ability possess by every individual (Timmerman, 1985); and not a preserve of 'genius' or the gifted few (Lytton, 1971; Webster, 1989a, b; Ogunleye, 1999). In fact, Ripple (1989, p.190) and, as stated earlier , Craft

(2001, p. 45 drawing on the work of Gardner (1993a, b)), call this type of creativity 'ordinary creativity' or 'little c creativity', which is what people draw upon to solve 'everyday real-life problems of less than heroic proportions and [which], helps people to get through the day better and or more effectively' (Ripple, 1999, p.190).

And so to keep the work on creativity evergreen, this *KIE Handbook of Creativity* seeks to add to the repository on the subject. It is a small but important contribution by the KIE Conference to scholarly work in the field. By so doing, this book builds on the pioneering work of Guilford and Torrance, and the two dedicated journals on creativity—*Journal of Creative Behavior* and the *Creativity Research Journal*—as well as a number of handbooks on the subject notably Sternberg & Lubart (1996), Runco & Pritzker (1999), and Sternberg (1999).

Credit in all this belongs to every author and co-author of this book led of course by Dr Fredricka Reisman, guest editor. On behalf of the KIE Conference Team and KIE International Advisory Board, I thank you all.

James Ogunleye, PhD, FRSA
Chairman, 2015 KIE Conference
Convenor, E. Paul Torrance International Roundtable on Creative Thinking
Convenor, Reisman Diagnostic Creativity Assessment Special Interest Group

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CHAPTER ONE

INTRODUCTION

FREDRICKA REISMAN

The 2015 KIE Istanbul, Turkey conference book presents 12 chapters on a variety of creativity related topics including business applications, negative creativity, art, assessing environmental related issues, learning technologies, and professional development. There are chapters that inform how we explore the complexity of understanding creativity and of measuring creativity to those that share curricular and pedagogical experiences.

Guzik and Goff point out in chapter two that though the concept of creativity has been dominated by interpretations drawn from the field of psychology, economics too has something useful and interesting to offer to a more complete understanding of individual creativity.

In chapter three, Rosenthal shares his creativity focused course for his business students. The content and pedagogy described provide an excellent model that may be adapted across the academy.

Davis, in chapter four, introduces us to the ancient creative practice of narrative as a current activity in studying business as well as its role in commercial practice. This chapter focuses on narrative models developed in the field of screenwriting that underlie their use in film and television.

Hansika and Azizuddin (chapter five) discuss the Alternate Uses Test (AUT) and a self-report Creativity measure to assess positive and negative creativity. Suggestions for improving the AUT as a tool to measure negative creativity are proposed.

Coste and Nemeroff (chapter six) ask: "What is crazy? What is creative? And how does this play out in various environments?" They propose that answers to these questions are critical to attaining a firm grasp on how to enhance creative achievement.

Wilson and Brown, in chapter seven, explore experiencing new and unfamiliar ideas and investigating authentic creativity, notions of forgery and fakery, serendipity, accidental discovery, and the dynamics of positive and negative creative conditions. They embellish their chapter content with instructive visuals.

In chapter eight, Rick Kantor presents a novel addition to our readings as he urges the inclusion of the artist back into our schools, our corporations, our politics, our social and leisure activities. He suggests that we have marginal-

ized the artist as he points out that "As a society we have either ignored them or cloistered them away in galleries and museums, making them into commodities." Kantor argues that artists can be the spark of illumination, the catalyst of innovation, if we are open to discovering the fuse they light." He challenges the reader to "engage contemporary artists who have been our most underutilized resource in our quest to stay creatively vibrant and innovatively prolific."

Tsai (chapter nine) focuses on a population limited to university level students. However, but the author provides ideas for expanded application of this emphasis on assessing environment in contrast to focus on assessing person creativity.

Luo, Deng, and Zhou, in chapter ten, assess creative climate and group climate. They argue that we should not only take the assessment of individual creativity seriously, but also that of group creativity. For those who enjoy emphasis on statistical discussion, this is the chapter for them.

Brown and Wilson, in chapter eleven, draw from postmodern and post-structuralist perspectives as they discuss the transition from traditional artistic practice to situations in which elements are manipulated, mutated, combined and distorted. This chapter explores the relationship between the individual and domain-based creative practice drawing primarily from musical and audio-visual examples. The authors focus on the interpretation of creativity as essentially a process of recombination and manipulation through which new ideas emerge. Again this creative collaborative provide amazing visuals to enhance communication of their ideas.

The final chapter contributed by Hasseler, Enos, Dowling, and Shea describe the Creativity Fellows Program (CF) at Bryant University located in Smithfield, Rhode Island, U.S. This is a one-year seminar devoted to nurturing faculty members' creative practices. The endeavor was created to literally transform the culture of teaching and learning-university-wide and the chapter includes voices of the participating faculty. The authors provide specific information that may be replicated by other institutions.

Inaugural Conference Highlights

Two inaugural venues were established at the KIE Istanbul 2015 conference; namely, The E. Paul Torrance International Roundtable on Creative Thinking and the RDCA Special Interest Group (SIG).

October 8, 2015 marks the 100th birthday of Dr. Torrance. As the program brochure states, the goal of the panel is to "refresh the work and legacy of Dr. Torrance internationally, especially, among today's crop of creativity enthusiasts, push the boundary of knowledge on creative thinking as well as increase knowledge sharing within the creativity field."

Dr. Torrance's body of work includes 1,871 publications: 88 books; 256 parts of books or cooperative volumes; 408 journal articles; 538 reports, manuals, tests, etc.; 162 articles in popular journals or magazines; 355 conference papers; and 64 forewords or prefaces (Spilman, 2002). He also created the Future Problem Solving Program International, the Incubation Curriculum Model, the Threshold Hypothesis and the Torrance Tests of Creative Thinking.

Future Problem Solving Program International (FPSPI)

The goal of the *Future Problem Solving Program International* (FPSPI), founded by Dr. Torrance in 1974, is to "engage students in creative problem solving". This program has involved over 250,000 students annually from Australia, Canada, Hong Kong, Japan, Korea, Malaysia, Portugal, New Zealand, Russia, Singapore, Great Britain, Turkey, India and the United States.

Torrance Incubation Model of Creative Teaching and Learning

Mathew Worwood (2011) presents a great summary of Torrance's Incubation Model (see references for his url). He describes the model as having three stages:

Stage One, Heighten Anticipation. It is here that the learner is mentally prepared for the project ahead. Torrance describes this as a Warming Up Period with the following six functions, (1) Create the Desire to Know, (2) Heighten Anticipation and Expectation, (3) Get Attention, (4) Arouse Curiosity, (5) Tickle the Imagination, and (6) Give Purpose and Motivation.

Stage Two, Deepen Expectations. This is where the problem is defined, applied, and creativity nurtured; a list of actions or metaphors is used. For example, Digging Deeper encourages students to go beyond the surface of the problem (identify the unknown), discover things that were missed, synthesize the information, and begin to come up with solutions and actions that can be applied to the project.

Stage Three, Extend the Learning. This stage involves another list of metaphors that encourages students to take the lead and apply the project in a real context to extend their learning. For example, Building Sand Castles is a metaphor that challenges
students to use their imagination and discover ways to apply the project to a real world context.

Torrance identified specific behaviors associated with those that demonstrated creative accomplishments. These behaviors were characterized into three elements, Ability, Skill, and Motivation. This work helped form the foundation of the Torrance Tests of Creative Thinking (TTCT) that is described below the Threshold Hypothesis discussion..

Threshold Hypothesis

Correlations between intelligence and creativity have suggested that these correlations were low enough to justify treating them as distinct concepts. The "threshold hypothesis", proposed by Torrance is that low IQ and low creativity are related, but that past a threshold (around IQ 120) they're not necessarily related. This makes sense because the rationale for scoring IQ and creativity tests differ. To score high on an IQ test you must answer in the same vein as the norming population. But to score high on a creativity test, you want your responses to be statistically different from the norming population. Thus, there is an inverse relation between obtaining a high IQ score and a high creativity score, especially from 120 IQ and beyond. Thus, in a general sample, there will be a positive correlation between low creativity and intelligence scores, but a correlation will not be found with higher scores. Research into the threshold hypothesis, however, has produced mixed results in terms of accepting this hypothesis.

Torrance Tests of Creative Thinking (TTCT)

Building on Guilford's ideas, especially the distinction between divergent and convergent thinking, the Torrance Tests of Creative Thinking (TTCT), is a test of *creativity*, that originally involved simple tests of *divergent thinking* and other problem-solving skills, which were scored on four scales:

- Fluency. The number of ideas generated in response to a stimulus.
- Flexibility. The number of different categories of relevant responses.
- Originality. The statistical rarity of the responses.
- Elaboration. The amount of detail in the responses.

The third edition of the TTCT in 1984, eliminated the Flexibility scale from the figural test as statistically it added little to the scoring. Torrance created the Resistance to Premature and Abstractness of Titles tasks for the figural battery. He also provided 13 criterion-referenced measures that include: emotional expressiveness, story-telling articulateness, movement or actions, expressiveness of titles, syntheses of incomplete figures, synthesis of lines, of circles, unusual visualization, extending or breaking boundaries, humor, richness of imagery, colorfulness of imagery, and fantasy.

Although the TTCT uses many of Guilford's concepts, in contrast to Guilford, the TTCT uses tasks that can be scored for several factors, involving both verbal and non-verbal aspects and relying on senses other than vision. The TTCT represents a fairly sharp departure from the factor type tests developed by Guilford and his associates (Guilford, Merrifield and Cox, 1961; Merrifield, Guilford, Christensen, and Frick. 1960). and they also differ from

the battery developed by Wallach and Kogan (1965), which contains measures representing creative tendencies that are similar in nature.

To date, several longitudinal studies have been conducted to follow up the elementary school-aged students who were first administered the Torrance Tests in 1958 in Minnesota. There was a 22-year follow-up (Torrance, 1980, 1981a, 1981b), a 40-year follow-up (Cramond, MatthewsMorgan, Bandalos, & Zuo, 2005) and a 50 year follow-up (Runco, Millar, Acar, & Cramond, 2010).

Torrance (1962) grouped the different subtests of the Minnesota Tests of Creative Thinking (MTCT) into three categories.

1. Verbal tasks using verbal stimuli
2. Verbal tasks using non-verbal stimuli
3. Non-verbal tasks

A brief description of the tasks used by Torrance is given below:

Verbal Tasks Using Verbal Stimuli

Unusual Uses. This task involves using verbal stimuli that are direct modifications of Guilford's Brick uses test. Torrance (1962) substituted tin cans and books for bricks because he believed that children would be able to handle tin cans and books since both are more available to them than bricks.

Impossibilities. It was used originally by Guilford and his associates as a measure of fluency. Torrance, after much experimenting with this task ask the subjects to list as many impossibilities as they can.

Consequences. The consequences task was also used originally by Guilford and his associates. Torrance made several modifications whereby he designed three improbable situations and the children were required to list out their consequences.

Just suppose. As in the consequence task, the subject is confronted with an improbable situation and asked to predict the possible outcomes from the introduction of a new or unknown variable.

Situations. The situation task was modeled after Guilford's test designed to assess the ability to see what needs to be done. Subjects were given three common problems and asked to think of as many solutions to these problems as they can. For example, if all schools were abolished, what would you do to try to become educated?

Common problems. This task is an adoption of Guilford's Test designed to assess the ability to see defects, needs and deficiencies and involves "sensitivity to problems". Subjects are given common situations and they are

asked to think of as many problems as they can that may arise in connection with the particular situations. For example, doing homework while going to school in the morning.

Improvement. This test, adopted from Guilford's apparatus test that assessed ability to see defects and sensitivity to problems. In this task the subjects, given a list of common objects, are asked to suggest as many ways as they can to improve each object without concern about whether or not it is possible to implement their suggested change.

Verbal tasks using nonverbal stimuli

Ask and guess. This task requires the individual first to ask questions about a picture – questions which cannot be answered by just looking at the picture. Next he is asked to make guesses or formulate hypotheses about the possible causes of the event depicted, and then their consequences both immediate and remote.

Product improvement. In this task common toys are used and children are asked to think of as many improvements as they can which would make the toy "more fun to play with". Subjects are then asked to think of unusual uses of these toys other than "something to play with".

Unusual uses. Here the child is asked to think of the cleverest, most interesting and most unusual uses of the toy used in *Product improvement*, other than as a plaything. These uses could be for the toy as it is, or for the toy as changed.

Non-verbal tasks

Incomplete figures. This is an adaptation of the *Drawing completion test* developed by Kate Franck and used by Barron (1958). On an ordinary white paper an area of fifty-four square inches is divided into ten squares each containing a different stimulus figure. The subjects are asked to sketch some novel objects or design by adding as many lines as they can to the ten figures.

Picture construction. In this task children are asked to think of a picture in which the given shape (jelly bean) is an integral part. They should add lines to make any novel picture and then write the name of their picture at the bottom.

Circles and squares. Two forms are used in the test. In one form, the subject is confronted with a page of forty-two circles and asked to sketch objects or pictures which have circles as a major part. In the alternate form, squares are

used instead of circles.

Torrance-Reisman Research Using the Torrance Tests

Following are two publications describing Torrance tests used as an assessment:

Reisman, Floyd, and Torrance (1981) investigated whether a measure of creative thinking would better predict achievement on (1) traditional Piagetian measures having one correct answer (convergent problem solving), (2) a modified Piagetian set of measures eliciting a variety of alternative solutions (divergent problem solving), and (3) a mathematics readiness test that also permits a variety of solutions or methods of obtaining correct answers (Reisman, 1985). Analyses examined the extent to which sex, age, and Thinking Creatively in Action and Movement (TCAM) scores predicted the performance of 20 female and 14 male 38–68 month olds on the 3 measures of cognitive development. Results showed that performance on the TCAM significantly predicted young Ss' performance on the modified Piagetian tasks that involved divergent problem solving and on a mathematics readiness test. It is suggested that creative thinking ability, as assessed by the TCAM, predicts cognitive performances that involve some divergent thought.

The purpose of this next study (Reisman and Torrance, 1979) was to examine the relationships of children's performance on the Torrance Tests of Creative Thinking (TTCT) and on selected Piagetian tasks of conservation. Study subjects, 133 kindergarten and first grade multi-racial boys and girls, were administered the TTCT-Figural Form A and selected Piagetian tasks of conservation of number, of continuous quantity (pouring water), of mass (quantity of clay) and of time measurement. Two assumptions were tested: (1) that characteristics of creative thinking, such as flexibility of thought and resistance to premature closure, in particular, also underlie ability to conserve, and (2) that those children who attained an above average creativity index on the TTCT would be early conservers. Analysis of variance yielded significant correlations at the .001 level that indicated that conservers were more resistant to premature closure and their thinking was more flexible than non-conservers. A multiple regression of the creativity variables that were significant as a result of canonical correlation was done to identify those useful in predicting readiness for conversation. Piaget's notion of reversibility of thought is brought into question as thought goes forward in time. Instead, conservation is interpreted as reconciling simultaneous opposites or "Janusian thought" after Janus, a Roman God who has two faces, each looking in the opposite direction. Janusian thinking is the ability to imagine two opposites or contradictory ideas, concepts, or images existing simultaneously. In conservation of mass, for example, the child must realize that changing a ball of clay into a snake does not change the quantity, just the form. Similarly, pouring

water from a short fat beaker into a tall skinny beaker does not change the amount of water, just the height in the beakers. The same holds when changing the physical arrangement of six raisins; this change does not affect a change in the number of raisins since none were added or taken away. The time conservation task requires simultaneously realizing that when two toy cars move at different speeds for the same amount of time, the faster car will stop at a greater distance from the starting point than the slower car. In summary, the TTCT predicted early ability to conserve.

Reisman Diagnostic Creativity Assessment (RDCA) SIG

Inauguration of the KIE RDCA SIG opens conversations and future research that involve online creativity assessment, self-report creativity assessment, and extends the eleven traditional creativity factors tapped by the RDCA to include attitudes and personality traits. It is expected that conversations addressing the RDCA SIG issues (online creativity assessment, self-report creativity assessment, and inclusion of attitudes and personality traits) will continue virtually beyond the conference close.

RDCA

The Reisman Diagnostic Creativity Assessment (RDCA) (Reisman, Keiser, & Otti, 2012), validated over several administrations, is a free self-report mobile app available for the iPad, iPhone and iTouch. The RDCA assesses an individual's self-perception on 11 major creativity factors that have emerged from the creativity research (fluency, originality, elaboration, resistance to premature closure, flexibility, tolerance of ambiguity, convergent thinking, divergent thinking, risk taking, intrinsic motivation, and extrinsic motivation). Some of the RDCA factors are similar to those tapped by the Torrance Tests of Creative Thinking (TTCT), which in turn stems from Guilford's creativity research (Guilford, 1967). The 40 item RDCA may be completed in less than 10 minutes, is automatically scored, and provides immediate results that a user may email to themselves or others. Using a Likert-type format, the RDCA results are provided in a self-report designed to be used diagnostically to identify one's creative strengths on each of the 11 creativity factors rather than emphasizing prediction of creativity. The RDCA provides the assessment taker with an instant overall creativity score, as well as scores to identify specific creativity factors in which the taker may already be strong, factors they may be personally satisfied with, and factors the taker may wish to strengthen through selected creativity exercises.

Next step in RDCA Development: Creativity Attitudes and Personality Traits

Table 1 is a heuristic for looking at creativity related attitudes and personality traits that complement the original 11 RDCA characteristics.

Trait	Strongly Agree	Moderately Agree	Mildly Agree	Mildly Disagree	Moderately Disagree	Strongly Disagree
1. I am aware of my creativeness.						
2. I see things in new ways.						
3. I do not fear being different.						
3a. I am self-centred						
4. I am not afraid to try something new.						
5. I am enthusiastic.						
5a. I am impatient.						
6. I like to hear other's ideas.						
7. I am playful.						
8. I am attracted to complexity.						
8a. I can be argumentative.						
9. I engage in fantasy.						
10. I have aesthetic interests.						
11. I am open-minded.						
11a. I can be arrogant.						
12. I need alone time.						
13. I have a heightened sensitivity to details and patterns.						
14. I can express my feelings.						
14a. I am predisposed to perceive things in familiar ways.						
15. I am ethical.						

Table 1. Creativity and Attitude Traits

There are negative traits inserted and these are marked as the *a's.* The new items are categorized by creativity factor in Table 2.

Creativity Factor	**Item**
Originality	**1, 14a**
Flexibilty	**2**
Risk Taking	**3, 4, 8a**
Intrinsic Motivation	**5**
Resistance to Premature Closure	**6, 11, 5a**
Tolerance of Ambiguity	**8**
Sense of humor	**7**
Capacity for fantasy	**9**
Artistic (aesthetic interests; sensitivity to beauty)	**10**
Needs alone time (internally preoccupied; prefers to work alone; introspective; reflective)	**12**
Intuitive (perceptive; sees relationships, implications; good at problem finding; observant; heighten sensitivity to details and patterns)	**13**
Emotional (can express feelings, emotions; sensitive; moody; has emotional highs and lows; needs attention, praise, support)	**14**
Ethical (altruistic; idealistic; empathic)	**15**
Egotistical (intolerant, self-centered, snobbish)	**11a**

Table 2: Items By Category

Challenges in Self-report Assessments

Self-report studies have many advantages, but they also suffer from specific disadvantages due to the way that subjects generally behave. Self-reported answers may be exaggerated; respondents may be too embarrassed to reveal private details; various biases may affect the results, like social desirability

bias. Social desirability bias is a term that describes the tendency of respondents to answer questions in a manner that will be viewed favorably by others. It can take the form of over-reporting "good behavior" or under-reporting "bad", or undesirable behavior. Subjects may also forget pertinent details. Self-report studies are inherently biased by the person's feelings at the time they filled out the questionnaire. If a person feels bad at the time they fill out the assessment, their answers will be more negative. If the person feels good at the time, then the answers will be more positive[1].

One of the most common rating scales is the Likert-type s*cale*. A statement is used and the participant decides how strongly they agree or disagree with the statements. One strength of Likert scales is that they can give an idea about how strongly a participant feels about something. As with any questionnaire, participants may provide the answers that they feel they should. The RDCA is a Likert-type scale.

The two main statistics that determine the veracity of a measurement's results are reliability and validity. An assessment is said to be reliable or consistent if it produces similar results if used again in similar circumstances. It is suggested that reliability of self-report measures can be assessed using the split half method. This involves splitting a test into two and having the same participant doing both halves of the test. If the two halves of the test provide similar results this would suggest that the test has internal reliability.

Validity refers to whether a study measures or examines what it claims to measure or examine. Questionnaires are said to often lack validity for a number of reasons. Participants may lie; give answers that are desired and so on. It is argued that qualitative data is more valid than quantitative data. A way of assessing the validity of self-report measures is to compare the results of the self-report with another self-report on the same topic, referred to *as concurrent validity* . The RDCA is continuing to undergo concurrent validity assessments with TTCT comparisons. Silvia, Wigert, Reiter-Palmon, and Kaufman (2012) reviewed recent developments in the assessment of creativity using self-report scales. They concluded that "based on the latest generation of tools, self-report creativity assessment is probably much better than creativity researchers think it is."

Author's Brief Bio

Fredricka K. Reisman, PhD is professor and founding Director of Drexel's School of Education, oversees the online Master's in Creativity and Innovation degree and certificates in the School of Education, as well as the forthcoming online EdD concentration in Creativity and Innovation. Additionally, she served as Assistant Provost for Assessment and Evaluation, Interim Associate Dean for Research of the Goodwin College, and is Director of the Drexel/Torrance Center for Creativity and Innovation. Dr. Reisman received

her PhD in Mathematics Education from Syracuse University. Prior to coming to Philadelphia, Dr. Reisman served as Professor and Chair of the Division of Elementary Education at the University of Georgia and as an elementary, middle school, high school mathematics teacher in New York State, and mathematics education instructor at Syracuse University. She is the author of several books with subjects that include, diagnostic teaching, teaching mathematics to children with special needs, elementary education pedagogy, mathematics pedagogy, and application of creativity and innovation to corporate situations. She also has co-authored a trilogy of books on teaching mathematics creatively with world-renowned creativity scholar and researcher, E. Paul Torrance with whom she enjoyed a collaborative relationship for 34 years, commencing with her academic appointment at the University of Georgia and continuing until his death in 2003.

Dr. Reisman has recently published in the Handbook of Talent Management, in a text for bioscientists, and the Journal of Pharmaceutical Sciences. In addition, she has developed the Reisman Diagnostic Creativity Assessment (RDCA), which is a self-report assessment of research-based traits of creative strengths and is currently a free Apple app for the iPhone, iPad, and iTouch. Her forthcoming book with Dr. David Tanner is Creativity and Innovation: Bridging Education and Industry. Dr. Reisman was awarded the 2002 Champion of Creativity Award by the American Creativity Association (ACA), was appointed to the ACA national Board and served as ACA Treasurer. She currently is completing her Fourth year as ACA President.
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CHAPTER TWO

THE MICROFOUNDATIONS OF CREATIVITY: AN ECONOMICS PERSPECTIVE

ERIK E. GUZIK & KATHY GOFF

Abstract

The study of creativity in economics has often been limited to macro questions involving such concepts as long term industrial growth, national innovation systems, and the 'creative class.' While not explicitly acknowledged, however, many microeconomic principles hold a direct connection to the study—and at times very unique understanding—of human creativity. The principle of diminishing marginal utility, for example, a centerpiece of modern consumer theory, suggests that the value placed on new, original goods and services (and decreasing satisfaction with the trite and ordinary) springs from innate consumer preference as much as producer ability (in other words, the act of creativity is likely driven by both demand and supply considerations). Hence, though the concept of creativity has been dominated by interpretations drawn from the field of psychology, we argue that economics too has something useful and interesting to offer to a more complete understanding of individual creativity. Among other implications, the teaching of microeconomics in terms of its many connections to creativity may provide one potential means to further augment its study and understanding in new and original ways within business curricula.

The Microfoundations of Creativity

While the study of creativity has taken root and flourished in psychology in recent decades, it remains a topic relatively untouched in the field of economics. Though there are likely a number of reasons for this seeming disinterest, at least one factor seems worthy of mention here: economics has heretofore lacked the call for research into creative studies offered by J. P. Guilford decades ago. Indeed, since Guilford's historic request in 1950, the domain of psychology has dominated contributions to modern understandings of creativity. The result is striking: while volumes of psychological research have since appeared on topics ranging from individual creative behavior to the particular environmental conditions conducive to creative output, most micro-

economics textbooks today do not even include an index entry for the term creativity.

The discussion of firm innovation within microeconomics, for example, is usually relegated to the back of most micro texts under the topic of imperfect competition, and makes scant reference to individual creativity as a productive force. Indeed, the direct study of creativity in economics, when it occurs at all, has often been limited to macroeconomic questions involving big-picture interests such as long term industrial growth, national innovation systems, and the creative class—all very important factors, no doubt, but all factors that fall neatly into Rhodes's structural notion of 'press' (1961). In short, the field of economics, we believe, currently lacks an understanding of what we term the *microfoundations of creativity*, that is, understandings of creativity that connect to the central building blocks of modern microeconomics—specifically, the individual agents of production (the firm) and consumption (the consumer).

Interestingly, a number of theorists in the field of psychology have attempted to fill the theoretical void left by economics in contemporary creative studies, introducing ideas and analogies from the material world to better understand such key topics as incentives and the value of novel output. For instance, Sternberg and Lubart (1995) suggest in their Investment Theory that creative thinkers behave like investors--they 'buy low and sell high,' investing resources (time, labor, etc.) in new and unique ideas until such ideas achieve social acceptance. Likewise, Amabile (1983) suggests that incentives are often an effective condition of individual creative output, but are intrinsic, going beyond simple material (or, one might even say, economic) reward, a belief today popularized by Daniel Pink (2009) and others.

Indeed, the dominant definition today offered by psychology to understand what creativity *is*—an ability to generate novel output that has value (Sarkar & Chakrabarti, 2011)—includes as its underlying basis, two concepts (novel output and value) that are central to the science of modern microeconomics. If nothing else, then, current studies and conceptualizations of creativity strongly suggest a role for microeconomics as a potential theoretical tool for: (1) developing a more comprehensive understanding of creativity at the level of the individual creator; and (2) better understanding the vital role played by individual consumer in securing creative activity and value. In short, we believe there is hope yet for the dismal science—and, to boot, a chance to push the study of creativity in new and interesting directions given a liberal application of modern economics.

Our purpose with this chapter, then, is to provide an initial foray into the field of creativity using the tools of modern microeconomics, and in so doing, suggest a new call for creativity research in economics similar to that put forth by Guilford in psychology decades ago. Fortunately, we believe the path ahead may not be so daunting for those intrepid souls in economics willing to forge forward into the dark, foreboding forests of creativity.

For starters, it is interesting to note that a number of central figures in the

history of microeconomic thought, from Adam Smith and Alfredo Pareto to Thorstein Veblen and Ayn Rand, held great interest in the creative act, viewing creativity as a constituent element of economic activity and development. And while not often explicitly acknowledged, many central principles in microeconomics, we argue, hold a direct connection to the study--and at times very unique understanding--of human creativity. Among other implications, we believe the teaching of microeconomics in terms of its many connections to creativity may provide a powerful way to further augment its study and understanding within both general studies and business curricula.

We are also careful to note that an adequate contribution from economics to new understandings of creativity will likely depend on input from multiple sources and perspectives, including schools of behavioral, experimental, institutionist, libertarian, marxian, and evolutionary economic thought. Nevertheless, we couch the following discussion primarily within the structure and language of neoclassical economics, as it remains the most widespread theory of the microeconomy taught today at undergraduate and graduate levels.

The Basic Creativity Equation: Creativity = Novel Output + Value

One of the dominant definitions of creativity today emerging from the field of psychology is the ability to generate novel output that has value (e.g., Sternberg, 1999). Included in this definition are two concepts, output and value, that are central to the science of modern microeconomics. While the act of production (creation) by the individual producer and resultant output provides a somewhat obvious connection to an understanding of creativity, we believe the notion of value developed within microeconomics also holds great promise to shed new light on creative activity, especially as it relates to the act of consumption. We therefore focus our attention, in turn, on each of these underlying concepts of creativity—novel output and value. In our analysis, we also make note of the central roles played by incentives and market competition in shaping creative action and output on the part of individual agents.

The Microeconomics of Novel Output

One of the main conclusions of modern microeconomics is that all producers, even if driven by their own inherent interests, must respond to the needs of consumers within the marketplace, a notion often referred to as consumer sovereignty. While consumer sovereignty might seem to lend itself to novel outcomes of invention and innovation (consider such common idioms as "necessity is the mother of invention"), the opposite is actually true within most microeconomic models of perfect (or pure) competition. In microeco-

nomics, a market is defined to be perfectly competitive if, among other conditions, it is marked by numerous producers, each of which creates the exact same type of (homogeneous) output. As the requirement of homogenous output surprises many people, its inclusion as a condition of perfect competition demands a bit of explanation.

Within neoclassical models of perfect competition, numerous firms compete with one another, each attempting to respond to consumer need. As each of these firms within a particular market produces an identical form of output, the optimal end result for consumers is the lowest possible output price (since, given a standardized product, no one producer is able to charge consumers more than the equilibrium price set by the overall market supply). If firms were to innovate in the form of product differentiation or variation, such innovation would provide them with a temporary (and unfortunate, from this perspective) monopoly position in the marketplace, hence raising price above its perfectly competitive equilibrium, much to the detriment of consumers. In essence, according to models of pure competition, the trade-off for the consumer benefit of optimal price within competitive markets is limited variation (that is, standardized, non-differentiated output). In still other words, pure competition and resultant price optimality are driven by firm imitation, not product innovation.

We note, then, the impact of perfect competition on the production of novel output—according to microeconomics, the two are mutually exclusive. Perfectly competitive markets may be good at some things, like ensuring that price just covers average costs within an industry, but they are seemingly very poor at others—like securing novel forms of output. This conclusion is striking—economics has celebrated perfect competition for hundreds of years as the optimal market for satisfying consumer need. Yet the very market structure that guarantees optimal price outcomes is seemingly incapable of promoting creative outcomes and the production of novel output—and may in fact stifle creativity, if we are to believe current microeconomic models.

How then *might* original and novel output appear within markets? For appear it most certainly *has*, indeed throughout the history of the development and evolution of market economies. To answer this question, modern microeconomics relies on the notion of imperfect markets, including monopoly (a market composed of one producer), oligopoly (a market composed of a few producers), and monopolistic competition (a market composed of a unique combination of elements defining both monopoly and pure competition).

Though each of these imperfect market structures influences the production of novel output, for our purposes, we focus now solely on monopolistic competition—a market structure defined by numerous firms, each of which competes based on *differentiated* products. Unlike perfect competition, producers within monopolistic competition realize competitive advantage based on new, different, and original output. Such differentiated output allows the

innovating producer to realize temporary monopoly prices (hence economic profit), as no competitors yet exist within the market to push price down to average production cost. Though price is no longer economically efficient within this market structure (as price remains above average costs given imperfect competition), consumers seemingly benefit from a more diverse and differentiated set of goods and services.

With this insight, we now introduce an example of how microeconomics can contribute immediately to new understandings of value based on the novelty of output and a more nuanced means to illustrate consumer benefit. Within monopolistic competition, the higher output price paid by consumers is offset by the greater utility of differentiated products (we will speak more about this economic benefit below in our further discussion of value). In other words, consumers willingly pay for the novelty generated within monopolistic competition.

The value placed on this novelty by consumers may be found by analyzing the price differential established between two otherwise identical product markets, one defined by perfect competition and one by monopolistic competition. That is, the higher market prices found within monopolistic competition are indicative not of economic inefficiency, but rather the price premium consumers are willing to pay for novel output. Given this logic, monopolistic competition need not lead to any loss in consumer benefit even given higher relative prices, which we might in fact expect in the case of perfect competition.

Current models of imperfect competition also reveal something important about how microeconomics views incentives and creative behavior. What drives firms to innovate within market structures defined by monopolistic competition? According to microeconomics, the answer is the firm's desire for economic profit and competitive market advantage. That is, individual firms are motivated to create novel and unique products based on the desire for monetary gain. Further, according to this model of production, the social act of competition spurs monopolistic competitors to innovate, illustrating the positive impact of market competition on creative behavior.

One might consider this result to be hardly surprising. The basis of modern neoclassical economics is *homo economicus,* that is, the human individual defined (and driven) by self-interest qua economic gain. The desire and search for wealth, according to this view, is not only the engine of economic activity within markets defined by monopolistic competition, it also helps drive the generation of novel output and creative action on the part of the individual firm (and would be referred to as extrinsic motivation in psychology, in contradiction to the intrinsic motivation discussed by Amabile and Pink).

Indeed, this is exactly the argument developed by Joseph Schumpeter with his notion of *creative destruction*. As is well known in the fields of business and economics, Schumpeter argues that firms are driven to innovate based on the modern realities of achieving revenue. In other words, profit-

ability today requires that firms ceaselessly innovate, lest they cease to exist as innovators (and firms). According to this view, long-run economic profit is the main motivator of original and unique output, and is itself secured by the competitive environmental structure within which the firm operates. Creativity in this view has a dual nature, driven by both the desire of the firm for individual gain and the competitive structural environment within which the firm is forced to operate.

This notion of creativity also appears in very recent understandings of innovation such as that found in Clayton Christensen's (1997) concept of the *innovator's dilemma*. Christensen argues that innovative firms, once they achieve market dominance, often become passive, and increasingly wary of innovation, as they view the continuing pursuit of differentiation as potentially threatening to their current market standing. Christensen argues that such market-leading firms often believe they are doing well enough—so why rock the boat with risky actions like additional product novelty that might only serve to undermine their current position at thetop of the market? Yet that very decision to shun further differentiation paradoxically leaves the door open for nascent (and willing) innovators to disrupt the market and steal market share from below.

Yet, we must note again that, according to existing microeconomic models, producer self-interest (profit seeking) is just as likely to generate a market structure of perfect competition (or, for that matter, monopoly) as monopolistic competition. Further, we must explain why imperfect competition seems to promote the creative behavior of the firm, whereas perfect competition does not (we also see how the descriptors of 'perfect' and 'imperfect' may themselves require a bit of tinkering, for if 'imperfect' competition better promotes creativity, it may not be so bad after all…). In short, why are some markets defined by product differentiation and innovation while others are not?

We believe this is a question that requires much more research within microeconomics, including study into the often overlooked role of the consumer in securing creative activity on the part of the firm, about which we will soon comment. In terms of the individual firm and supply considerations, however, we propose that an initial answer to this riddle may rest on how microeconomics now defines self-interest and its connection to monetary gain. We believe that in markets defined by monopolistic competition the drive for monetary gain may be as much a *consequence* of the creative drive as an underlying *cause*. An individual creator's desire to satisfy consumer need requires scarce economic resources.

We surmise then that the human drive and need to be creative—and to creatively satisfy human need—is likely an underlying condition of the accumulation and transformation of resources within market structures like monopolistic competition, not vice-versa. Make no mistake--the motivation here remains extrinsic, as the economic creator is driven to satisfy external consumer need (consider the professional musician or the open-source software

programmer), yet this external drive stems not from the desire for expanded monetary value, but rather the expansion of consumer satisfaction. We tend to think Adam Smith would agree.

This view of human nature qua "need to create" is captured by apt phrase *homo faber* ("man the creator") and has been touched on by Thorstein Veblen and Ayn Rand within the institutionalist and libertarian schools of economic thought. Marx (1976, 284) as well offers a tantalizing understanding of this notion of individual creativity when he famously comments on the modus operandi of productive activity: "A spider conducts operations that resemble those of a weaver, and a bee puts to shame many an architect in the construction of her cells. But what distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality." Also on this unique human drive, Henri Bergson made note in Creative Evolution (1911) of the inherent human ability to "create artificial objects... and to indefinitely variate its makings."

This reconceptualization of self-interest also helps explain an interesting fact in highly innovative industries, especially within the startup world, concerning entrepreneurial drive and motivation. According to most innovative entrepreneurs, their motivation is not about financial gain. It's rather about making "a dent in the universe," as Steve Jobs put the matter (talk about extrinsic motivation!), and who later added, "I never did it for the money" (Beahm, 2011). Bell, Edison, Tesla, and countless other of history's greatest entrepreneurs would almost certainly say the same. At least in the case of monopolistic competition, monetary gain is very likely an approximating measure of the creation and realization of social value, the latter of which is the true driver of the creator.

This unique understanding of human nature requires much greater theorization and development in microeconomics, as it remains a central, unifying theoretical concept within the discipline, a necessary consideration for understanding the conditions necessary for the promotion of economic development, and remains an important concern in modern understandings of creativity. Indeed, a more complete understanding of the microfoundations of creativity likely involves breaking down the black box of the profit-maximizing firm and exploring the actual individuals, *homo fabers* one and all, creating therein.

It also likely requires a reconceptualization of capitalism and market-based economic systems—rather than viewing capitalism as a collection of self-interested individuals bent on monetary gain, we believe it is much more accurate to view capitalism, at least those segments marked by monopolistic competition, as an economic system defined by a collection of individuals driven by the creation of new and novel material solutions in response to society's unmet consumer needs.

The Microeconomics of Value

The concept of value holds a long and somewhat tortured history in economics. Following the breakdown of the medieval period and rise of capitalism, early economists (today often referred to as bullionists) often attributed value, worth, and overall wealth to precious metals and minerals (e.g., gold, silver, diamonds, etc.). An important critique of this early view was levied by the classical school, led by Adam Smith and David Hume (as well as many others). Smith's diamond-water paradox (or paradox of value) is illuminating in how it recalibrates questions dealing with value and wealth during this time. Smith noted that many items of small monetary value held great worth in terms of their usefulness (water and air, for example).

Items of great monetary value often held very little worth in terms of actual usefulness (a diamond ring worn simply for display, for example). With this discussion, Smith introduced into economics (or rather re-introduced, given Aristotle's original discussion of the topic thousands of years earlier) a distinction between exchange-value (what a good or service is worth relative to other items during the process of exchange) and use-value (what a good is worth in terms of its usefulness in satisfying some human need).

Smith resolved the value paradox, at least in his view, by suggesting that value and wealth are determined not by precious metals *per se*, but in large measure by the human effort and resources required for their creation. The greater the effort any form of output requires, the greater its cost, and therefore its social value (since scarce resources, including human ability, were expended in its creation). Moreover, Smith argued, human effort, in order to create value and wealth, must be directed toward satisfying some human desire or need. In other words, the product of human labor, to be of some quantifiable value, must be useful to some consumer somewhere. And herein, Smith explained, doth lie the true explanation of value and its measure—value in economics acts as an indicator of the usefulness of products created by human effort, reflecting the requisite use and transformation of scarce resources, nothing more, nothing less.

This notion is worth exploring in greater detail, as psychology has placed a great amount thought on (and realized important insights about) the concept of value (see especially Vartanian et al., 2013)--a concept that many economists might view as one rightfully belonging to their realm of study. As psychology began to ponder the notion of value in relation to creativity, Thurstone (1952) argued that society's decision about whether or not an idea or product is novel really makes very little difference in the matter. Rather, an act is creative, and therefore of value, if the *original creator* believes in its originality (that is, the end work is novel in the creator's eyes). Stein (1953), in stark contrast, suggested that creativity and resultant value required that the creator's work be accepted as "useful or satisfying by a group in time." Contemporary theorists in psychology tend toward the latter be-

lief. Sarkar and Chakrabarti (2011), for instance, argue that "to assess the creativity of designers or creativeness of newly designed products, one must be able to assess the novelty and usefulness of these products, where usefulness represents the value of products."

From the perspective of microeconomics, value arises in society for two reasons: (1) a desired product or service requires scarce resources for its creation (including human effort or labor); (2) a desired product or service satisfies an unmet need, providing utility to the consumer. We can refer to the former factor as supply and the latter as demand; together, these forces forge value based on the balance of product cost and consumer utility. Indeed, from the perspective of neoclassical economics, market price is little more than a measure of value, hence utility, as it acts as a proxy for the consumer's willingness to pay for a good or service (and, one might add, the willingness of the creator to produce it).

Yet our story of value in microeconomics is still not complete. In the late 1800s, the marginalist school of economics dramatically expanded on this idea of utility and value. The marginalists argued that as an individual consumes more of any good, the additional satisfaction or utility realized from each added unit of consumption *falls*. In more common language, as a product becomes more common, it loses its value in the eyes of consumers—they grow tired and sick of it, valuing it less and less, as more units are consumed.

This basic understanding of consumer utility, today referred to as the principle of diminishing marginal utility (DMU), is a centerpiece of modern consumer theory. DMU suggests that the value placed on new, original goods and services (and decreasing satisfaction with the trite and ordinary) springs from innate consumer preference, and seems to describe how consumers value all varieties of products, from musical creations to clothing styles. Consumers seem to naturally place greater value on (that is, they show greater preference for) the unique, the original, and the rare creation. From this perspective, the act of creativity is likely secured by important demand considerations that have been so far neglected in contemporary studies of creativity.

The consumer's contribution to determining value based on originality is further demonstrated by the concept of elasticity in microeconomics. A good or service is considered elastic if, given a change in price, the quantity demanded by consumers changes *more* in percentage terms than the initial price change. In other words, consumers are generally not willing to pay the higher price in the case of elastic demand, responding to the price increase by decreasing their consumption in relatively greater terms, causing a fall in overall revenue for the firm.

In the case of inelastic goods, however, an increase in price does not have the same effect on consumers. The overall quantity demanded still falls given an increase in price, yes, but the change in demand in percentage terms is *less* than the initial change in price. That is, in the case of inelastic goods or services, an increase in price is followed a proportionally *lower* fall in quantity

demanded, as consumer drop-off is not so great. Total revenue for the producer therefore rises for the firm fortunate enough to produce goods marked by inelastic demand.

What then determines a product's elasticity? Primarily, it is the existence of similar or substitute goods (or lack thereof), that is, goods that consumers are willing to purchase in place of the product or service whose price has risen. In other words, price elasticity of demand is determined in large part by a product's uniqueness, which helps explain the price premium (and resultant revenue) that innovators receive for their novel output. In short, innovators are able to realize higher prices compared to non-innovators given that consumers are willing to pay relatively more for the innovator's unique output.

In conjunction with monopolistic competition, as discussed earlier, we can understand why innovative firms not only introduce novel products, but also why advertising tries to convince the consumer that such products are indeed "new and improved." Not only do originators and iconoclasts create products for which there are few substitutes, they tap into our innate desire for difference, variation, and divergent output.

The implications of this principle for human creativity are interesting to consider. Without the demand for the new, the novel, and the unique on the part of consumers, producers would have no market for their novel creations. Such a conclusion suggests that *consumer demand* is as much a driver (and underlying condition) of creativity as *firm supply*, and deserves an equal allotment of future research in microeconomics as the study of producer abilities, motivations, and behaviors.

This view of individual consumption as a possible microfoundation of creativity is also interesting as it is likely at odds with a number of current understandings of novelty and originality in psychology. To see why, we might describe this consumer-based explanation of creativity as a "demand-side" understanding in contrast to existing "supply-side" understandings. That is, whereas supply-side understandings of creativity often reduce the creative act to Rhodes's four Ps--the creative personality, the creative process, the creative product, and the creative press (environmental factors affecting the individual creator)—a demand-side understanding of creativity allow for no such reduction.

Further, within many such supply-side understandings, such as the Investment Theory of creativity introduced by Sternberg and Lubart (1995), new ideas are often conceptualized as a threat to the status quo, therefore very often squashed by those who do not trust the perceived novelty or potential value. A consumer-centric or demand-side notion of novelty and originality, however, does not suggest such a threat—indeed, quite the opposite, according to microeconomic consumer theory. Consumers not only value and search for the new, the novel, and the unique—they place greater relative value on goods and services as the relative rarity and originality increases.

From whence this desire for the new and novel springs is another impor-

tant area for future research involving economics. It likely involves the development of evolutionary advantage—in this case, an advantage for seeking out difference. Our ancient ancestors likely benefited from different food sources, different forms of shelter, and different living locations. Our desire for the new and unique has likely secured our existence a number of diverse ways in our ongoing dance with evolutionary change and our fickle environment. It also likely helps explain many forms of humor, such as the pleasure we receive when recognizing new incongruities relative to common experience and expectations (see, for instance, Koestler, 1964).

Further, the inherent consumer desire for the novel and unique may today be a reaction (perhaps ironically so) by the consumer to overchoice, a new area of study in both economics and psychology (Schwartz, 2004). Faced with a growing sea of choices, according to overchoice theory, the consumer is often unable to make any choice at all. Creativity and resultant product differentiation, we believe, provides the overwhelmed buyer with a novel solution—the new and unique (the uncommon) becomes increasingly demanded by consumers as a reaction against too many common options.

Finally, this demand-side view creativity may suggest a new way to think of self-interest in microeconomics. We have long believed in microeconomics in the notion of non-satiation, the idea that consumers can never be satisfied, holding limitless wants. The idea of non-satiation may in fact be true, but it seems we suffer not so much from a desire for more per se, but rather a desire for greater difference and variation as part and parcel of the act of consumption. In fact, it is likely more accurate to consider self-interest as a limitless desire for the new and unique, for variation and diversity in the consumption of new products and services. This notion of consumer self-interest also seems to explain actual innovation in practice, including consumer support for such leading firms as Apple, Google, and other innovators. The aforementioned notion of consumer sovereignty therefore likely includes a type of power overlooked within microeconomics—the ability to allow creativity to flourish in those regions, cultures, and historical epochs in which consumer demand is sufficient to secure (and appreciate) the appearance of creative output.

Concluding Remarks

In 1950, J.P. Guilford described the state of creativity study in psychology in somewhat blunt terms, noting "the neglect of this subject by psychologists is appalling." We might say the same about the state of the art in economics today. Though the concept of creativity has been dominated by interpretations drawn from the field of psychology since Guilford's classic rebuke, we believe that economics too has something useful and interesting to offer to a more complete understanding of individual creativity. We believe the current

dearth of microeconomics research into creativity limits not only the field of economics, but current understandings of creativity as well. And if our conclusions about the microfoundations of creativity are sound, including the complex motivations of the individual creator, the possibility exists that this dismal science may yet prove a bit more optimistic in its understanding of human nature, ability, and future progress.

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CHAPTER THREE

"PREPARING STUDENTS TO BECOME PRO-ACTIVE CREATIVE MANAGERS" BUSINESS EDUCATION AS A FOUNDATION FOR THE NEEDS OF 21ST CENTURY BUSINESS

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"Creativity is simultaneously the most important and least understood aspect of contemporary business. It can be the lifeblood of some companies – what they become known for; for others it remains a mystery that has to be out-sourced. Understanding harnessing and investing in creativity are likely to become central to any and all businesses as we move through the 21st century. As consumers become more sophisticated, competition more aggressive and regulation more intrusive, the need to find creative solutions and creative means to serving and interacting with customers is likely to become acute. Creativity therefore must no longer be the sole preserve of the professional creative. It must pervade every division, department and employee" (Snook as quoted in Harris, 2009).

We are no longer living in the manufacturing age—the age where all a company needed to succeed was the method to bring a product to market faster, cheaper and hopefully of good quality. Efficiency in production and delivery is still important, of course, but even the Japanese are beginning to understand that the ability to bring creativity—"right brain thinking" - to a solution or strategy will be increasingly important in the digital age, the 21st century.

In spite of the importance of creativity in achieving and maintaining competitive edge in the modern world, very few MBA programs—as the prime grooming vehicles for upper management—have any kind of concentration

(or even a course) that would enable students to become better at this highly prized skill. A quick look at the faculty in most MBA programs allows us to understand why this is.

Most faculty are recruited for the obvious disciplines: accounting, finance, economics, marketing, only one of which prizes creativity as a bedrock of the discipline - marketing. Very few faculty have creativity training in their backgrounds, never mind BFAs. In fact there are universities—sometimes referred to colloquially as "quant jock schools" —where the overwhelming majority of classes are geared towards quantifying problems through spreadsheets and graphs. Creativity can be taught though, and considering the demands of twenty first century business, it is a necessary discipline to teach. My course "Creativity and Innovative Thinking" I believe is a good first step.

In approaching course development, it is important to define what exactly we should be teaching. This is obviously not a topic that we normally discuss when creating courses in accounting or finance, but creativity is more amorphous and so starting with a definition makes sense.

What is Creativity?

The best single statement I have found that defines what creativity means to business is the following:

> "Corporate Creativity is characterized by the ability to perceive the world in new ways, to find hidden patterns, to make connections between seemingly unrelated phenomena, and to generate solutions. Generating fresh solutions to problems, and the ability to create new products, processes or services for a changing market, are part of the intellectual capital that give a company its competitive edge" (Naiman, 2011).

And then there is this definition, from no less than Steve Jobs:

> "Creativity is just connecting things. When you ask creative people how they did something, they feel a little guilty because they didn't really do it, they just saw something. It seemed obvious to them after a while. That's because they were able to connect experiences they've had and synthesize new things." (Jobs, 1995)

Most other definitions, such as May's in *The Courage to Create* (as cited in Naiman, 2014) focus on "the process of bringing something new into being"

and "passion and commitment". Sir Ken Robinson defines creativity as "the process of having original ideas that have value", and – importantly -stresses "the interaction of different disciplinary ways of seeing things" (Robinson, 2006).

Mednick (as cited in Titus, 2007) believes that the ability to make "new combinations of associative elements" is a crucial aspect of creativity but that "an individual's ability to formulate these creative associations was dependent on (a) the individual's associative hierarchy or prior knowledge, (b) his/her ability to make associations or form new relationships and (c) serendipity or chance—chance occurrences or accidental happenings".

These three elements are commonly found in definitions of creativity, but it is important to focus on the supposed outcome: making new combinations of things, which were possibly not commonly linked before.

Titus (2007) has developed a model to explain the creative process, called the "Creative Marketing Breakthrough Model". The model consists of four factors:

-Motivation
-Serendipity
-Cognitive flexibility
-Disciplinary knowledge

Motivation is defined by Titus as the desire to work hard on the solution, what Thomas Edison referred to as "stick-to-it-iveness". Thomke (as cited in Titus, 2007) notes that Edison famously stated genius was "99% perspiration 1% inspiration", and that after having failed numerous times to develop a light bulb, he hadn't failed, he had merely found 10,000 solutions that wouldn't work. (Rosanoff, 1932) One quote that resonates with students is also from Thomas A. Edison, and echoes the theme of a strong work ethic concerning innovation: "Many of life's failures are people who did not realize how close they were to success when they gave up." (Thomas, n.d.)

As Titus examines the role of motivation though he stresses that Intrinsic task motivation - an internal desire to create, rather than fulfilling a work demand—is more effective. In other words the more driven a person is to find that creative solution the more likely s/he is to find it.

Mednick (as cited in Titus, 2007) also pointed out, serendipity—accident or chance- has a role in the creative process. Fleming and penicillin; Spencer and microwaves both come to mind, as well as the creation of Viagra – originally developed for blood pressure (Titus, 2007). This is an aspect of creativity and creative solution finding that is most difficult to teach, or in fact

even approach. When teaching the 'harder' disciplines (the number-oriented courses for example), leaving wiggle room for chance is usually avoided – for good reason, yet creativity requires that the practitioner allow for serendipity. Cognitive flexibility refers to the ability to utilize a variety of methods to solve cognitive problems, including counter-intuitive approaches. For example, most restaurants pride themselves on greeting and interacting with their patrons in a gracious manner, but there are some successful eating establishments which insult or harass their patrons – and the patrons love it. Rather than cute, sweet "all-American" Barbie dolls, there are doll companies that have produced decidedly exotic and slightly erotic, heavily made-up dolls. Creative breakthroughs can come by reversing assumptions made in previous iterations of the product or service, which I cover in more detail in the section of this chapter devoted to the actual class.

Disciplinary knowledge refers to intimate knowledge of the field in which you are working which should yield "creative synthesis". Creative synthesis is vital to creativity, and refers to "combining or rearranging concepts and ideas in a way that results in the formation of new novel configurations". Presumably, a lack of knowledge of the field in question would limit the creative person's ability to develop a novel approach to a problem, or to even know what would constitute 'novel'. However it is also important to note that combining ideas takes center stage in Mednick's (as cited in Titus, 2007) analysis of creative solutions.

Finally, Amabile (as cited in Titus, 2007) refers to a "sociological model" - the combination of domain-related skills, creative relevant skills, and task motivation as major factors in personal creative performance. Note the resemblance to Titus' list.

Domain related skills refers to the individual's store of information/ knowledge about the problem at hand and previous solutions. The more the domain related skills, the better the probability of developing a creative approach to the problem at hand.

Creative-relevant skills refers to the individual's "cognitive style and ability to effectively apply creative problem solving heuristics" to the problem. In other words the ability to think in non-linear or non-quantitative ways; clearly to the extent that the individual can do this, the higher the likelihood of developing a creative solution.

Task-motivation refers to the individual's "baseline attitude toward the task and the individual's perceptions of his/her reasons for undertaking the task". The greater the personal motivation, the higher the likelihood of developing a creative solution.

While rarely mentioned in the literature, the willingness to break rules wherever found remains a large factor in the ability to develop creative solutions. As Edison put it:

"Hell, there are no rules here - we're trying to accomplish something." (Rosanoff, 1932). This is an essential aspect of creativity as uncertainty becomes part of the goal; in other words developing a novel solution demands entering territory that is essentially different from previous solutions, and therefore unknown. Rules dictate what has been done before, and so need to be examined and broken when needed, creating uncertainty.

Among the variety of definitions, and descriptions several crucial points emerge, all of which can be part of the teaching of creativity skills, assuming personal motivation, and good serendipity:

1) creativity should consist of seeing things in a different way, in other words training ourselves to observe the same input in a way, or ways, that differ from how we have been observing and analyzing them in the past;
2) creativity should consist of making connections among experiences or observed phenomena:
3) creativity should consist of finding hidden patterns in observed points or experiences, and building on those to develop a new version of products or services;
4) creativity depends to a certain degree on breaking previously accepted rules; as the Audi commercial puts it: "Challenge all givens". (Audi, 2015)

Creativity is important for future business leaders to understand

The following quotes will serve to put into perspective how important creativity is for future business leaders.

According to the European University Association (Creativity, 2007): "The complex questions of the future will not be solved 'by the book', but by creative, forward-looking individuals and groups who are not afraid to question established ideas and are able to cope with the insecurity and uncertainty that this entails."

According to the management professor and consultant Henry Mintzberg (as cited in Naiman, 2011): "The excessive focus on analysis, targets and number crunching, and

the absence of introspection and imagination has resulted in a crisis in management which is partly to blame for our current financial crisis."

In *A Whole New Mind,* Daniel Pink writes: "Left-brain linear, analytical computer-like thinking are being replaced by right-brain empathy, inventiveness and understanding as skills most needed by business. In other words, creativity gives you a competitive advantage by adding a value to your service or product, and differentiating your business from the competition. Without creativity, you are doomed to compete in commodity hell." (Pink, 2006)

IBM (as cited in Naiman, 2014) conducted a Global CEO Study in 2010 which surveyed 1,500 CEOs from 60 countries and 33 industries worldwide: *"More than rigor, management discipline, integrity or even vision—successfully navigating and increasingly complex world will require creativity." "The effects of rising complexity calls for CEOs and their teams to lead with bold creativity, connect with customers in imaginative ways and design their operations for speed and flexibility to position their organizations for 21st century success."*

Also note the following quotes concerning the role of creativity in business:

> "Recent discourse on the knowledge economy has shifted to 'stress the need for what might be called 'higher order' notions such as creativity or even wisdom" (Oakley as cited in Gibbs, 2008).
>
> "In a creative knowledge economy, therefore, creative ideas 'are the key asset in economic success—intellectual work creating intellectual value'" (Thompson, Jones & Warhurst as cited in Gibbs, 2008).

Creativity "is now the decisive source of competitive advantage" (Florida as cited in Gibbs, 2008).

> "…we now have an economy powered by human creativity…In virtually every industry, from automobile to fashion, food products, and information technology itself, the winners in the long run are those who can create and keep creating" (Florida as cited in Gibbs, 2008).

> "As the competitive landscape has changed, so too has management's response to those changes. Increased competitive pressures resulting from the rapid advances in technology, the con-

> tinued growth of the service sector, and the escalation of global competition have led to a shift in managerial strategy. Businesses have begun to shift away from the strategic, bottom line cost cutting focus of the 1990s to a renewed top-line focus on revenue growth via organizational innovation and creativity" (Coy as cited in Titus, 2007).
>
> "The creative workforce now includes those employed in a wide variety of industries beyond the 'creative industries', including computing, engineering, architecture, science, education, arts and multimedia…..less focused on routine problem solving and more focused on new social relationships , novel challenges and the synthesizing of 'big picture' scenarios" (McWilliam & Dawson, 2008).
>
> "Creativity is not, and should not be limited to any particular organization or job as everyone can utilize creativity in different situations" (Mumford as cited in Al-Beraidi & Rickards, 2006).

From the above examples it should be abundantly clear that creativity is an essential element of 21st century business—and should be treated as such in business education.

Creativity can be learned:

A major issue with teaching creativity is the concern that it can be taught at all. A troubling concept exists which would have the world divided into two groups of people: those naturally gifted with creativity and those not. However this concept ignores the following studies and observations, where the central focus is not how we teach creativity but how we undo the "teaching out of creativity" that is part of our educational system.

According to a study by George Land (as cited in Naiman, 2014), we are naturally creative as children, but we actually learn to be uncreative through our educational system. "Creativity is a skill that can be developed and a process that can be managed. You learn to be creative by experimenting, exploring, questioning assumptions, using imagination and synthesizing information. Learning to be creative is akin to learning a sport. It requires practice

to develop the right muscles, and a supportive environment in which to flourish" (Naiman, 2014).

Sir Ken Robinson has spent a major portion of his life studying and discussing the role of creativity in our lives and in the classroom, and he has come to a similar conclusion concerning our ability to become creative forces: "all kids have tremendous talents and we squander them, pretty ruthlessly" (Robinson, 2006).

"My contention is that creativity now is as important in education as literacy, and we should treat it with the same status.
What we do know is, if you're not prepared to be wrong, you'll never come up with anything original. And by the time they get to be adults, most kids have lost that capacity. They have become frightened of being wrong. And we run our companies like this, by the way, we stigmatize mistakes. And we're now running national education systems where mistakes are the worst thing you can make. And the result is, we are educating people out of their creative capacities. John Lennon once said, all children are born artists, until they are told they are not an artist. (Fawcett, 1980) The problem is to remain an artist as we grow up. I believe this passionately, that we don't grow into creativity, we grow out of it. Or rather we get educated out of it." (Robinson, 2006).

The concept of learning creativity (or unlearning uncreativity) is actually widely accepted, although assessment concerns remain, as explained below. In fact 92% of participants in UK National Teaching Fellows survey believe that developing and teaching creative skills is very possible (The Creativity Centre 2006 as cited in McWilliam & Dawson, 2008).

However, developing a serious body of knowledge and skills to impart to students can be tricky, especially as creativity is sometimes seen as the domain of only those who are 'gifted'. To address this issue, Kaufman and Sternberg (as cited in McWilliam & Dawson, 2008) divide the concept of creativity into "small c creativity" versus large C creativity: the difference between being able to apply creative methods to solving problems (small c) and being Mozart (a huge C). This directly addresses the myth that "creativity is only about individual genius and/or idiosyncrasy as it applies to the arts"; in fact creativity is an "economically valuable, team-based, observable and learnable" skill (Kaufman & Sternberg as cited in McWilliam & Dawson, 2008).

Creativity in the classroom

Although creativity instruction has been slow to diffuse into marketing classrooms and instructional texts, there are signs that it is being taken more seriously as a course of study in MBA programs (Titus, 2007). However there have been several problems linked to teaching creativity in the classroom, which are only slowly being resolved.

A major stumbling block has been assessment: Creative capability is the "most elusive" of "the attributes that university academics might want to claim for their graduates" (McWilliam & Dawson, 2008). "While it is one thing to be able to prove, through performance testing, that a student is more knowledgeable about accounting or physics or statistics, it is quite another to assert that a student has more creative capacity as a direct result of their program of study. It is even more of a stretch if the program or discipline seems generally unrelated to the creative arts" (McWilliam & Dawson, 2008).

A second issue has been—as Robinson pointed out in an earlier quote—failure is very much a part of the creative process, yet is stressed as something to be avoided at all costs in a business setting (Robinson, 2006). According to Titus (2007), "failure is an inescapable part of the creative experience".

McWilliam and Dawson speak directly to this inherent need to embrace failure for what it is - a stepping stone towards ultimate success. An important aspect of educating for creativity is "*Explaining less and welcoming error* - an environment in which 'command and control' instruction is sparingly used and it is anticipated that all members will make mistakes – the aim is to learn from the instructive complications of error rather than to avoid error or attempt to disguise it" (McWilliam & Dawson, 2008). The necessity of embracing error or failure is not something easily imparted to students who have had a lifetime of education stressing avoidance of error. The only assessment that students have ever known has forced them into a semi-defensive mode where the ultimate goal is to produce error-free reports, presentations and tests.

Titus stresses the importance of learning exercises in class designed to force the students to think more flexibly, and the importance of going to a wide variety of disciplines for ideas and relevant inputs.

In spite of the fact that creativity is deemed important in the business world, and that creativity skills can be taught in classrooms, the sad fact is that they rarely are. In *BusinessWeek's* list of top thirty full time MBA programs (Top, 2015), and according to each University's webpage, online

course catalog, and online curriculum listing, 16 out of thirty programs do not offer creativity/innovation electives. The remaining 14 programs offer at least one creativity/innovation elective. Only 5 of the 14 programs offer more than one elective course. None of the programs offer a course on creativity as a core – in other words a class that would be required to graduate. Many universities' marketing mentions the words "innovation" and "creativity", but a review of the syllabi reveal that the courses in question cover management of new products, or entrepreneurial courses—not courses on how to think "outside the box". According to their respective websites, Stanford, Harvard and USC are notable exceptions, offering courses that focus on understanding and developing the creative process.

As I move into a more detailed discussion of how my class is constituted and taught, the following quote from Perkins *The Mind's Best Work* (1981) becomes very relevant: learning to approach problems in a creative mode will depend on "skills like pattern recognition, creation of analogies and mental models, the ability to cross domains, exploration of alternatives, knowledge of schema for problem solving, fluency of thought and so on are all indicators of creativity as a set of learning dispositions or cognitive habits."

MBA 600 Creativity and Innovative Thinking

I have taught the graduate-level class as both a 7 week intensive course and a full 14 week course – 3 credits in both forms. In each case the class was composed of lectures, interaction between students and instructor, and student teamwork. I stress throughout the course that the students will have far less structure than they are used to – especially in the case of more 'numbers-oriented' classes like economics, finance or accounting. The class is far more interactive and far more student-driven than many students have ever encountered before, and as I explain later, this is a source of concern for many.

Taking in account the definitions and descriptions of creativity covered above, I concentrate on the following aspects and skills of creative problem solving:

The role of rule breaking;
The power of assumptions to derail a creative solution;
Various techniques for arriving at non-linear solutions:
- -listing attributes then changing them one at a time;
- -using animal associations;
- -using non-rational combinations;

-using opposite, or non-traditional approaches to a service, product;
-SCAMPER analysis
-Start from the solution and work backwards; rephrase the problem ("Formulation of the problem is often more essential than its solution" Einstein)
-Play with verbs/nouns: "How can I increase expenditures?"
-Improv!
-Theater productions: productions of The Magic Flute
-As many uses as possible

Blue Ocean Strategy: opera, ballet
Right brain/left brain approaches to advertising;
Innovation: disruptive versus sustaining
Finishing the course up with a discussion of Twyla Tharpe's book *The Creative Habit.*

Going over each of these in slightly more detail:

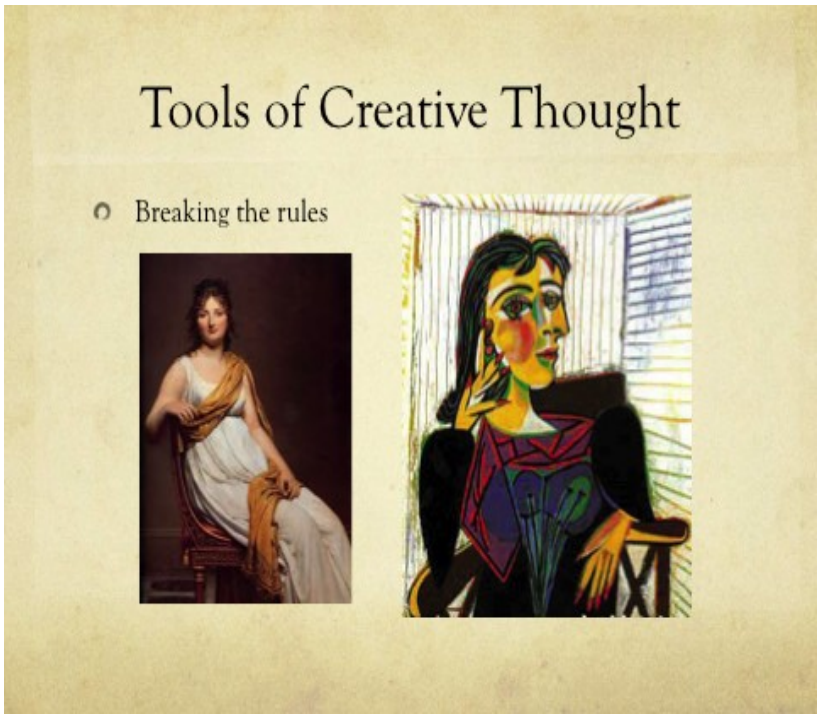
When discussing the concept of breaking rules I have found a very good series of examples in French art of the 19th century. As can be seen from the pictures below—works of Jacques-Louis David (1748-1825) and Picasso (1881-1973)—what was understood to be great art in the first decades of the 19th century was vastly different from that of the first decades of the 20th. What makes this a great series of examples is that students can quite clearly see which rules were broken and by whom. For example - as the David picture shows – early 19th century French art used Roman and Greek themes, or religious themes almost exclusively, and used classical perspective; however Courbet broke those rules and painted peasants. Having said that he painted in a very realistic and conservative manner—he would break the rule of content but not style. Manet went a bit further in breaking the "classical content" rule—he painted women who were clearly prostitutes—and used a slightly flat perspective, not the pure classicism of David.

Then came the Impressionists, and again, it is easy for the students to see which rule they decided to break: they were not concerned with recreating the visual world, they wanted to create a vision of how the world felt – their impression of it. They were also very concerned with modernity, breaking from the past of Greek and Roman themes.

The next example I use is van Gogh, and again, the students can clearly see that he decided to not only break the rule of content, but form as well, creating in many cases a world of his own, from within his head—a step that not

even the Impressionists took. His final painting—Field of Wheat with Crows—is a lens into the mind of a man at the end of his rope and about to commit suicide.

I then move on to Matisse, and the huge rule that he broke, above and beyond the rules that his contemporaries and predecessors broke. Not only did he throw away any pretence of realism, he painted pure color for the sake of color—blazingly red rooms for example. He also began sliding gently closer to abstract painting, although use of a figurative focus (in other words an identifiable form somewhere in the painting) was a rule that neither he nor Picasso would ever break. Finally of course, is Picasso. He broke the rule of realism, by deliberately painting horribly distorted figures; he broke the rule that painting needed to be done on canvas—he used a variety of materials to create his works; he broke the rule that only one perspective could be used on the figures—cubism, and many of his other styles- used multiple perspectives.



David, 1798-99; Picasso, 1937

That brings the class to the early part of the 20th century, however I go on and talk about the styles of painting that broke 'rules' that not even Picasso was willing to break—abstract expressionism, pop, conceptual, etc. The point to reaffirm with the students is that as businesspeople they will be called on to solve problems and develop strategies for their companies—which rules are they willing to break? What would Picasso tell you to do?

I have found it interesting and important to the students to understand how assumptions can undermine strategic plans, and impede creative solutions. The example that I use, in the form of an assignment, is to have them form into teams and develop a ten step series of actions which would result in my marrying Princess Stephanie of Monaco. The students have fun putting together the list of steps, but fail to understand that they are all working from a central assumption, that may or may not be flawed: they all assume Princess Stephanie and I don't know each other. Along with a firm understanding of the rules and which ones they are willing or able to break to get to their solution, students also need to understand what assumptions they are making and whether or not they are justified. The best answer I heard for the Princess Stephanie Problem was: "Get your wife to change her name to Princess Stephanie and you're done."

There are various techniques for arriving at some creative solutions for business problems: students can list all the attributes of a certain product (such as, a toaster is made of metal; bread is inserted vertically; heating coils are on either side of the bread; you lower the bread into the slot via a handle, etc) and then one-by-one change those attributes and see what happens (bread is put in horizontally, the heating coil rotates, etc) (Michalko, 2006).

Students can practice combining different elements (Mednick's 'associations') in several ways: I have them write the names of animals on scraps of paper, and then the name of a common product. The students then randomly pick one of each and do an analysis of how the attributes of the animal could be incorporated into the product or how the product could be marketed differently—based on the animal attributes. They can also use the animal to create a new version of the product.

Non–rational associations which is sometimes referred to as "fusing" would be combining concepts that should have no relations to each other, yet making that combination work. Autumn and yogurt for example (as Autumn leaves change color maybe yogurt labels could change color showing closeness to the "sell-by" date). (Sawyer, 2013)

Opposite combinations would be those similar to the restaurant example above—instead of treating customers with respect, treating them with con-

tempt. Instead of the chef cooking and the wait staff serving, maybe customer cooks and the staff eats?

SCAMPER analysis (Eberle, 1971) is a variation of the 'attribute' analysis listed above, except that for each attribute of a given product or service the student: **s**ubstitutes something else; **c**ombines with something else; **a**dapts the usage in some way; **m**odifies it in some way; **p**uts it to another use; **e**liminates it; **r**earranges/reverses that attribute. This should yield a long list of possible variations of the product or service that will be more creative versions of what already exists.

I go over an exercise with the students where I stress that sometimes just rephrasing the problem might yield better results. Instead of phrasing the problem in terms of "increasing productivity" for example, phrasing it in terms of "making employees' jobs easier" might work. Instead of trying to figure out how to increase sales, you might ask how to increase expenditures, or how to increase customers.

Improv experiences are a big part of the class as well, where I have one of our theater faculty work with the students to open up their abilities to communicate, lower social inhibitions and form teams. The *improv* allows the students to create freely, and get to know each other as teams shift and students work together without preconceived notions.

As part of the theater/business creativity connection I often show the students productions of the same opera (Mozart's "The Magic Flute" for example) by different theaters with the sound turned down and then up. Some productions place the action in a modern setting, some in a fantastical setting, some in an ancient period setting…The point is to impress on the students how different teams can take the same source material and observe it/recreate it in a variety of ways.

Observation by itself can be a powerful tool in creating something new. I have also showed them 'art' by Marcel Duchamp—a urinal for example—that has become art simply because Duchamp said it was. In other words, interpreting something in a completely different way. We use business examples to emphasize the point: rather than Widget A being used for *this*, could it not be also used for *that*…?

One of the other exercises we work on is having the students develop different uses for the same product: the best example is trying to figure out 60 uses for a chair. The first five or six will not be very creative at all, the last five will—chances are— be very creative.

Blue Ocean Strategy (Kim & Mauborgne, 2005) is a well known method, used by many companies to attempt to think creatively about developing a

new and unique product or service. The example of Cirque du Soleil is an effective one, as CdS created something that is not quite theater, not quite circus, but a unique form of entertainment that has created its own niche, or Blue Ocean. To practice this kind of planning I have students look at the world of ballet and the world of opera; tellingly none of the students in any of my classes have any knowledge of either of the two art forms/businesses. The object is for the students to use BOS to develop a new and unique form of entertainment that is not quite what is currently offered—a "Cirque du Soleil" type of solution.

In terms of having the students think creatively about the nature of the product or service that they might be working on I have them look at advertising—where the point of the product/service is most forcefully presented. The students look at advertising that is meant to appeal only to the left brain: this product is cheaper, more efficient, bigger, smaller, lasts longer etc. Something that can be easily quantified. We then look at commercials that are strictly right-brain: Axe and Chanel commercials are perfect examples. By suggesting that all a man need to do is put on Axe deodorant or body spray and gorgeous women will literally not be able to resist him (Axe, 2012), or that all a woman need do is put on Chanel #5 and she will have a glamorous life where she will be unforgettable to gorgeous men (Chanel, 2006), these commercials are clearly appealing to the 'dreamer' or unrealistic side of the consumer's brain. Rather than presenting a quantifiable series of factors which should lead the consumer to a purchase decision, 'right-brain' commercials are setting up an emotional appeal. The revamped Jaguar commercials - "It's good to be bad"—appeal to American audiences by plugging into strong positive images concerning British (through famous male film stars), while using terminology that can easily be applied to the cars themselves, mixed of course with London scenery (Jaguar, 2014).

The course also covers innovation, both sustaining (small changes meant to strengthen the appeal of the product—as Apple does regularly) and disruptive (the telephone). I cover the history of disruptive technology based on the book *Seeing What's Next* (Christensen, Anthony, & Roth, 2004). I have found that the description of Western Union's response to the telephone— involving retreat and clinging to what WU assumed was its loyal customer base – to be a very well thought out and easily understandable presentation of disruptive technology in the business world. I also cover how innovation in the healthcare industry, where patients (customers) are concerned with convenience and maintaining distance from hospitals and doctors' offices. The perfect example being home pregnancy tests, which allow women to determine pregnancy

quickly, easily and at home—obviating the necessity for a physician visit. In fact the home health care kits market is now worth hundreds of millions of the dollars in the US alone (DeBenedette, 2013).

My final lecture for the course is an overview of Twyla Tharpe's book on creativity: *The Creative Habit*. She gives excellent advice on how to be a more creative person – and who better to present that? I keep stressing to my students – as Twyla does – that being creative is a habit, and it must be practiced on a daily basis (Tharpe, & Reiter, 2003). It is difficult to develop creative answers to problems if you have not practiced being creative. Throughout the class I have students practice creative skills and emphasize that creativity is like a muscle – in order to be able to use it effectively you must work it.

Final presentations

Looking at the Syllabus below, it can be seen that the Final Presentation is completely unstructured - forcing students to develop their ideas from scratch, and use as many of the creative skills learned in the class as possible. This is also very good practice for the "real world" of business—generally speaking young managers will not be given extremely structured assignments, they will be given an objective: "Figure out how we can increase sales?" with few, if any guidelines. The manager who can develop an inexpensive, creative solution to that problem is the one who will be promoted. The manager who can only regurgitate already-used clichés will get few such assignments in the future.

I have seen students show me how the Heinz company revolutionized the condiment market, while dressed up as ketchup bottles; I have seen students show me how "pop-up galleries" work and how they are changing the modern art scene; I have had students do a presentation based on how difficult it is to come up with a creative presentation (a "Seinfeld-like" approach); I have had students show us the horrors of pollution while spraying what would appear to be a noxious mixture on the table in front of us (it was in fact chocolate pudding with vegetables mixed in); I have had students develop new ideas for shopping carts; develop new ways of presenting movies or TV shows, etc. Students explore creative ideas and present them in creative ways. After the "Heinz presentation" one student asked me: "But you would never actually do a presentation like that in a company would you?". My answer was: "Why not? It certainly made an impression on us, didn't it?".

Student Reaction and Assessment

Some students mistake 'wacky' for 'creative': there are some students who develop silly approaches to a solution and assume that they are being creative, when in fact their 'product' just looks weird. This is a fine line to draw, and the difference between 'silly' and 'impressive creativity' is wholly subjective, as mentioned below. Students who have never been pressed to be creative can find this a difficult concept to accept.

Some students want a traditional class—notes, tests. Most students have rarely—if ever—been taught creativity past elementary school, and prefer very quantifiable and traditional forms of learning. Students have told me that if they have not taken notes during class, and filled up their notebooks they feel as if they have not learned anything. Being aware of that I make sure that at least some of the classes are conducted in an "chalk-and-talk" manner. Having said that, improv classes and game-playing in class need to be part of teaching students to exercise their 'creative muscles'.

Some students are not used to purely subjective assessment. Art students are quite used to the professor judging their work completely subjectively—"*this part of the painting works, that part doesn't"*, but business students really aren't. Many students want tests with finite answers ('$43.15', for example) as opposed to "That doesn't really work for me". Again – this is good practice for the real world where many times your work is judged subjectively.

Although all examples are based on business, some students find it difficult to make the connection to business. Students sometimes fail to understand that examples about breaking rules, assumptions, and creative skills are necessary parts of developing innovative solutions. One student remarked: "I already took an art appreciation class in [undergrad]—I don't need another one" completely ignoring what the real point of the lecture was.

Some students are embarrassed to attempt creativity. The overwhelming majority of students in the MBA class have never been asked to be creative as adults, nor been judged on their ability to do it. Some are embarrassed to attempt it for a grade, and are embarrassed to 'put themselves out there' in front of the their fellow students. Clearly something that has to be overcome—and the improv sessions help with this.

Assessment is done on the basis of two main criteria: is the 'solution' presented by the students creative? This is judged by the following rubric: does their solution use any of the creative skill exercises taught in class? Does the

solution represent a break from past/traditional solutions? Or – does the final presentation highlight creativity or innovation in business (the Heinz presentation for example)? Have the students presented a concept that they have not previously shown in other classes?

The second criterion relates not to the content, but the presentation method: Frankly, the further away from a PowerPoint presentation the better. The grading rubric includes how much the presenters engage the other students—make them part of the overall lesson or point. The presenters also need to make an impression—even a negative one is better than a boring one —the audience needs to *feel* or *experience* the presentation, not just passively sit in front of it. Of course, as mentioned, the professor's assessment of the degree to which the students' success at this is wholly subjective.

Students in general are very receptive to the class and several students have mentioned that of all the classes they have taken in the MBA program, this is the one that they actually use in the business world. In Chatham University, at a get together between current students and alumnae, one alumna stated clearly to the younger students: "make sure you take Dr. Rosenthal's course— that's the one that will be of use to you when you graduate."

Finally, one student emailed me a while ago and told me that he had just gotten out of a strategy meeting in his company, and his comment to me was: "It was a terrible meeting; the solution that we came up with would never have gotten you married to Princess Stephanie."

ALFRED UNIVERSITY

MBA 600 Creativity and Innovative Thinking Syllabus
Spring 2014

Required Texts:

Kelley, T., & Littman, J. (2005). *The ten faces of innovation: IDEO's strategies for defeating the devil's advocate and driving creativity throughout your organization.* New York: Doubleday.

Stewart, D, & Simmons, M. (2010). *The business playground: Where creativity and commerce collide.* California: New Riders.
Disney Imagineers. (2005). *The imagineering workout.* New York: Disney Editions.

All textbook and additional readings must be read by the dates listed in the Course Schedule. I may also substitute some of the lectures with videos and in-class activities and I reserve the right to change the schedule as and when appropriate, with prior notice to the students.

Course Description

"An innovative product, service, or idea is one that is perceived by consumers as new. There are differing magnitudes of innovation. Adding bran to an established brand of breakfast cereal is considered a *continuous innovation* in that it constitutes a small change to an existing product with little market impact, as opposed to *discontinuous innovations* like the personal computer, which caused great societal impact" (Barron's, n.d.).

An innovative strategy uses continuous innovation to stay one step ahead of the competition. Many experts, such as author Daniel Pink (as cited in Naiman, 2014) believe that, to succeed, organizations must place greater emphasis on right-brain functions: artistic, big-picture thinking and the ability to put things in context.

Therefore creativity and innovation is a core competency for leaders and managers. Corporate creativity is characterized by the ability to perceive the world in new ways, to find hidden patterns, to make connections between seemingly unrelated phenomena, and to generate solutions. Generating fresh solutions to problems, and the ability to create new products, processes or services for a changing market, are part of the intellectual capital that give a company its competitive edge. Creativity is a crucial part of the innovation equation (Naiman, 2011).

(Retrieved from Reich, 2013)

(Credit to Cullum, 1998)

In this course, we will examine both the concepts of creativity and innovation: what they are, how they impact businesses, how to bring them to your business enterprise. The main object will be to teach you how to be creative – how to 'unleash' the right side of your brain.

Course Objectives

After completion of MBA 600 Creativity and Innovative Thinking, students will be able to:

1) Define creativity and innovation and their roles in the business world

2) ***Recognize*** the thought processes involved with creativity and innovation, and ***demonstrate*** an ability to use those processes to identify and solve business problems.
3) ***Identify and overcome*** the blockades to creativity in organizations.
4) ***Create*** a compelling narrative/presentation to demonstrate an innovative idea and demonstrate how it could be implemented

Skills that students will be able to demonstrate by the end of this course:

-**Creative thinking:** Students will be able to use their "creative side" to convince and persuade; this skill will be demonstrated primarily through mid-term and final projects.

-**Integrative thinking**: Students will have learned how to take a variety of research, discussions, brainstorming & readings on creativity/innovation in general and analyze and apply the information in terms of how it might relate to a specific example in the business world. Students will also practice putting together seemingly unrelated events, and ideas to develop a creative solution to a business problem. These skills will be demonstrated primarily in the presentations done throughout the semester.

-**Innovative thinking/action**: By the end of the course students will have done (or thought) at least one thing regarding a business situation or an educational experience that they have never done before. Students will also be able to discuss the applicability of that experience to their careers.

The chief enemy of creativity is 'good' sense.
(Picasso as quoted in Frank, 2014)

Learning Methods and Class Environment

A variety of methods will be utilized in the classroom including: lectures, interactive discussion, readings, case studies, experiential exercises, DVD presentations, role-playing, (possibly a field trip) and written assignments.

Our class should function as a learning community, so that we each participate in the learning process and we are collectively engaged in helping one

Course Requirements

A) Course Policies:

1) **Behavior:** Appropriate behavior is expected. This includes timeliness and class etiquette. The use of cell phones is not permitted. Computer usage should be limited to course specific tasks. Business attire is required for all formal presentations – unless your presentations demand costumes (!). In the proper context, dressing up as Heinz ketchup bottles is absolutely acceptable.
2) **Attendance/Participation:** It is the student's responsibility to let the course instructor know within the drop-add period if he or she will have to miss class for religious reasons, athletics, or other.

One of the critical factors in making this course a successful experience for everyone is the quality of student participation. Often, the most complete understanding of and best solutions for important issues and challenges are arrived at only after substantial class debate and discussion.

Your participation in class discussions and exercises is an important part of the learning process for this course and will count towards your grade. Class participation means being:

Present—You are expected to attend and participate in all classes.

I reserve the right to drop your letter grade by one complete grade after four unexcused absences. If a student misses a class session it is his/her responsibility, and his/hers ALONE, to find out what he/she missed and do the appropriate make-up work. Please get notes from your fellow students. I will be more than happy to go over any point that is not clear to you but will not teach the class twice or three times for students who were absent.

Prepared—Come to class well-prepared, having completed all readings and advance assignments for the week.

Ready to Contribute—You should be ready to contribute to class discussions by raising questions and responding to discussion topics.

For example, as you complete your reading assignments, jot down 2 or 3 points of interest. For example, you might:

- formulate a question you'd like to discuss in class
- identify what you consider to be the key points the author is making
- note topics that were of particular interest to you, or
- think of topics you expected to be covered by the author, but were not

You can also bring up situations in the news that relate to creativity/ innovative thinking and share your views with your classmates.

(Credit to Fish, 2010)

3) Written assignments (ten points each for a total of 50 points)

Pick five of the following topics and write a 750 (at least) word paper:

-Women students: develop an idea for a product that only a man would be interested in (but women could use). Men students: develop a product that only a woman would be interested in (but a man could use). Try hard to avoid something sexual in nature…

-Find something that you think is creative/innovative; why did you think so? What could you learn from this 'thing' that would relate to business? i.e.

how it was created, what purpose it serves; what problems it solves; did it break rules? (which, why, how….)

-You are the head of on student organization in Alfred (reporting to the President of Alfred and the Dean of Students) and you are tasked with coming up with a foolproof plan to battle obesity on the Alfred campus. Develop a plan where you assume the money/time is no object. Develop a plan where money/time is extremely restricted. Finally develop a realistic solution which combines the best of both.

-Apple and Google are generally considered innovative companies. Pick one of them and discuss them in terms of the class material on creativity and innovation. For example: what rules did they break? What problems did they solve? How were/are they different from their competitors?

-"Sustainability leads to innovation"; comment on that statement and describe what companies have done that prove/disprove it. Come to a conclusion.

- Why do organizations have such problems with innovation? How can that be solved? You are the president of your own entrepreneurial organization—how are you going to foster creativity/innovation?

-You yourself come up with a question that will force you (yourself) to think about creativity and/or innovation.

-Create a logo and motto for yourself. Explain how that motto/logo will help you in your career—remember what a logo and motto are supposed to be and do…

The papers are due two weeks apart during the semester—as described in the syllabus.

4) Small Case Presentations (15 points)—function as the "Mid-Term"

The class will divide into teams of four or five and prepare 1 (one) discussion on a topic concerning creativity and/or innovation. The presentation of the 'answer' will be done in class; no PowerPoints are to be used! Each group is to come up with a way of describing the 'answer' which does not involve a kind of presentation technique that they have used before in a classroom!

Possible subjects might be:

-Think of a company/service/organization/person that has done well in creativity or innovation; describe what they did and why you consider it innovative or creative. What problems did their work solve? What were the business implications? What was/is wrong with it? How is that problem going to be fixed?

-You are all now going through a **very** traditional educational system; brainstorm an innovation that would dramatically change how the system works—for the better of course! How could you use the creativity or innovation texts to start you off?

-The author of the creativity book is a musician—look for how other creative/performing arts can inform or help create a more dynamic business model? What could a service company (for example) learn from a painter? A ballerina? a choreographer? For example find someone who 'revolutionized' his/her field…

-How can you use "mind maps" or "force field analysis" to increase creative thinking?(Michalko, 2006)

-Develop an edgy, fascinating, innovative commercial for the School of Business for Alfred University; I will want to see the mock-ups (storyboards) and/or a rough video.

-Look at a particular industry or market segment, and list up all the 'rules' of that industry/segment. Think of an innovation based on breaking one or more rules; see how many rules you can break—what kind of innovation comes out at the other end…?

-Examine an industry that *must* be creative to survive: fashion, TV commercials, dance companies, etc…How do they harness creative energy? In other words how are they continually creative? What do they do? What is their 'secret'?

-At one point Kodak was very innovative; first—explain what George Eastman did that was so innovative? What rules did he break? Why? How did he change the nature of photography forever? Then: what happened to the company? They went from a large number of employees to only a fraction—almost bankrupt. At what point could they have changed and saved the company? What would you do if you could make them innovative again? Or—you could look at Xerox…

Or you can choose some other topic concerning creativity and/or innovation. I will ask each team to 'present' their assignment to the rest of the class in some way. To make clear: The teams will NOT use PowerPoint for the presentation—you must think of some other way; the more you can engage the rest of the class, the better.

5) Semester 'Presentation' – functions as the Final Exam

The class will divide into four or five teams (depending on the number of students—could be the same teams as for the 'small' assignment) and complete the following assignment: ….you tell me.
Your final assignment will be to develop some way for you to demonstrate that you understand and can use the concepts we learned in this class. You will develop the project, the assessment method, and the content of the final assignment. **You cannot use PowerPoint presentations, nor can the final assessment be a written/oral test. Each group is to come up with a way of describing the 'answer' which does not involve a kind of presentation technique that they have used before in a classroom!**
Show me you grasp creativity/innovation and be creative/innovative in how you show me. All students must also assess their fellow teams' efforts as part of the final assessment.

In other words—I am having you think about and comment on creativity and innovation three times: the first time your response is more traditional (a written paper); the second time a little more creative; the third time I am expecting tremendous creativity! You **might** be able to link the small assignment with the final assignment…if you think that would work for you, come to see me as a group.

B) Course Grading Scale

The Imagineering Workout Homework	10 points
Small Case (acts as the 'mid-term')	15 points
Written assignments (10 points each)	50 points
Class Participation	5 points
Final Presentation	20 points
Total	100 points

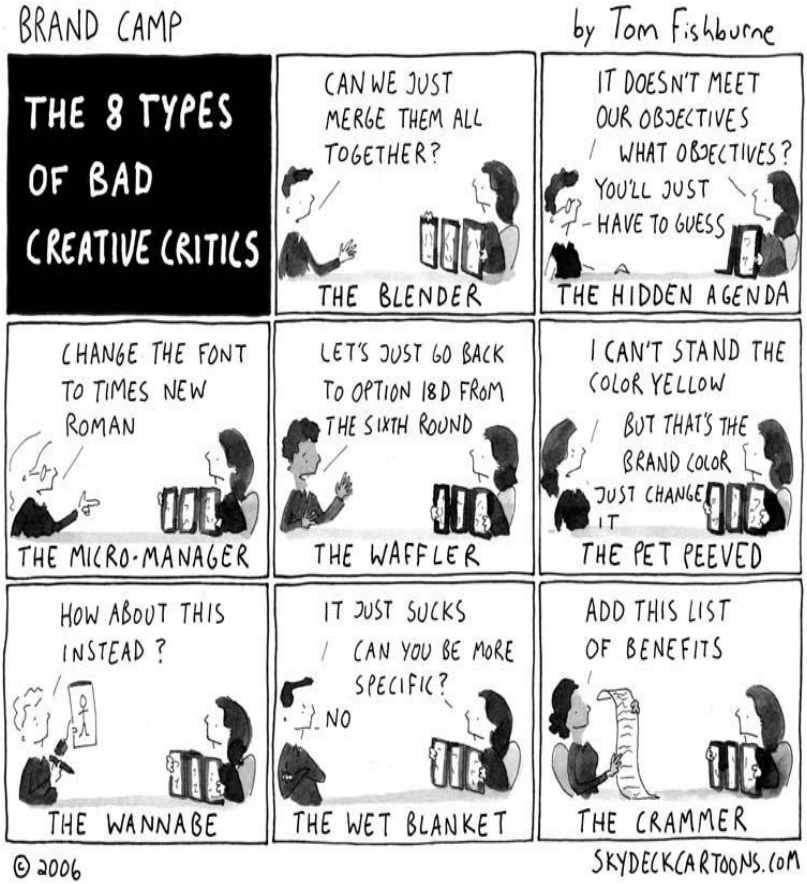
"I hope you've noticed that our menu is refreshingly devoid of creativity."

(Credit to Weber, 1999)

Grading scale for Graduate course:

A 95-100
A- 90-94
B+ 87-89
B 83-86
B- 80-82
C+ 76-79
C 70-75
F 0-69

- Students are expected to take responsibility for earning the grade they want from the class. It is my responsibility to guide the students in the exploration of the concepts, techniques, knowledge and skills associated with creativity/ innovation issues and support them as they work towards the grade they want. You will be increasingly expected to take charge of your education; I will not continuously inquire about whether or not you understand the material and can apply it. If you do not understand a point brought up in class—it is your responsibility to ask. I will be more than happy to go over anything we cover in class as many times as you need in order to 'get it', but ...you have to tell me.



(Credit to Fishburne, 2006)

C) Course Outline—see the appendix on page 57-59

ALFRED UNIVERSITY'S STUDENT CODE OF HONOR

We, the students of Alfred University, will maintain an academic and social environment which is distinguished by Honesty, Integrity, Understanding and Respect. Every student is expected to uphold these ideals and confront any student who does not. Keeping these ideals in mind, we, the students, aspire to live, interact and learn from one another in ways that ensure both personal freedom and community standards. (Alfred University, 2015)

Information about the Honor Code is available in the Student Handbook

- **Students with Disabilities:** If you need academic accommodations because of a disability, please inform me as soon as possible. See me privately after class, or during my office hours for a confidential conversation. To request academic accommodations, students must first consult Special Academic Services (Crandall Hall located on Main Street, x2148; SAS@alfred.edu). SAS is responsible for reviewing documentation provided by students requesting accommodations, determining eligibility for accommodations, and helping students request and use appropriate accommodations.

Grading:

No course with a grade lower than B- will count toward a graduate degree. If a student earns a grade lower than B- in any of the courses required for a graduate degree, the course must be repeated. A second grade lower than B- in a repeated course may be cause for dismissal from the program.

"To ask, and appear ignorant is a moment's shame. To not ask and remain ignorant is a lifelong shame."
(Old Japanese Proverb)

(Credit to Ziegler, 1995)

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Author's Brief Bio

Bruce B. Rosenthal has a BFA from Syracuse University, an MBA from Rutgers University and a PhD from the University of the Sciences in Philadelphia (USP). He has worked on Wall Street, as the Chief Representative for a division of Dow Jones in Tokyo Japan, and as a graphic artist/fine artist in an entrepreneurial enterprise which he operated in Europe and Asia. Dr. Rosenthal has been the Director of the MBA program at USP, the Director for the Business Department at Chatham University in Pittsburgh PA and is currently the Director of the School of Business at Alfred University in Alfred NY. In other words, Dr. Rosenthal has extensive experience in both the corporate business world and the 'right brain' world of the creative arts. Having been a businessman on three different continents extending over several decades Dr. Rosenthal has an acute understanding of the needs of employers and businesses around the world – and creativity stands out as a necessary skill for all businesspeople in all disciplines. Dr. Rosenthal has called on his experience in both fine arts and business to construct a course called "Creativity and Innovative Thinking" which he has taught successfully at both Chatham University and Alfred University at the graduate level. The class stresses creativity as a tool for finding and solving problems in non-traditional methods, and has been highly praised by students who have found the lessons learned to be very practical and very effective for their future careers in business.

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Appendix 1—Course Outline

	Date	Text Assignment	Teaching Topic	Assignment/ Due
Week 1	January 23	The Business Playground (TBP):Chapters 1,2	**Breaking the Rules: 19th century art in France**	Do research on a musician, dancer or filmmaker who 'broke the rules'; give an example of what rules s/he broke and how his/her art moved forward from there. Due: Jan 30; I will choose students at random to explain.
Week 2	January 30	TBP: Chapters 3,4	**"It's all happening at the zoo…" The Power of Assump-**	**"How can I marry Princess Stephanie…?"** (Due: 2/6)
Week 3	February 6	TBP: Chapters 5,6	**How companies think: Blue Ocean Strategy Zig-zag**	Paper 1 due
Week 4	February 13	TBP: Chapters 7.8,9	**Guest Lecture: Crosby**	

Week 5	February 20	TBP: 10, 11, 12 + Conclusion	**Images: Chanel; Mercedes-Benz, Axe** Guest lecture: Oates	Paper 2 due
Week 6	February 27	TTFOI: Intro + Chap 1,2	**Guest Lecture: Daedelus Company - Innovation**	Team 'small case' presentations
Week 7	March 6	TTFOI: 3,4	**Guest lecture: Napolitano**	Paper 3 due; Team 'small case' presentations
Week 8	March 20	TTFOI: 5,6	**Seeing What's Next**	Team 'small case' presentations
Week 9	March 27	TTFOI: 7,8	Zig-zag (cont)	Paper 4 due; Watch Sir Ken Robinson video: "Changing Paradigms"; be prepared to comment/discuss April 3
Week 10	April 3	TTFOI: 9,10	Zig- zag	
Week 11	April 10	TTFOI: 11; The Imagineering Workout: pgs 1-37	Zig-zag	Pick two techniques from TIW; document how you used those techniques to complete your final project (Ten Points); Due: 4/24

Week 12	April 17	TIW: pgs 38-78		Paper 5 due
Week 13	April 24	TIW: pgs 79-119		
Week 14	May 1	TIW:120-159		Final Projects due in class; (20 points)
Week 15	May 8			

CHAPTER FOUR

NARRATIVE AS CREATIVE QUEST: THE HERO'S JOURNEY AND ITS ALTERNATIVES

ROSAMUND DAVIES

Abstract

The ancient creative practice of narrative is recognized as an important meaning making activity in business, in the contexts of both academic study and commercial practice. Drawing on these developments, this chapter will focus on the creative potential, within business, for narrative models developed in the field of screenwriting. The latter is an area of creative writing that focuses particularly on story structure. It has produced a range of normative narrative models that recur as the underpinning templates of film and television narratives. The most well known of these is perhaps Christopher Vogler's reworking of Joseph Campbell's Hero's Journey. Taking this text as my starting point, I will discuss the particular implications of the use of the Hero's journey narrative model in a business context, examining the power of narrative retelling and the meaning making possibilities and limitations of different narrative models.

Narrative as creative quest: the Hero's journey and its alternatives

While it may have fallen out of favour in the past, the ancient creative practice of narrative is now recognized as an important meaning making activity in business, in the contexts of both academic study (Barry & Elmes 1997, Boje 2001, Czarniawska 2004, Dailey & Browning 2014) and commercial practice (Duarte 2010, Rose & Pulizzi 2011, Schultz 2013). As Czarniawska (2004) points out, this recognition hinges on the acknowledgment that narrative constitutes a particular form of knowledge, which is central to human experience and understanding and, as such, is able to open up insights, in the study and practice of business, that are both unique and profound. One of the key differences between narrative logic and scientific logic, is that a narrative is particular—it provides an explanation of a specific situation, whereas sci-

ence aims to establish general laws and would therefore aim to explain a particular event by recognizing it as an instance of a general law (Ricoeur 1984; Czarniawska 2004:8). Narrative, on the other hand does not make sense of events by placing them in categories, but rather by integrating 'the event into a plot whereby it becomes understandable in the context of what has happened… Thus, narratives exhibit an explanation instead of demonstrating it' (Polkinghorne, 1987 in Czarniawska 2004:8).

It is thus the plot of the narrative, rather than the truth or falsity of individual story elements, which gives a narrative its logical force and its power to persuade. This allows for the possibility of reordering the events and changing the plot and therefore the meaning of the story. Czarniawska gives the example of a narrative statement such as 'With the company suffering unprecedented losses, the top managers were forced to resign', which is quite different from 'a law-type statement such as 'when a company suffers losses, its managers resign'' (Czarniawska 2004:7). This latter statement can be refuted or confirmed, but it cannot be negotiated or reworked. The former, narrative statement, however, would be open to such a renegotiation such as 'Are you sure? I've heard they started losing when the managers resigned and they took their customers with them?' (Czarniawska 2004: 7). Narrative logic and meaning is always constructed after the fact. Events are made sense of by a particular temporal ordering, what Ricoeur calls an emplotment (Ricoeur 1984: 64), which establishes a connection, most often a relationship of cause and effect, between them. This logic of cause and effect is usually established by projecting from the end back to the beginning and identifying actions and events, at the beginning of the temporal order, as the causes of the actions and events, which occur later in the chain (Ricoeur 1984: 144).

Beyond its role in making sense of the past, narrative can also be used as a hypothesis to project into future situations. In his well known essay 'The Storyteller' Benjamin defines stories as containing 'openly or covertly, something useful' (Benjamin 1999:86) to the reader or listener. He suggests that the storyteller 'is a man who has counsel for his readers… a proposal concerning the continuation of a story, which is just unfolding' (Benjamin 1999:86). Playwright, David Mamet, makes a similar point when he states that being able to learn from experience is a basic human survival mechanism, which 'orders the world into cause-effect-conclusion' (Mamet 2000:8) and that audiences learn lessons from watching drama. The intimation here is that the lesson is not only for the past, but also for the future.

As Mamet also states, such a strategy does in fact involve some level of rational synthesis and establishing of general principles and probabilities. To learn from previous experience, one needs to draw the conclusion that, if a particular set of actions or events produced a particular outcome once, then it is likely to do so again. However, as Czarniawska points out, stories are open rather than definitive hypotheses (Czarniawska 2004:9). Since they do not establish laws that need to demonstrate absolute truth, stories are more ambiguous, but also more subtle, layered and flexible ways of informing and

directing action than are laws. While laws are either true or false, stories can be adapted to many variations and different ones tried, in relation to new situations. Boje underlines the fact that often what we are working with here is what he terms 'antenarratives', collections of story fragments, rather than fully developed narratives with a coherent plot (Boje 2001:2). It is a uniquely human skill to be able to draw on stories and narratives in this way: operating somewhere between the specific case and the general law. In seeking to apply an existing story to a new context, the storyteller will de-emphasize or disregard some elements of the story and bring to the fore those that are most relevant. Narrative understanding is iterative and recursive, negotiating a path between sameness and difference, which allows for a constant reworking of stories and the possibility of finding new meanings within them (Daily and Browning 2014). This is often an instinctive process, part of the wider human activity of pattern finding, matching and elaboration, and draws most often on tacit understanding, rather than consciously articulated reasoning. Narrative understanding thus constitutes both an elusively imprecise and an impressively subtle aid to human action and interaction.

The notion of narrative as hypothesis is further supported by the fact that, even though each narrative may be a unique case, as regards its specific content, it tends to still conform to some general rules of construction and combination. At their most basic level, narratives tend to contain one or more characters, who do something, or to whom something happens and this action or happening produces a consequence. Furthermore, human beings tend to draw on these rules of narrative instinctively in interpreting the world, making them capable of constructing narratives out of the scantest of evidence. This is strikingly demonstrated by the six word story: 'For sale, baby shoes, never worn', often attributed to Hemingway, though this is unproven. This six word story relies on the reader's ability to instantly identify the unworn baby shoes as the consequence and on their imagination to supply the rest. Human beings seem to have a strong drive towards assembling story fragments and antenarratives into a coherent story and this is what they seek in drama, literature and other narrative arts (Mamet 2000).

Beyond the basic paradigms of who, what, where, when and how, ordered into a particular syntagmatic combination by a logic of cause and effect, certain scenarios and archetypes can also be identified as recurring elements of narrative. As Maya Angelou points out, in her memoir, *I Know Why the Caged Bird Sings*, these may often be rooted in individual early experiences:

> 'Heroes and bogey men, values and dislikes, are first encountered and labeled in that early environment. In later years they change faces, places and maybe races, tactics, intensities and goals, but beneath those penetrable masks they wear forever the stocking-capped faces of childhood'
> (Angelou: 1984: 19).

However, scenarios and archetypes are also to be found in the wider narra-

tives that circulate within a culture. Propp (1968) is well known for his analysis of folktales, which he found to be all constructed from the same set of elements in different combinations. In his book *Morphology of the Folktale* (first published in 1928) Propp analyzed hundreds of folktales and suggested that their narrative structures were made up of the same basic 31 functions . A function, according to Propp, is 'an act of a character, defined from the point of view of its significance for the course of the action.' (Propp 1968: n/a). These functions have a fixed chronological order, so that, although not all of these functions are present in every folktale, or fairytale, the functions that are included always play out in the same order. There can be many variations on the same basic function, resulting in many different stories. Key functions identified by Propp include: 'absentation'—a member of the family, possibly the hero, possibly another person who will later need rescuing—leaves the family; 'villainy or lack'—the villain harms the hero or someone connected to him or her or the hero lacks something they desperately need; 'departure' —the hero leaves home; 'struggle'—the hero struggles with the villain; 'victory'—the hero vanquishes the villain; 'exposure'—a false hero is exposed; 'transfiguration' —the hero gains a new appearance, new clothes, new status etc.; 'punishment'—the villain is punished.

Many of these functions can also be found in what Campbell (2008) terms the 'monomyth'. By this he refers to the recurring story, that he has identified in myths around the world, of the hero who:

> 'setting forth from his common-day hut or castle, is lured, carried away, or else voluntarily proceeds, to the threshold of adventure… the hero journeys through a world of unfamiliar yet strangely intimate forces, some of which severely threaten him (tests) some of which give magical aid (helpers)… he undergoes a supreme ordeal and gains his reward… The final work is that of the return. If the powers have blessed the hero, he now sets forth under their protection (emissary); if not, he flees and is pursued (transformation flight, obstacle flight)…the hero re-emerges from the kingdom of dread (return, resurrection). The boon that he brings restores the world (elixir).'
> (Campbell 2008: 211)

While Campbell identifies one universal narrative model, through which to articulate and understand human experience, other theorists, from Aristotle onwards, have identified various other schemas. Drawing on Aristotle, Frye (1957) identified five narrative modes, which, according to Ricoeur, might be divide into Epic, Romance, Satire, Comedy and Tragedy. (Ricoeur 1984: 166). More recently, Parker references Johnson's eight basic plots in playwriting (Parker 1999: 76) and reworks them slightly to produce ten basic plots for screenwriting, making a total of ten, namely: The Romance; The Unrecognised Virtue (finally rewarded, i.e Cinderella); The Fatal Flaw (Achilles); The Debt that must be Repaid (Faustus); The Spider and the Fly

(Circe); The Gift Taken Away (Orpheus); The Quest; The Rites of Passage; The Wanderer; The Character who cannot be Put Down (Parker 1999: 77-79). Meanwhile Booker, in his book, *Seven Basic Plots: Why we tell stories*, explores the following: Overcoming the Monster; Rags to Riches, The Quest, Voyage and Return, Comedy, Tragedy, Rebirth (Booker 2005).

These examples highlight the fact there is much overlap between different narrative models: demonstrating the same negotiation of sameness and difference that we saw at work in our earlier discussion of the processes of narrative understanding. They also demonstrate that recurring emplotments of ancient myth and folktale have continued to endure in contemporary literature and film. As has already been discussed, however, such emplotments are not confined to the world of fiction, but constitute important ways in which human beings and human societies make sense of their world as a whole. When trying to make sense of events as a narrative, one will tend to draw on the narrative models and conventions one is familiar with, both from one's personal experience and from fictional narratives that one is familiar with. This overlap between the two reoccurs in all areas of life. There is likely to be a tendency to identify heroes and villains, to establish relations of cause and effect and patterns of change leading to a transformation, whether these are, for example, positive patterns of progress and development, driving towards a happy ending (Romance), or patterns of deterioration or disorder, leading towards tragedy. Ricoeur perceives Frye's typology of plots as pertaining, not only to fiction and drama, but also to the emplotments of historiography (Ricoeur 1984: 166), while Boje asserts their continuing relevance of to the study of organizations (Boje 2001:108), as does Czarniawska (Czarniawska 2004: 20).

It can therefore be said that, although narrative might not claim to establish general laws, there are some narrative models, such as the ones discussed above, which are invoked so often, that they might almost seem to attain that status. They tend to be the touchstones we return to, the patterns to which we try to match new patterns of experience. Therein lie both their strength and their weakness. As Dailey and Browning point out, the retelling of well-known narratives can help engagement and understanding within an organization 'by referencing and building on members' commonalities' (Dailey & Browning 2014: 31). However they can also function, whether intentionally or unintentionally, as a mechanism to control behavior and repress other narratives. There is thus a dual potential in the repetition of familiar narratives. It is a process, which can effect 'control/resistance, differentiation/integration and stability/change' (Dailey & Browning 2014: 26).

An interesting account of the effects of narrative retelling and the potential dualities involved can be found in Boje's empirical work. He recounts how the official story of Walt Disney as a creative genius and saintly figure who embodied the American Dream (a Romance emplotment) was contradicted by non-official stories told by Disney employees, in which Walt was 'Der Fuhrer, Mr Fear, Simon Legree, Ebeneezer Scrooge, Beelzebub the Devil and

Mickey Mou$e' (Boje 2001: 39). These counter stories offered local resistance to the dominant story within the Disney organization; however, they did so by drawing on other well known cultural narratives, matching the story of Walt Disney to different cultural patterns.

In his analysis of the monomyth (which might potentially be equated to the category of either Romance or Epic), Campbell makes a case for its positive value in shaping human understanding and guiding human action. In his view, the Hero's journey fulfills 'the prime function of mythology to supply the symbols that carry the human spirit forward, in counteraction to those constant human fantasies that tend to tie it back' (Campbell 2008: 7). Campbell sees the Hero's journey as representing the rite of passage to adulthood. Christopher Vogler, whose version of Campbell's Hero's journey (Vogler 2007) has become a dominant paradigm within screenwriting and the film industry, agrees with Campbell. He believes that *'the hero's journey is a handbook for life, a complete instruction manual in the art of being human'* (Vogler 2007: xiii). However this totalisation of all human experience into one all encompassing metanarrative is clearly a form of universalism, an attempt to establish a 'grand narrative' (Lyotard 1984), that is open to criticism. Certainly critiques of the Hero's journey's dominance of mainstream screenwriting see it as a reductive template within which to constrict the whole of human experience (e.g Dancyger and Rush 2007 Aronson 2010).

Since the Hero's journey has begun to gain some traction as a structure of meaning within both the study and practice of business, it may be helpful to explore its creative potential and limitations by drawing on insights taken from the field of screenwriting. Later on in our analysis, we will return to the critiques and potential limitations outlined above. Let us begin, however, by examining in more detail the key elements and effects of the Hero's journey as a narrative model and how these have been brought into the discourse of business and management by both scholars and business practitioners.

Vogler was working as a story analyst at Disney on animation films, when he wrote his book *The Writer's Journey* (2007). In this book, drawing on both Propp and Campbell, he takes Campbell's hero's journey and reformulates it into a three act structure, involving 12 stages, which he presents as a narrative model for screen drama. These stages are mainly named using terms already established by Campbell. At the beginning of the story, we find the hero in the 'Ordinary World'. He receives a 'Call to Adventure', however he usually responds initially with a 'Refusal of the Call' and usually needs to be persuaded by a 'Meeting with the Mentor' to take up the challenge. Act 1 then ends with the hero 'Crossing the First Threshold' which takes the hero from the ordinary world into the special world of adventure. In Act 2, the hero encounters 'Tests, Allies, Enemies'. An 'Approach to the Inmost Cave' results in a final 'Ordeal', after which the hero gains his 'Reward'. Act 3 concerns the 'The Road Back', on which the hero will face further obstacles, followed by his final 'Resurrection' and 'Return with the Elixir' (Vogler 2007).

One of the most appealing aspects of both Campbell and Vogler's under-

standing of the hero's journey as a narrative model is their emphasis on how it brings into play the elemental, powerful forces that drive human behaviour and characterize human experience. Both authors draw, not only on ancient myth, but on Freudian and Jungian psychoanalysis in their elaboration of the meaning of the hero's journey and the character archetypes that people the ordinary and the special world of the story.

The archetypes that Vogler identifies, in addition to the hero, are: 'The Mentor' (who advises and helps the hero); 'The Herald' (who provides the Call to Adventure)' 'The Threshold Guardian' (who guards the threshold into the special world); 'The Shapeshifter' a character whose attitude to the hero may be unclear, or who may turn from good to bad or vice versa; 'The Shadow' (the antagonist or villain); 'The Ally', and 'The Trickster' (another unreliable character).

Vogler suggests that all these characters in the story represent different facets of the human personality and that this is why audiences find it so fascinating to see them embodied on screen. Stories that engage these archetypes map the human psyche in a way that is extremely compelling. It is as if, he suggests, we see our whole multifaceted self, represented in all its aspects and conflicts. Vogler further suggests that '*The hero archetype represents the ego's search for identity and wholeness'* (Vogler 2007: 29). The ego represents the separation of the individual from the rest of the human race, from the mother, the family, the society, the process we all go through. All the other characters that the Hero encounters represent possibilities for who the hero is or what he or she might become. Vogler says that what the hero incorporates or learns from his or her encounters with the other characters is what makes him or her *'into a complete human being, who has picked up something from everyone she has met along the way.'* (Vogler 2007: 24).

The hero thus provides the audience's window on the story. However, at the same time, the suggestion is that the audience, whose own ego is also trying to integrate separate personality facets into a unified, stable, balanced identity, is therefore also invested in these other characters, as well as in the Hero.

This deep connection with human experience and behaviour has found resonance in a business context in various ways. Writing in the *Journal of Human Resource Management* and *Career Development International* respectively, and drawing on Campbell rather than Vogler, Osland and Hudson & Inkson outline the ways in which the Hero's journey can provide insights into the expatriate experience and so offers 'practical lessons for companies and human resource professionals who want to handle expatriates more effectively' (Osland 2000). The latter is a serious concern, Osland states, since 20% of expatriates resign from their company on their return (Osland 2000). One of the reasons for these resignations might be that expatriate 'heroes', returning with the Elixir from their Adventure and Ordeal abroad, often experience resistance, even hostility, on their return. This is just as Campbell describes the Hero's return in myth. The hero's ordeal in the special world

brings enlightenment and understanding that it is the hero's duty to bring back to the ordinary world to help enlighten and transform his whole society (Alexander 2014). However the ordinary world may not be ready to accept the new knowledge that the hero brings. The hero's society may instead ignore or reject his insights and indeed the hero himself. Osland describes how this plays out in a business context, where returning expatriates often find pressure on them to 'fit in' on their return from abroad, to show that they haven't changed. She identifies this as a huge loss for the organization concerned, since expatriate workers generally do gain new knowledge and skills that are of value in the workplace, such as 'a bi-cultural perspective, increased self-awareness… the inner resources to master a difficult situation' (Osland 2000: 235). Osland proposes that an understanding of the Hero's journey, as a model for expatriate experience, can help organizations to understand and value the new knowledge and skills that expatriates gain and to take steps to make sure both the expatriate and the organization reap the benefit.

Business professionals have also found inspiration in the Hero's journey for communicating and connecting with customers. Duarte (2010) suggests that, since stories are concerned with change and transformation, they provide a model for designing effective business presentations, since the latter are also concerned with persuading and changing people. Duarte's profession is to design presentations for businesses and, in her book *Resonate: present visual stories that transform audiences*, she explains how she draws on Vogler's version of the Hero's journey to do so (Duarte 2010). Duarte casts the presentation audience as the Hero of the story, with the presenter taking the role of Mentor. The aim of the presentation, according to Duarte, is to get the audience to cross the threshold from their ordinary world into the special world presented to them during the presentation. The role of the presenter/ Mentor is to persuade them to do so.

Duarte is thus only concerned with the first five stages of the Hero's journey, in which the presentation presents the audience first with a conflict or imbalance in the ordinary world, then with the Call to Adventure—a 'big idea' of how that conflict or imbalance might be addressed. The presentation goes on to elaborate on this idea and then ends with a Call to Action to the audience – inviting them to do something that will take them over the threshold and into the special world of the 'big idea'. It also points out what the reward might be if the audience does indeed 'Cross the Threshold'. After that, Duarte reflects, it is up to the audience.

Duarte also points out that many presentations are internal to organizations, with the aim of persuading workers and stakeholders to change. Thus the audience for the presentation is often the same organization that is giving the presentation, making the organization simultaneously both hero and mentor of the story. The aim of the presentation, as part of a change management strategy, is therefore to change the narrative, so that the organization becomes perceived and ultimately actualized by all its members as the hero of a new

story. Vogler's 12 stage Hero's journey thus provides organizations with a practical step by step guide to how to make actionable the well recognized truth that narratives can convince and persuade in ways that logico-scientific reasoning cannot (Barry and Elmes 1997, Dailey and Browning 2014).

Rose and Pulizzi use Vogler's Hero's Journey in a similar way to help marketers understand how to approach the challenge of content marketing, suggesting that it provides a useful model to help businesses decide the story they want to tell about their organization or their product(s). They suggest that 'by aligning a story with classic structure you can quickly determine what is "missing'' (Rose & Pulizzi 2011: n/a), reformulating Vogler's 12 stages into a '10-Step Brand Journey' (Rose & Pulizzi 2011: n/a). Rose and Pulizzi do stress, however, that they are not presenting a template, but rather a framework that can be modified and departed from. It is a starting point, rather than a destination and could indeed be used as a tool for brainstorming, rather than a final plan. They position the content marketer as the creator of the story, with the brand or product taking the role of hero, asking, for example, 'what is the call to adventure for your product?' (Rose & Pulizzi 2011: n/a)

As is apparent from these examples, the Hero's journey is a fairly flexible tool for the creation and development of narratives within an organization. It is quite easy to adapt the role of hero to suit different aims, as shown above. The organization itself might take the role of hero in one scenario, or this role might instead be taken by the customer, or by the brand, or a particular product, or by an individual member of the organization. It follows also that the roles of the other archetypes are equally variable. Valuable insights might be obtained by asking who or what might represent other archetypes in relation to the hero of the story (Schultz et al 2012). Who might play the role of Mentors, Shadows, or Allies, or perhaps Shapeshifters or Tricksters? How might this cast change when the hero of the story changes? Do the customer and the organization share the same Allies? Who are the Shadows in each story? The same questions pertain to different Hero's journeys within the same organization. It is likely that different members of the organization will identify different casts to play the same archetypal roles.

Furthermore, Vogler also points out that these archetypes are masks that can be put on and taken off by different characters at different points in the story. The same character in a story can play several archetypal roles. One character might, for example play both Herald and Mentor and might perhaps even be later revealed as the Shadow. An Ally might also be a Shapeshifter and so on. This insight brings extra depth and complexity to the charting of the Hero's journey. A character, who is consecutively or simultaneously both Mentor and Shadow, is more complex and challenging to understand than one who is just one or the other. Such characters make a story more interesting. In the context of business, they are likely to provide a more complex analysis and understanding of a situation.

The Hero's journey thus provides a potentially fruitful framework for

brainstorming and planning (Rose and Pulizzi 2011), as well as for communicating the resulting ideas and strategies and gaining support for them, since 'the successful strategic story may depend less on tools like comprehensive scanning, objective planning, or meticulous control/feedback systems and more on whether it stands out from other organizational stories, is persuasive, and invokes retelling' (Barry & Elmes 1997: 432).

However, there are some pitfalls relating to the employment of the Hero's journey within the field of screenwriting that might provide a good starting point for understanding what the issues might be in a business context. First, it is never enough for a writer to simply structure a screenplay according to the 12 stages of the Hero's journey. There are other things he or she needs to consider. One of these considerations is to make sure that their story has high enough stakes, or to formulate it another way, enough jeopardy. Jeopardy is not simply about physical danger and stakes are not simply about material loss or gain. Certainly in drama, but also in genres such as action films, these elements usually have an emotional element to them. The hero needs to have something that he or she cares about, which is put at risk as part of the story and which provides the stakes for the story, what they stand to win or lose. The jeopardy in the story is the threat to this thing that the hero cares about. The possibilities here are wide ranging and open to the writer's creative invention. However, there are also some well established paradigms for him or her to draw on, some of which we have met before in our examination of Propp's story functions. The 'absentation' function is one example, as in the film *Taken*, where the hero's daughter is kidnapped. It might equally be some other kind of 'villainy or lack' that provokes the hero into action. The point is that the stakes are emotional—perhaps for the hero alone, perhaps for the wider culture, as with the quest for the ring in *Lord of the Rings*. Stories are rarely compelling if there is nothing at stake for the hero.

Another consideration is that other characters in the story also require attention. If, for example, the hero is a three dimensional, complex character, but his adversary, the Shadow, lacks complexity, is too much of cardboard cutout villain, or is too easily defeated, the audience is likely to be bored. In general, if the obstacles faced by the hero are too easily overcome, if she eagerly answers the Call to Adventure, hops unopposed over the threshold into the special world and makes an easy beeline for the Inmost Cave and so on, the audience will again most likely be bored. As Mamet points out, audiences like to see their heroes sweat and suffer:

> 'What do we wish for in the perfect game? Do we wish for Our Team to take the field and thrash the opposition from the First Moment, rolling up a walkover score at the final gun? No. We wish for a closely fought match that contains many satisfying reversals.'
> (Mamet 2008:8).

Ball games, Mamet points out, satisfy the same needs as drama. We want the hero to win in the end, but we don't want it to be easy. We want him or her to

suffer, to struggle, to learn, to struggle some more, to overcome adversity, to deserve their triumph.

Aristotle (1987) explains this need through the concept of catharsis—the purgation of pity and fear. The suffering and horrors of life are played out on stage, allowing the audience to experience the feelings they induce, without the material consequences. Aristotle discussed catharsis in relation to tragedy, so he wasn't envisaging a happy ending to provide the ultimate reward for hero and audience. He appears to have had more in mind the idea that the theatre was a controlled space for such experiences to play out, in which the audience might learn how to manage them.

This idea is highly germane to the context of business. The Hero's journey narrative model offers the potential for a rich, complex and emotionally deep imagining of a journey that might be undertaken by the designated hero. It allows individuals and organizations to explore scenarios in a controlled situation, yet in a way that might potentially be more compelling and revealing than a logico-scientific approach, such as a SWOT analysis. However, the organization or business practitioner, just like the screenwriter, needs to take care not to turn the Hero's journey into an empty formula, without emotional depth and with the Reward at the end a foregone conclusion. Rather, the Hero's journey offers the potential for a process of deep exploration and challenging thinking, a process that might throw up unexpected, even unwanted insights. In fact, as Campbell stresses, once the hero crosses the threshold, he must open himself up to a world that may contradict everything that he held until then to be true, 'the passage of the threshold is a form of self-annihilation' (Campbell 2008: 77). This process involves coming to terms with unwelcome new truths about the world and oneself: 'generally we refuse to admit within ourselves and within our friends, the fullness of that pushing, self-protective, malodorous, carnivorous, lecherous fever, which is the very nature of the organic cell' (Campbell 2008: 101). For Campbell the Hero's journey is very much a journey of spiritual enlightenment, in which the hero must confront his personal flaws, as well as the disturbing truths and paradoxes of human nature as a whole, and move beyond them. However, the outcome of this letting go of self, of past certainties and convictions, is in no way certain. As Osman points out, within the context of the experience of expatriates, to survive in the special world, the hero needs to find and draw on previously unknown resources within herself (Osman 2000). She will not know until she undertakes the tests if she is up to the task. However, if she does fail the tests, she will never return with the elixir.

Within a business context, just as in screenwriting, over simplification and schematizing the Hero's journey to the level of a supposed formula for success is likely to result in failure. Indeed, it is likely to mean a failure even to leave the ordinary world and cross the threshold to the special world in the first place. Another way of thinking about this issue is in considering the tendency for ritual to become ceremony. Alexander (2014) defines ceremony as a reified version of ritual. Ceremony pretends to be ritual, but offers in its

place a 'ritual-like performance', which, rather than effect real change within a community through a process of symbolic death-rebirth, instead 'serves the purpose of preserving differences and sustaining the status quo in the interest of the groups in power' (Alexander 2014: n/a). Referring to his own experiences as co-founder and president of animation company, Pixar, Catmull (2014) explains how easy it is for ceremony to take the place of ritual within the practices of an organization. He explains how Pixar engaged a particular process to nurture and develop ideas and take them into production. They felt this process was unique and vital to the company's success and it was therefore one of their guiding principles to 'Trust the Process'. However, during the production of *Toy Story 2*, it became apparent to him that this belief in the process had become a mantra that had come to stand in for the real thing. He states that ' "Trust the Process" had morphed into "Assume that the Process Will Fix Things for Us." It gave us solace… But it also coaxed us into letting down our guard and, in the end, made us passive. Even worse, it made us sloppy.' (Catmull 2014: 79). His conclusion was that 'We should trust in people… not processes. It is just a tool - a framework. We needed to take more responsibility and ownership of our own work, our need for self-discipline and our goals' (Catmull 2014: 79). In other words, everyone in the company had to re-engage with 'the process' as a fully enacted ritual, new and different each time it was entered into. Each time threw up new challenges and each time brought new learning as a result of grappling with these challenges.

What we are talking about here is the ease with which lip service and box ticking can take the place of genuine experience. This may be the result of a deliberate strategy of control, in which those in power insist on maintaining a particular dominant narrative that is not open to question. However it may be, as in the case cited by Catmull above, that this is rather the result of familiar narratives outliving their usefulness, without anyone noticing that they have become out of date or have lost their power to inspire. As Barry and Elmes point out, the power and appeal of any narrative relies on its successful combination of the credible and the novel (Barry & Elmes 1997). Audiences often find a narrative credible when it draws on a familiar context, yet they find a narrative interesting when it makes them see the world differently. A successful storytelling strategy, therefore, is to mix the familiar with the unfamiliar. Following on from this, Barry and Elmes suggest that the success and failure of business strategies depends largely on their ability to adhere to these principles of storytelling (Barry & Elmes 1997). Their conclusion is that 'various strategic theoretical frameworks succeed one another because organizational readers have shifting preferences and attention spans, and not because of some Darwinian progression towards an ultra-fit theory. In other words, the currency of today's strategic models may have less to do with accuracy or predictability than with their appeal to current tastes and interests' (Barry & Elmes 1997: 437).

If 'any defamiliarizing perspective or device, no matter how initially exciting and captivating, becomes familiar, mundane, and tiresome with

time' (Barry & Elmes 1997: 436), then the Hero's journey is clearly not immune to such a fate. For a process to be genuinely creative, it needs to be new each time. The triggers that unleash creative thought and action need to be varied and renewed. According to Catmull 'if you repeat the same format, you tend to uncover the same lessons' so 'once you've hit on something that works, don't expect it to work again' (Catmull 2014: 218). In the same way, the use of the Hero's journey as a model needs to involve coming at in new ways and in new angles. As discussed above, the Hero's journey is flexible enough to allow this to happen. It it is however incumbent on those employing it to use it creatively, if it is to function effectively as a creative tool.

A further consideration is that Campbell's understanding of the Hero's journey has little to do with individual achievement in a material sense. This is less evident in Vogler's version, but for Campbell the focus is not only on the hero's personal enlightenment, but equally on his ability to return and bring this enlightenment to his society as a whole. Discussing the relevance of the Hero's journey to the context of business, Schultz (2013) emphasizes this aspect. He sees it as lending itself to a strategy of social entrepreneurship, in which the most vital element is to 'return to the world from which we started, baring (sic) what we have learned from the journey so we can share it with those we have set out to help' (Schultz 2013: n/a). However, even if the context is not social entrepreneurship, the question of the return to the ordinary world requires some consideration. It is perhaps the most difficult task of all for the hero 'to confront society with his ego-shattering, life-redeeming elixir, and take the return blow of reasonable queries, hard resentment and good people at a loss to comprehend' (Campbell 2008: 186). As Rose and Pulizzi (2011) acknowledge, the gap in understanding between the returning hero and the culture to which he brings this new understanding may be immense. Organizations and individuals who employ the Hero's journey as an aim to brainstorming and strategy will also need to give careful thought to how to communicate the insights gained and persuade others of their credibility and value. As discussed above, it is of course very possible that the Hero's journey is once again the model adopted.

A final consideration, that I would also like to bring in here, is that alternative narrative structures do of course exist, besides the Hero's journey. As discussed above, particular narrative models construct particular meanings. Tragedy presents a different view of the world than does Romance. The Hero's journey, with its emphasis on the individual hero who stands for good, is a version of the Romance or epic narrative. Such a narrative, Bakhtin points out, tends to communicate one truth, one perspective on the world. He terms such narratives monologic and contrasts them to dialogic narratives, which are polyvocal: incorporating multiple voices and perspectives (Bakhtin 1981). For Bakhtin, the literary form that best realizes these possibilities is the novel. We will go on to examine how Bakhtin's concept of dialogism might pertain to a business context, but first let us examine some other alternative narrative perspectives. There are other questions that one might ask of

the Hero's journey as a narrative model. Is there really only one hero in every story? Might there not be many heroes? Or maybe there's no hero? A useful corollary to bring in here might be the actant model of narrative analysis suggested by Greimas (1982). As Czarniawska explains, this model was also used by Latour and replaces the concept of 'character' with that of an 'actant', which could be human or non-human (Czarniawska 2004). In this model, actants only become actors, or what we might see as characters (i.e with a stable role in the story), through a trajectory of episodes. The outcome of each episode determines the nature of the next episode and through this trajectory of episodes significant actors may emerge. For example, Latour understands the invention of the Kodak camera and the emergence of the mass market for amateur photography as a series of moves and countermoves between the Eastman company and photographers that ended with Eastman dominating the consumer market. However, this final ending to the story was not, according to Latour, in any way inevitable, but the result of contingency at every step. Thus, whilst at the end of the trajectory, Eastman emerged as the hero, in the sense that it achieved market domination, Latour refuses the teleological construction of narrative, which works back from the ending to find its seeds at the very beginning and totalizes the rest of the narrative into a single chain of cause and effect. In Latour's analysis, while Eastman ultimately emerges as what we might call the hero of this narrative, there was nothing in its essential character at the beginning of the story that made this outcome inevitable. It was the final emplotment of the story that determined the roles played by the actants within it and not the other way round (Czarniawska 2004: 81).

The actant model has some resonance with the creative strategies of screenwriters and filmmakers who do not use the Hero's journey as their model. Such alternative strategies have a long history in filmmaking and can be identified in quite different historical, geographical and aesthetic contexts. Thus Italian writer/director Rossellini, in *Paisà* (1946), and Van Sant in *Elephant* (2003) both dramatize a momentous real life event in a similar way. Rossellini's subject was the allied campaign against Nazi Germany, at the end of the Second World War, which liberated Italy, starting in the South and moving up through the country to the North. Van Sant was concerned with the Columbine massacre of 1999, in which two pupils attacked their school in Colorado, USA, shooting pupils and staff and killing 12 people. In both cases, the narrative structure of the film focuses on multiple storylines, involving several characters. The structure is episodic, there is no single hero and the majority of the characters' journeys end in failure or uncertainty, rather than success. They are actants, caught up in an episodic trajectory of events, rather than actors, in control of their own story and driving it to a conclusion. The focus of these narratives is on the different human experiences and the different impacts of a single event on a culture (a school or a nation) as a whole.

There is a case for the relevance of such alternative narrative strategies to a business context. An awareness of the actant model can help to avoid essen-

tialising the roles of different actants in a narrative too early in its development. Whether one is seeking to learn from the past, or to imagine or strategize for the future, it is important not to be blind to the different ways in which a story might go or might have gone, but rather to be alive to the way that different outcomes, within a trajectory of episodes, might produce very different heroes and villains and different endings to the story.

Furthermore, as Barry and Elmes point out, narrative models can be used within business as a way of understanding and drawing on the multitude of experiences that exist within an organization. They refer to the example of a large aluminium producer, which embarked on a 'company-wide, story-based inquiry process centered around the garden metaphor' and recount how 'the repeated tellings seemed to come together in a complex, dialogical way (with many interconnected yet separate tales having been told). The new directions embodied in the overall narrative became touchstones for changes in day-to-day actions' (Barry & Elmes 1997: 442). In this example, mythical, archetypal touchstones have been employed, through the metaphor of the garden. Yet the storytelling process employed was more akin to Bakhtin's idea of polyvocality than to the kind of epic narrative model that the Hero's journey represents (Barry & Elmes 1997). Such an activity might be undertaken, moreover, not only in order to imagine or strategize the future, but also in order to better understand the culture of the organization as it stands.

Conclusion

The Hero's journey is an ancient narrative model, which has much to recommend it in the context of business. In particular, its deep emotional and cultural resonances and its openness to different interpretations and uses make it a responsive and flexible creative tool within the context of business. However, it does need to be used with caution. The Hero's journey should never be used as a fixed template, or as a step by step guide with a guaranteed outcome. It functions most effectively as a tool for creative thinking and as a way of achieving emotional engagement. Since its cultural roots are very deep, it also has the potential to establish and maintain a strong connection between the concerns and operations of business and those of the wider society. At the same time, it should not be forgotten that other narrative models also exist and these also have untapped potential for use within a business context.

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Author's Brief Bio

Rosamund Davies has a background in professional practice in the film and television industries, in which she worked with both independent production companies and public funding bodies. As script editor and story consultant for Film London, she oversaw the development of around 100 projects. Rosamund is a senior lecturer in screenwriting at the University of Greenwich and a member of the International Screenwriting Research Network. Rosamund's particular research interest is in narrative as a structure of meaning. This research encompasses both theory and practice. Her publications include 'Screenwriting Strategies in Marguerite Duras's Hiroshima Mon Amour (1960)', Journal of Screenwriting 1 (1) pp149-173, 2010; 'Digital Intimacies, Aesthetic and Affective Strategies in Online Video' in *Ephemeral Media* (Ed. P. Grainge) BFI/Palgrave 2011; hypermedia narrative *indexoflove* (2010), and *Introducing the Creative Industries*, SAGE 2013(with Gauti Sigthorsson), which explores 'how human creativity, meaningfulness and experience are organized at industrial scale' (review by John Hartley).

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CHAPTER FIVE

THE DARK TRIAD AND NEGATIVE CREATIVITY

HANSIKA KAPOOR & AZIZUDDIN KHAN

Abstract

Negative creativity is shaping into a legitimate sub-construct of creativity. To meet the goal of studying it in conjunction with the Dark Triad, participants (N = 129, 88 Indians, 88 women, M_{age} = 25.09 years, SD = 10.03) completed two creativity measures and three personality scales. The Alternate Uses Test (AUT) and a self-report Creativity measure were used to assess the two valences of creativity—positive and negative. The relationship between negative creativity and negative personality traits, namely, the Dark Triad, was investigated to study the criterion validity of the creativity measures. While the Dark Triad predicted endorsement of negative creativity on the Creativity measure, there was no discernable relationship with the generation of negative-creative responses on the AUT. Further, the AUT led to the generation of less than two percent of negative-creative responses. Suggestions for improving the AUT as a tool to measure negative creativity are discussed.

Keywords: negative creativity; Dark Triad; malevolent creativity; Alternate Uses Test

Double Negatives: The Dark Triad and Negative Creativity

Negative creativity is a fairly recent construct in creativity literature. After the introduction of the term in James, Clark, and Cropanzano's (1999) work, the construct has not been adequately measured, despite having a working definition. However, two measures of creativity have attempted to address positive and negative creativity in the recent past (Harris, Reiter-Palmon, & Kaufman 2013; Kapoor 2015). This paper aims to determine the linkage between negative creativity, operationalized as self-reported engagement in and generation of creativity, and a cluster of negative personality traits, namely, the Dark Triad (DT; Paulhus & Williams 2002).

If negative creativity, as measured by the Creativity measure, continued to be associated with the DT (Kapoor 2015), it would provide some external criterion validation for how the construct is being measured. Further, if the negative-original responses generated by the Alternate Uses Test (AUT; Guilford 1967) were not associated with the DT, it would provide initial evidence for the AUT's limited capacity to adequately measure negative creativity, in its current form.

Negative Creativity

The "dark side" of creativity was first reviewed in artistic, scientific, and technological creativity by McLaren (1993). He also suggested that creativity would be fully comprehensible when studied in the context of morality and intentionality (see also Runco & Nemiro 2003). In his words, "creativity, as a distinctly human preoccupation, clearly has its dark side. To be naive about this is to court disaster," (McLaren 1993, p. 142).

James et al. (1999) argued that in addition to being novel and useful, creativity is goal-oriented; this added the component of the actor's intent. As goals could be classified as positively or negatively motivated, individuals could develop creative means to meet negative goals. In essence, negative creativity is the creation of original products, used to meet negative goals, which are primarily beneficial to the creative individual. However, the by-product of the creative act can be some degree of harm to others. This yields a selfish notion of creativity (see also Eisenman 2008), which has been marginally studied in earlier work.

Although James et al. (1999) included the actor's intent in their definition of creativity, they did not explicitly state whether the intent was to *deliberately* cause harm to others or not. Thus, negative creativity came to be conceptualized as using the creative process to meet negative goals, which in theory harms others, but not deliberately so (see also Cropley et al. 2008b). For instance, developing a new method to cheat on an examination would be classified as negative creativity. Here, a neutral creative process is used to meet the socially negative goal of cheating, which is primarily beneficial to the actor, but not deliberately harmful to others. Using the creative process to meet negative goals and deliberately cause harm was *malevolent creativity* (Cropley et al. 2008a).

Although negative creativity was examined in a few studies at the turn of the century (Clark & James 1999; James et al. 1999), a dedicated measure was not developed to study the valences of creativity in conjunction. However, recently, an adapted AUT method, that scored valence of responses in addition to originality (Harris et al. 2013), and a Creativity measure, that assessed likelihood of endorsement of positive-creative, negative-creative, or neutral options (Kapoor 2015) have been developed.

Alternate Uses Test and Negative Creativity

As the AUT has been adapted to measure the valences of creativity (Lee & Dow 2011; Harris et al. 2013), it is important to review the measure in the context of negative creativity. Guilford's (1967) AUT is a frequently used metric of divergent thinking, assessing the likelihood of the capacity to engage in creative thought. It typically involves generating as many novel uses as possible for common objects, like bricks, or shoes. The AUT assesses creativity through the following:

a) Originality, defined as statistical infrequency of the response,
b) Fluency, defined as the number of uses generated,
c) Flexibility, defined as the number of varying categories covered across the uses,
d) Elaboration, defined as how much each response is verbally elaborated.

The AUT has also been adapted to study real-world divergent thinking, as in Clark and James (1999) and in Harris et al. (2013, Study 1). In such tasks, objects are replaced with social situations, requiring creative problem solving. The responses are typically coded along the same metrics described above. However, beginning with Lee and Dow's (2011) work, and subsequently, Harris et al.'s (2013) studies, another metric was added while scoring AUT responses—valence. Thus, to adapt the AUT methodology to enable the study of negative creativity, independent raters were required to code the originality and valence of responses. Although Lee and Dow (2011) and Harris et al. (2013) referred to negative-original responses as comprising malevolent creativity (Cropley et al. 2008a), since the nature of participants' intents was unknown, the scoring adaptation could be assumed to measure negative creativity. However, this AUT adaptation was not associated with another measure of negative creativity, to validate whether the same construct was being measured.

The Dark Triad

Despite a dearth of robust valence-inclusive creativity measures, recent research has associated positive creativity with negatively tinged behaviours, particularly lying (e.g., Gino & Ariely 2012). In addition to behaviours with a negative connotation, negatively shaded personality characteristics have also been studied in the context of positive and negative creativity. Kapoor (2015) investigated the relationship between the DT and self-reported engagement in positive or negative creativity, through a forced choice measure. Narcissism predicted positive creativity (see also Goncalo et al. 2010); psychopathy predicted negative creativity; and the DT composite was strongly and positively associated with endorsement of negative creativity.

Given preliminary findings in this area of personality and negative creativity, it was important to also assess the relationship between negative-original responses generated from the AUT and the DT. The DT of personality (Paulhus & Williams 2002) consists of three related and socially undesirable personality constructs, namely, Machiavellianism, psychopathy, and narcissism. The DT consists of subclinical levels of these traits, and assumes that they are non-pathological. This negative cluster of personality has been studied in the context of relationships (Jonason et al. 2012; Jonason et al. 2009), impulsivity (Jones & Paulhus 2011), and evolutionary theory (McDonald et al. 2012), to name a few, and is an emerging field of personality research (see also Furnham et al. 2013).

The Present Study

Thus, this study aimed to investigate the relationships between negative creativity, as assessed by two measures, and the Dark Triad. It was hypothesized that the DT would be able to predict endorsement of negative creativity on the Creativity measure, consistent with Kapoor (2015), but would not be associated with scant negative-original responses (e.g., Harris et al. 2013) on the AUT.

Method

Participants

An international sample of one hundred and twenty nine participants (88 Indians, 88 women, M_{age} = 25.09 years, SD = 10.03) was obtained after data screening, through an online form. Data were cleaned on the basis of self-reported fluency in English, and self-reported attention and honesty while responding to the study; these were scaled from 1 to 10.

Measures

Creativity Measure

A self-report Creativity measure assessing the likelihood of engaging in creativity was used (Kapoor 2015). Each item described a situation that could proceed in one of three ways: neutral, positive-creative, and negative-creative; participants responded to each option based on how likely they would be to engage in that behaviour. Thus, a 5-point Likert scale (1 = *extremely unlikely* to 5 = *extremely likely*) followed each of the three alternatives. Likelihood of engagement scores provided on each of the three options were averaged across the 15 situations, to yield a single positive-creative, negative-creative, and neutral score for each participant. The internal consis-

tency of the measure ranged from moderate on the neutral items (α = .55) to acceptable on the positive items (α = .64) to high on the negative items (α = .71).

Alternate Uses Test

Guilford's (1967) Alternate Uses test was used to assess divergent thinking. In line with Harris et al.'s (2013) improvement over Lee and Dow's (2011) methodology, the AUT required participants to generate as many original uses for three common objects—a brick, a shoe, and a coffee cup. The responses given by each participant were coded with respect to originality (1 = *very unoriginal* to 5 = *very original*) and valence (1 = *very negative* to 5 = *very positive*) by three independent raters, using Harris et al.'s (2013) rating scales. The three raters were female postgraduates in psychology (M_{age} = 22.67 years); two raters had prior experience with qualitative coding, while one was a novice rater. Further, the raters were blind to the purpose of the study, and made their ratings independently. Each rater coded the data in a different sequence, to avoid biases due to order effects. The reliability of the ratings on originality and valence across the three raters was computed using the Intra-Class Correlation Coefficient (ICC 2), used when the same raters are making all ratings.

ICCs were computed for originality and valence ratings for each response, leading to six sets of ratings provided by each rater. For brick originality, ICC (2, 3) = .81, indicating 81% true variance in the mean rating across three raters, and only 19% error variance. Similarly, for brick valence, ICC (2, 3) = .81; for shoe originality, ICC (2, 3) = .91; for shoe valence, ICC (2, 3) = .67; for coffee originality, ICC (2, 3) = .85; and for coffee valence, ICC (2, 3) = .68. Thus, all ICCs were close to or above the .70 cutoff. Because significant ICCs were obtained, the ratings across the three raters were averaged for each response, leading to a reduction from 18 ratings (3 per response, 6 per rater) to only six ratings (one average for all three raters per response, for six response types: brick-original, brick-valence, shoe-original, shoe-valence, coffee-original, coffee-valence).

Machiavellianism-IV (MACH-IV)

This was used in its 20-item, 5 point Likert scale format (1 = *strongly disagree* to 5 = *strongly agree*; Christie & Geis 1970), producing a cumulative score. The scale had high internal consistency in the present study, α = .78.

Levenson Self-Report Psychopathy Scale (LSRP)

This measure was used in its 26-item, 4 point Likert scale format (1 = *disagree strongly* to 4 = *agree strongly*; Levenson et al. 1995), yielding a cumu-

lative score. Items assessed primary and secondary psychopathy. In general, *secondaries* act in response to emotional disturbances reflecting more impulsivity, while *primaries* are manipulative, emotionally callous, and pathological liars. The scale displayed high internal consistency through alpha reliabilities for the full scale (α = .85), primary psychopathy subscale (α = .85), and secondary psychopathy subscale (α = .76).

Narcissistic Personality Inventory-16 (NPI)

This scale was used in its 16-item forced choice format (Ames et al. 2006), yielding a cumulative score. The scale had moderate internal consistency in the present study, α = .66.

Procedure

Participants were recruited through online sampling and multiple site entry. Those interested responded to the form at their own convenience. The form began with an informed consent page, which included information about the nature of the study, the nature of the tasks, possible benefits and risks of participation and the researchers' contact information. First, participants completed the Creativity measure; namely, the likelihood of engaging in various behaviours in response to 15 situations. Thereafter, they were presented with instructions to generate as many original uses as possible for a brick, a shoe, and a coffee cup; it was emphasized that there were no correct or incorrect answers. Then, they completed the three personality scales.

Results

Data obtained from the Creativity measure were reduced from three scores for each of the 15 situations per participant, to three averaged scores: likelihood of engaging in the positive-creative option, the negative-creative option, and the neutral option.

Data obtained from the AUT consisted of one or more responses from each participant, for each of the three objects. The total number of responses provided for each object comprised the brick-fluency, shoe-fluency, and coffee-fluency scores. On the basis of the single originality and valence scores, each response was classified as positive-original (originality > 3, valence > 3) or negative-original (originality > 3, valence < 3). Responses with a mean originality or valence score of 3 were not included while counting the number of positive-original or negative-original responses, in line with Harris et al.'s (2013) methodology. The total number of positive-original and negative-original responses for each participant was thus obtained. The single originality and valence score for each response was then averaged for responses

given by each participant. Total fluency and total positive-original and negative-original responses were summated.

Descriptive Statistics

Table 1 (appendix 1, page 111) displays the descriptive statistics for positive-creative, negative-creative, and neutral scores from the Creativity measure; and fluency, originality, valence, positive-original and negative-original metrics for brick, shoe, coffee, and overall AUT responses. Descriptive statistics for the personality scales were also computed: MACH-IV (M = 56.76, SD = 9.75), LSRP (M = 52.98, SD = 10.38), and NPI (M = 4.47, SD = 2.82). As some data sets included outliers, medians were also reported as measures of central tendency. The total number of responses across the objects was 1864, of which 1171 were positive-original responses and only 40 were negative-original. Thus, the AUT in its present form may not facilitate the production of negative-original responses; preliminarily, an alteration in instruction or kinds of objects may be warranted.

Inferential Statistics

With respect to the Creativity measure, a one-way ANOVA revealed that the likelihood of engaging in a neutral option was higher than engaging in a positive-creative option, in turn higher than selecting a negative-creative option, F (2, 384) = 425.98, $p < .001$, $\eta_p^2 = .69$ (see page 112). This was consistent with the assumption that creativity, being a normally distributed trait (e.g., Eysenck 1993), would be endorsed less often than non-creative or neutral options.

With respect to the AUT, mean originality and valence scores obtained for each participant for each object were not averaged across objects, as differences in mean valence were significant across objects, F(2, 384) = 10.96, $p < .001$, $\eta_p^2 = .05$; the valence of shoe was less than that for brick, which was less than that for coffee. Mean differences in originality were not obtained, F (2, 384) = 1.61, p = .20, ns. Thus, differential valences across objects provided preliminary support for controlling the inherent valence of objects in the AUT; for instance, providing negatively valenced items like a knife in addition to shoes and coffee cups.

Correlations between Creativity Metrics and the DT

To determine the association between the creativity measures and DT scales, correlations (Table 2) and multiple regressions were computed. There was a positive and significant association between Machiavellianism and LSRP, and its primary and secondary subscales. However, there was no significant relationship between MACH-IV and NPI, consistent with findings that this

correlation is usually the lowest (Furnham et al. 2013). The LSRP subscales correlated positively with each other, and with the total score, indicative of an internally consistent measure. In addition, psychopathy correlated significantly with narcissism. Thus, the DT scales were positively correlated with each other in all cases but one, providing evidence for a personality cluster (Paulhus & Williams 2002).

The negative-creative score was positively associated with Machiavellianism, primary psychopathy, overall psychopathy, narcissism, and the DT *z* Composite (Jonason et al. 2009), consistent with prior work (Kapoor 2015). The absence of a relationship with secondary psychopathy indicated the importance of delineating the two subtypes of psychopathy in the context of negative creativity. The positive-creative score was not associated with any DT measures.

With respect to brick responses, correlational analyses assessed the relationships among fluency, originality, valence, positive-original, and negative-original responses and the DT measures. Secondary psychopathy was negatively correlated with originality, and Machiavellianism was negatively correlated with valence. The latter implied that greater the negative valence in a response, higher the MACH-IV score. Negative-original responses were not associated with any DT scales.

With respect to shoe responses, narcissism was negatively associated with valence, suggesting that greater the negative valence in a response, higher the narcissism score. Similarly, the DT Composite was marginally associated with valence. However, negative-original responses were not associated with any DT scales.

With respect to coffee responses, narcissism was positively associated with valence, and the DT composite was also positively associated with valence. Thus, the higher the positive valence of a response, the higher the narcissism and DT composite scores. Moreover, neither negative-original nor positive-original responses were associated with the DT scales. Such discrepant findings may be due to the differential functioning of valence across objects.

Overall fluency, positive-original, and negative-original responses were also unrelated to the DT scales. Thus, the difficulties in the assessment of negative creativity by the AUT may have lead to non-significant results when assessing the AUT metrics in conjunction with personality.

Criterion Validation

Apart from correlations between creativity and DT, multiple regressions were also computed to assess the ability of the DT scales to predict negative creativity. These analyses would provide preliminary evidence for an external criterion validation of the negative creativity construct.

First, the model negative-creative score as a function of Machiavellianism, psychopathy, and narcissism was tested. The linear combination of the personality traits were significantly related to negative creativity, $F(3, 125) = 8.52$, $MSE = 1.54$, $p < .001$. R was .41, indicating that 17% of the variance in the negative-creative score was due to the linear combination of the predictors. However, only psychopathy was a significant predictor of negative creativity, $B = .31$, $t = 2.82$, $p = .006$. Based on correlational evidence, the next model replaced psychopathy with primary psychopathy as a predictor. Once again, the overall model was significant, $F(3, 125) = 12.16$, $MSE = 2.04$, $p < .001$, and R increased to .48, implying that 23% of the variance in the negative-creative score was due to the linear combination of the predictors. Primary psychopathy was a better predictor than psychopathy, $B = .38$, $t = 3.56$, $p < .001$. Moreover, given the high correlation between the predictors, multicollinearity may have affected the predictive power of each independent predictor. A model with positive-creative score as the dependent measure was not tested due to the lack of significant associations between this score and the DT scales. Hence, a multiple regression seemed unnecessary.

Second, similar models were tested with the dependent measure being the number of negative-original responses as a function of the DT scales in conjunction. However, as the number of negative-original responses was extremely scant, with more than 50% of participants providing zero negative-original responses, zero-inflated negative binomial regression models were tested. This statistical procedure is used when a frequency variable is a dependent measure, and more than half of its responses are zero. It is a combination of a zero-inflated model, and a negative binomial regression.

With respect to the model—negative-original responses are a function of Machiavellianism, psychopathy, and narcissism—higher Machiavellianism predicted higher number of negative-original responses for a brick, controlling for the other two DT scales, $B = 1.76$, $z = 2.26$, $p = .02$.

With respect to shoe responses, higher narcissism predicted higher number of negative-original responses, controlling the other two DT scales, $B = 1.05$, $z = 1.83$, $p = .07$. Although the other two predictors were non-significant, the model as a whole significantly differed from the null model; log likelihood = .02. The DT did not predict negative-original uses for a coffee cup, as the predictors in the model were non-significant.

Although zero-inflated negative binomial models were statistically appropriate due to the nature of the data, upon further analyses, all models were found to be less superior to negative binomial models. Moreover, none of the negative binomial models revealed statistically significant results. Hence, the DT scales were not good predictors of the generation of negative-original responses on the AUT.

Discussion

Negative creativity is a developing construct with few available measurement tools. In particular, Harris et al.'s (2013) adapted AUT and Kapoor's (2015) Creativity measure were used to determine the association between negative creativity and the DT. Although descriptive statistics revealed the AUT's relatively limited ability to assess negative creativity, it did not necessarily display whether the Creativity measure examined negative creativity. The latter goal could be met by studying the association between the Creativity measure and a third measure of negative creativity. However, it could also be met by assessing the measures' associations with personality constructs that they would theoretically be related to—such as the DT—to provide preliminary criterion validation.

The negative-creative score on the Creativity measure was strongly and positively associated with the three components of the DT, and its composite; further, the DT components predicted endorsement of negative creativity on the measure. Thus, although the convergent validity of negative creativity was not established in this study, the construct was consistently associated with a dark cluster of personality (Kapoor 2015).

The correlations between the negative-original responses on the AUT and the DT measures were not significant; the scant negative-original responses on the AUT rendered the variable almost binomial in nature. Similarly, negative binomial models provided no relationship between the AUT negative-original responses and the DT measures. However, the negative relationships between the valence scale and personality metrics were promising, in that, if the AUT were adapted to suit the collection of negative-original responses, the generation of such responses could increase, and perhaps lead to significant associations with the Dark Triad cluster.

Although the AUT is the method of choice while examining positive creativity, its current form does not tap into the negative creativity construct well. This is not to say that the Creativity measure with its format of endorsing creative options is the most appropriate, but that the AUT may need additional alterations apart from scoring valence. Although the Creativity measure provides an objective score on positive- and negative-creative options, it does not require the generation of creative responses, and hence is not a completely adequate assessment of creativity. However, as the Creativity measure adopts social situations, assessing real-world divergent thinking tasks and determining their validity in assessing negative creativity may be attempted.

In sum, this study provided initial evidence for the AUT's limited ability to generate an adequate number of negative-original responses, and thereby to measure negative creativity. The results also provided evidence for the Creativity measure's internal consistency, and associated the metric with the Dark Triad, to provide criterion validity. To improve the AUT as a measure of

negative creativity, real-world divergent thinking situations, or alterations in instructions and objects are recommended.

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Appendix 1

Table 1
Descriptive Statistics for the Creativity measure and AUT (Brick, Shoe, Coffee, and Overall)

Variable	Sum	Min.	Max.	*M*	Median	*SD*
Creativity Measure						
Mean Positive-Creative	398.93	1.73	4.27	3.09	3.13	0.53
Mean Negative-Creative	263.20	1.00	3.73	2.04	2.00	0.46
Mean Neutral	482.47	2.27	4.53	3.74	3.73	0.42
AUT Brick						
Fluency	681.00	0.00	17.00	5.28	5.00	3.46
Originality	417.74	0.00	4.00	3.24	3.41	0.61
Valence	452.49	0.00	4.00	3.51	3.67	0.44
Positive-Original	489.00	0.00	15.00	3.79	3.00	2.95
Negative-Original	9.00	0.00	3.00	0.07	0.00	0.34
AUT Shoe						
Fluency	563.00	0.00	19.00	4.36	4.00	3.50
Originality	407.02	0.00	4.33	3.16	3.50	1.07
Valence	432.93	0.00	4.00	3.36	3.47	0.67
Positive-Original	362.00	0.00	17.00	2.81	2.00	2.95
Negative-Original	12.00	0.00	2.00	0.09	0.00	0.32
AUT Coffee						
Fluency	620.00	0.00	25.00	4.81	4.00	3.80
Originality	394.83	0.00	4.33	3.06	3.25	0.77
Valence	471.78	0.00	4.33	3.66	3.67	0.40
Positive-Original	320.00	0.00	13.00	2.48	2.00	2.64
Negative-Original	19.00	0.00	2.00	0.15	0.00	0.40
AUT Overall						
Fluency	1864.00	3.00	57.00	14.45	12.00	9.83
Positive-Original	1171.00	0.00	40.00	9.08	7.00	7.65
Negative-Original	40.00	0.00	4.00	0.31	0.00	0.67

Appendix 2

Table 2

Correlations between the Creativity measure, AUT metrics, and the Dark Triad

Variable	*1*	*2*	*2a*	*2b*	*3*	*4*
1. MACH	1					
2. LSRP	.66**	1				
2a. LSRP–P	.58**	.87**	1			
2b. LSRP–S	.47**	.72**	.28**	1		
3. NPI	.12	.31**	.39**	.05	1	
4. DT Composite	.76**	.86**	.80**	.54**	.63**	1
5. Mean Positive-Creative	.04	.08	.14	-.05	.09	.11
6. Mean Negative-Creative	.34**	.40**	.47**	.12	.21**	.43**
7. Mean Neutral	.02	-.06	-.02	-.09	-.12	-.07
	1	*2*	*2a*	*2b*	*3*	*4*
8. Brick Fluency	-.04	-.03	.03	-.10	-.08	-.08
9. Brick Originality	-.04	-.14	-.02	-.24**	-.04	-.10
10. Brick Valence	-.23**	-.09	-.06	-.09	.09	-.11
11. Brick Positive-Original	.05	0	.09	-.12	-.04	-.01
12. Brick Negative-Original	.13	.09	.10	.03	0	.12
	1	*2*	*2a*	*2b*	*3*	*4*
13. Shoe Fluency	.01	.02	.04	-.01	-.05	-.02
14. Shoe Originality	.05	-.03	-.05	.01	-.07	-.03
15. Shoe Valence	-.04	-.06	-.09	.02	-.20*	-.13
16. Shoe Positive-Original	.07	.01	-.01	.03	-.02	.01
17. Shoe Negative-Original	-.13	-.04	-.04	-.02	-.01	-.08
	1	*2*	*2a*	*2b*	*3*	*4*
18. Coffee Fluency	.05	.02	.05	-.03	-.05	0
19. Coffee Originality	.10	.09	.11	.01	.02	.09
20. Coffee Valence	.03	.08	.08	.04	.16*	.14*
21. Coffee Positive-Original	.08	.07	.08	.02	-.04	.04
22. Coffee Negative-Original	-.02	-.06	-.01	-.09	-.06	-.06
	1	*2*	*2a*	*2b*	*3*	*4*
23. Overall Fluency	.01	.01	.04	-.05	-.06	-.03
24. Overall Positive-Original	.07	.03	.06	-.03	-.04	.01
25. Overall Negative-Original	-.01	-.01	.03	-.05	-.04	-.02

CHAPTER SIX

CRAZY AS A FOX: FROM PATHOLOGY TO PRODUCTIVITY

TARA GREY COSTE & CAROL NEMEROFF

Creativity and madness have been linked since the time of the Ancient Greeks. This analysis suggests that creativity and psychopathology are on a continuum with regard to shared mechanisms—but are clearly distinguishable from each other. The determination of crazy depends on the fit between people and their contexts. Creativity is typically operationalized as both difference and utility. In order for a novel idea to be seen as tenable, it must be perceived as useful. Given how much the judgment of utility depends on the fit between creative and environment, it is essential to seek acceptance finding within the context of culture.

The story of creativity is resplendent with examples of creative people who are thought to have been "mad." This is not a new phenomenon; the creative has been associated with madness since the time of Aristotle (Keynes, 1995). What is especially interesting about this is the contrast between someone or something that is unwell (or crazy) and the creative, which leads to the innovation so highly lauded in modern society. What is crazy? What is creative? And how does this play out in various environments? Answers to these questions are critical to attaining a firm grasp on how to enhance creative achievement.

As any creative individual knows firsthand, creative ideas are not uniformly well received. In fact, it often seems that *creative* is just one small step removed from *crazy*. Creative individuals are frequently described by others in such terms as *out there*, *quirky*, *dreamers*, *nutty*; in a word, different. Stereotypes of the eccentric artist and the mad scientist have been identified as far back as ancient Greece, where Plato reportedly remarked on the "eccentricities of playwrights and poets," and Aristotle noted a relationship between creativity and depression (Andreasen, 2008).

Many more prominent examples of brilliant but tortured "creatives" come easily to mind: Vincent Van Gogh, Robert Schumann, Ludwig von Beethoven, and Virginia Woolf all appear to have suffered from bipolar disorder (previously called manic-depression), and more recently, celebrities Robin Williams and Jim Carey have publicly shared their diagnoses. Playwrights Eugene O'Neill and Tennessee Williams, author Charles Dickens, and poet Sylvia Plath all experienced severe depressions. And Nobel Prize-winning mathematician John Nash suffered from schizophrenia, as depicted in the movie *A Beautiful Mind*. Many other prominent creative individuals suffered from mental illnesses that have been less clearly specified, including Michaelangelo, Tolstoy, and Sir Isaac Newton. In particular, the list of creative celebrities believed to be bipolar is quite long and includes, in addition to those noted above, Rossini, Tchaikovsky, Jackson Pollock, Francis Ford Coppola, Hemingway, Lord Byron, Kierkegaard, Abraham Lincoln, Winston Churchill, and Florence Nightingale (see Jamison, 1993, and NAMI, n.d., for documentation of these and many more examples).

Nor does the stereotype of the *crazy creative* appear to be illusory. A growing number of scientific studies have shown positive correlations between creativity and mental illness. This research began in Germany where, from 1927 to 1943, psychiatrist Adele Juda (1949) tracked psychiatric disorders among artists, scientists, and their relatives. Juda reported higher rates of mental illness as compared with the general population, noting that schizophrenic-type disorders were found more often among artists, while manic-depressive-type disorders were more commonly found among scientists. In both groups, Juda noted a higher suicide rate. She conducted a similar study in Iceland, examining close relatives of patients with diagnoses of schizophrenia or bipolar disorder. Compared to the general population, she found that relatives of schizophrenic patients were twice as likely to be recognized (eminent) creative people, while the relatives of bipolar patients were six times as likely to be recognized creatives. Karlsson (1970) interpreted this as suggesting that the gene for schizophrenia might, when balanced by a healthy gene, give rise to "increased cerebral stimulation" leading to giftedness and creativity.

In 1987, researcher Nancy Andreasen conducted essentially the inverse study. She examined rates of mental illness among creative writers and their first-degree relatives (i.e., one step removed genetically—parent, child, sibling), as compared with matched controls and their relatives. Andreasen reported a much higher rate of mental illness among the creative writers, and higher rates of both mental illness and creativity among their relatives, once again supporting the idea that creativity and mental illness might be genetically linked (Andreasen, 1987, 2008).

The evidence continues to accumulate with a spate of more recent studies on the topic, and an expanded focus. In 2005, Stanford University researchers Simeonova, Chang, Strong, and Ketter assessed creativity among 40 bipolar parents and 40 of their children, all of whom also had diagnoses evenly di-

vided between bipolar disorder and ADHD (Attention Deficit Hyperactivity Disorder). Compared with parents and children in the general population, the bipolar patients *and* their children all scored much higher on the BWAS (Barron-Welsh Art Scale), a test of creativity. This was regardless of whether the children were diagnosed with Bipolar Disorder or ADHD (Simeonova et al, 2005). In 2011, White and Shah (2011) replicated the findings of their earlier (2006) study finding that adults with ADHD did better on several tests of divergent thinking - although not on tests of convergent thinking. White and Shah explained their findings in terms of different levels of "inhibitory control," an idea we will return to below.

Finally for purposes of our current review, a team of researchers at the Karolinska Institute led by Dr. Simon Kyaga (2013) reported results from a 40-year long prospective population study with a sample size of 1,173,763 participants. They compared the "occurrence of creative occupations" among patients and their relatives without psychiatric diagnoses, to matched controls. Creative professions were defined as "scientific and artistic occupations," while a wide range of diagnoses were assessed, including but not limited to schizophrenia, bipolar disorder, anxiety disorders, drug and alcohol abuse, autism, and ADHD. Kyaga and colleagues found that individuals in creative professions in general were more likely to suffer from bipolar disorder, but not from any other diagnoses—although their close relatives were more likely to suffer from schizophrenia, bipolar disorder, anorexia nervosa, and autism. Furthermore, authors, specifically, showed "increased likelihood of schizophrenia, bipolar disorder, unipolar depression, anxiety disorders, substance abuse, and suicide" (Kyaga et al., 2013, p. 1).

A variety of explanations of the link between psychopathology and creativity have arisen to account for these findings. At the most general level, the relationship makes good sense when we consider what creativity requires. Depending on the measurement method, creativity tends to involve: making unusual/uncommon mental associations, fluency or flexibility of ideas, openness to new experiences, independence of thinking, and having the ability to bring together "remote associations." Most current theories hold, in one way or another, that creativity results from subclinical, i.e., less severe, manifestations of the very same characteristics that constitute disorders. That is, mild manifestations confer advantage, while severe versions constitute illness. (See Preti & Miotto, 1997, for a thought-provoking analysis.)

Recent research attempts to identify the brain regions and functions involved in creativity, and perhaps shared between creativity and psychopathology. For example, Flaherty (2005) draws upon evidence from studies of brain abnormalities to identify the temporal lobes as responsible for idea generation and the frontal lobes as responsible for evaluating the quality of ideas (evaluative and inhibitory function). The balance between the two is managed by the mesolimbic system—the part of the brain circuitry underlying emotions and the dopamine-based reward system. Flaherty hypothesizes that the right balance results in creativity, the wrong balance in depression (over-

inhibition) or psychosis (overgeneration of ideas and under-inhibition, in other words, loosening of associations). (See also De Manzano, Cervenka, Karabanov, Farde, & Ullén, 2010, regarding neurobiological mechanisms of cognitive disinhibition).

Similarly (but with less neurobiology), cognitive psychologist Scott Barry Kaufman, Scientific Director of The Imagination Institute in the Positive Psychology Center at the University of Pennsylvania, writes:

> Too much psychosis and one is at high risk of going mad. But everyone engages in psychosis-related thought any time they use their imagination. This type of thought activates particular regions of the brain and is especially prominent while daydreaming and night-dreaming.... I do not think a "psychotic episode" is necessary for art, but mental processes such as a reduced latent inhibition can be very useful for art. The continuum aspect is key. Extreme psychosis can lead to a psychotic episode, completely detached from reality.... That isn't very adaptive. But there is a sweet spot in which you still use your imagination but have a healthy foot in reality. That sweet spot is one which is heavily conducive to flow, a state that many artists (and other creative people) seek. (Kaufman, 2011, para. 3).

The issue is perhaps best summarized by Dean Keith Simonton:

> "Psychopathology and creativity are closely related, sharing many traits and antecedents, but they are not identical, and outright psychopathology is negatively associated with creativity" (Simonton, n.d., slide 36; see also Simonton's 1999 book *Origins of Genius: Darwinian Perspectives on Creativity*.)

What is crazy?

The foregoing review suggests that creativity and psychopathology are on a continuum with regard to shared mechanisms—but are clearly distinguishable from each other. In other words, we have assumed that the difference between *crazy* versus *creative*/*unusual* is clear-cut, and that while they may often go together, they are obviously not the same thing. However the definition of abnormality in the sense of mental illness (*psychopathology* or *crazy* in lay terms) is far from clear cut, even for experts in psychology and psychiatry.

The current diagnostic system used in the United States, and increasingly much of the rest of the world, is the DSM-V (*Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*). According to the DSM-V, which was released in May of 2013:

A mental disorder is a syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that

reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning. Mental disorders are usually associated with significant distress in social, occupational, or other important activities. An expectable or culturally approved response to a common stressor or loss, such as the death of a loved one, is not a mental disorder.

Socially deviant behavior (e.g., political, religious, or sexual) and conflicts that are primarily between the individual and society are not mental disorders unless the deviance or conflict results from a dysfunction in the individual, as described above (American Psychiatric Association, p. 20)

One can't help but notice the number of words in this definition that rely on the judgments of an evaluator: *clinically significant*, *disturbance*, *dysfunction*, usually associated with *distress* (but not always), *important activities*, *expectable* or *culturally approved response*. The definition attempts to distinguish deviance from disorders, but has to fall back on other difficult-to-define terms such as dysfunction, in order to do so. But who decides what is important? Clinically significant? Expectable or approved?

Beyond this dismayingly subjective core definition, the manual lists an array of syndromes, which are diagnosed by matching an individual's behavior to lists of diagnostic criteria. One new diagnostic category in the DSM-V is Disruptive Mood Dysregulation Disorder (DMDD). According to its corresponding fact sheet from the American Psychiatric Association:

> Its symptoms go beyond describing temperamental children to those with a severe impairment that requires clinical attention. Far beyond temper tantrums, DMDD is characterized by severe and recurrent temper outbursts that are grossly out of proportion in intensity or duration to the situation. These occur, on average, three or more times each week for one year or more. Between outbursts, children with DMDD display a persistently irritable or angry mood, most of the day and nearly every day, that is observable by parents, teachers, or peers. (2013, p. 1)

While the frequency and duration specifiers may provide a sense of measurement precision, and the diagnostic criteria include a laudable attempt to require agreement across multiple observers, there is still a disturbing amount of room for interpretation embedded in the criteria. Furthermore, it is fair to say that this is the case for a great many diagnostic categories.

In a scathing critique of the DSM, Eric Maisel (2013) argues that the definitions are essentially meaningless. While this is an extreme stance, his points are worth thinking about as he confronts the elusive dividing line between difference and illness:

> Language has been employed to say absolutely nothing. A mental dis order is a psychological thing, or maybe it isn't. A mental disorder is a biological thing, or maybe it isn't. You can rail about your society unless you have a "dysfunction," at which point your railing is a men tal disorder. You can have a conflict with your politicians unless you

> have a "dysfunction," at which point you are a mental deviant. (para. 7)

In other words, simply put, we do not have a clear-cut definition of *mental disorders*, a.k.a. *crazy*.

In one of the most thoughtful approaches to this issue, psychologists David Rosenhan and Martin Seligman (1984) identified a set of seven elements, or features, of abnormality, refined but essentially unchanged over ensuing decades. While no single feature is either necessary or sufficient to result in a clear cut identification of pathology, they suggested that the more of them we see in a particular person, the more certain we are that a *disorder* is present. These are:

1) Suffering: feeling pain or discomfort. Of course, being labeled as deviant or *crazy* can create this.
2) Maladaptiveness: "Behaviors that strongly interfere with individual well-being... the ability to work and the ability to conduct satisfying relationships" (Seligman, Walker, & Rosenhan, 2001, p. 21). Of course, the latter depends on whether one's ideas are valued in the various arenas of one's life.
3) Vivid/Unconventional Behavior: "Generally, people recognize as acceptable and conventional those actions that they themselves are willing to do*"* (Rosenhan & Seligman, 1984, p. 22).
4) Unpredictability and Loss of Control: Behavior in which "the ordinary guides of behavior suddenly break down" and "when we do not know what causes an action" (p. 22). In addition to the obvious judgment inherent in the phrase "ordinary guides of behavior," it is also common for productive behavior (such as creativity) to be experienced as inconsistent, unpredictable, and even somewhat out of control.
5) Irrationality: "When a person's behavior seems to have no rational meaning" (Seligman, Walker, & Rosenhan, 2001, p. 21).
6) Observer Discomfort: The behavior makes others uncomfortable.
7) Violation of Moral and Ideal Standards: self-explanatory.

Rosenhan and Seligman argue that no single feature is enough in and of itself, but when several are present, a mental disorder is indicated.

Of particular concern for our argument is this: can the approach above adequately distinguish between a creative individual in an unsupportive environment and a person with a mental illness? Consider that seeing things differently may result in not being understood by others in one's immediate context (social or occupational). This is likely to make those others feel uncomfortable and perhaps to find one unpredictable—which in turn may result in one feeling distressed. Thus we achieve at least five of the seven elements of abnormality—more than enough to conclude that a mental disorder is present (although not which one).

The element that comes closest to being a defining feature is undoubtedly *maladaptiveness*, a close neighbor to *dysfunction*. But what does it mean? Arguably, being a member of the French Resistance would have been maladaptive in the middle of Vichy France! What makes something maladaptive, other than whether or not it worked; whether or not you survived; whether or not somebody trusted you enough to give you resources to get to an end point that was judged to be worthwhile?

By this point it should be excruciatingly obvious just how much the determination of *crazy* depends on the fit between a person and his or her context. Even the most unusual of psychological symptoms—hallucinations and delusions—can be very difficult to distinguish from mere unconventional belief systems (e.g., *hallucinating* versus *spirit channeling*, belief in conspiracies, etc.). It is not surprising, then, that as the frequency of psychiatric diagnoses continues to rise (see Levine, 2013, for an overview), a minority voice comprised of professionals and laypersons alike questions the utility of these diagnoses, and whether they may, in some or perhaps many cases, be doing more harm than good. As Webb et al. (2005) argue, "Some of our most brightest and most creative minds are not only going unrecognized, but they are being given diagnoses that indicate pathology" *(Conclusion, para. 1; see also Webb 2004).*

What is creative?

The question of madness aside, what are the qualities of those we see as effective creatives? Csikszentmihalyi's (1996a) highly cited study of the creative process presents ten antithetical traits found in exceptionally creative people, from scientists and politicians to business leaders and artists. Some of these are interesting but less directly relevant to our conversation: creatives are unusually energetic, but also know the importance of rest; creatives can be both playful and disciplined; creatives exhibit both extroverted and introverted behaviors; creatives have moments of great joy but also great pain; creatives reject rigidly defined gender roles. Of more direct importance to this discussion are the rest, the characteristics that root a creative in place.

Creatives must possess both imagination and a grounded sense of reality. Obviously, imagination is required to think beyond the ideas that currently exist. The special talent that creatives possess is to take an idea that others perceive (in their reality) as simply bizarre and connect it firmly to the present, so that all may see a new reality. Similarly, creatives tend to be both naive and smart, exhibiting both childishness and wisdom. From this lens, we see a willingness to play with ideas—the fluency, flexibility, and originality that are essential to divergent thought—contrasted with equally important abilities in convergence, the skill to sort good ideas from bad ones.

Creatives are quite passionate and yet reasonably objective about their work. Passion is necessary to keep forging into the unknown, driven largely

by intrinsic motivation. Objectivity allows us to know when an idea is not worth pursuing or needs criticism and appropriate response. Creatives are simultaneously proud and humble. They are cognizant of the fact that their work is supported by the work of others who have come before them, yet they are rightly proud of their contributions. This sense of place in their areas of endeavor grounds them and gives them the security to surge ahead.

Creatives are both rebels and conservative. Csikszentmihalyi (1996b) argues that "it is impossible to be creative without having first internalized an area of culture" (p. 40). Creatives are willing to take risks, to challenge the status quo, but keep an eye on what has been. Generating ideas that are original but not acknowledged as useful is not creativity. Generating ideas that are useful but not original is not creativity. Creativity requires both originality and acceptability. It is only then that we see a clear interplay between divergence and convergence, breaking out of the norm and then fitting back into the norm so that new ideas can be recognized and appreciated by others.

The majority of creativity researchers operationalize creativity in this way, as a two part phenomenon requiring both novelty and utility. An idea is considered original if it is notably different from that which has come before in any given area. It is considered useful if it solves a problem or meets a need (Simonton, 2011). While this operationalization appears to focus on an end product, the end product is not creativity in and of itself. What it is is the end result of creativity, the product of the creative *process*. Most contemporary definitions of creativity are rooted in the model Morris Stein put forth in the 1950s (Runco & Jaeger, 2012), that creativity is a "process which results in a novel work that is accepted as tenable or useful or satisfying by a group at some point in time" (1953, p. 311).

To understand how we got to where we are in our understanding of creativity, it is helpful to take a step back and look at the evolution of the study of creativity in its own right. The concept of creativity really took hold in the 1700's when debates about freedom of thought amid social and political constraints unlocked the concept of creativity from that of talent (Albert & Runco, 1999). By the end of that century, it was widely held that while mere talent would be guided by rules, customs, and obligations; genius was unleashed from these constraints. More specifically, it was thought that genius (and later creativity) is:

- Not connected to the supernatural
- A possibility for any individual
- Not the same thing as talent
- Exercised dependent upon political pressures.

In the 1800's and early 1900's the importance of adaptability entered into the conversation. Of great concern were the effects of the rapid innovation of the Industrial Revolution on communities. Basic questions guiding the work on creativity at this time and going forward were: what is it? who has it? who

should benefit from it? and can it be taught? (Albert & Runco, 1999).

This last query (i.e., can it be taught) led us more even firmly from concepts of creativity as inherent in particular individuals or those in certain stations of life to a more deliberate exploration of the creative process and how this process can be enabled by a variety of tools and techniques. In the decades after the mid-20th century there was a flurry of work on how creativity could be taught. Highlights of this included the work of Osborn on Brainstorming (1953), Gordon on Synectics (1961), Debono on Lateral Thinking (1970), Altshuller on TRIZ (1973/1999), and Buzan on Mindmaps (1977). Later publications spotlight the work of Torrance (1995) and Gardner (1994) who further delved into how creativity may be developed.

Although the best applications of deliberate creativity models emphasize both divergence and convergence, much of the work in deliberate creativity has focused largely on the generation of new ideas. Of course, idea generation is not of much use unless one can determine which ideas are worthwhile to pursue. The most effective techniques are effective at placing ideas in context. Why is an idea good? What makes it extraordinary? Why should others perceive it to be of special value? Csikszentmihalyi (1996b) suggests that "at the highest levels of creative achievement the generation of novelty is not the main issue" (p. 38). And we agree.

Let us go back to Stein's 1953 definition of creativity: creativity is a "process which results in a novel work that is accepted as tenable or useful or satisfying by a group at some point in time" (p. 311). Who is this group? What is this time? The group and the time determine the audience of the idea, an audience which is firmly positioned in the place that they hold. In order for an idea to be seen as *tenable* or *useful* or *satisfying*, it must speak to the culture (and subcultures) in which it is presented. What do these people believe in? How do they see themselves? What do they perceive to have value? An idea that does not mesh well with the cultural realities of its audience will not be recognized as having utility. In short, *creativity is culturally defined.*

What is culture?

As daunting as it was to pin down mental illness and creativity, it can be equally challenging to define the concept of *culture*, notwithstanding the fact that the term is commonly used in everyday language, along with *subculture*, *Western culture*, and even *hipster culture*. The first accepted historical definition within anthropology was offered by E. B. Tylor in 1871: "that complex whole which includes knowledge, belief, art, morals, law, custom and any other capabilities and habits acquired by man as a member of society" (p. 1).

While there have been many definitions offered for the term (Kroeber & Kluckhohn identified 162 definitions used in anthropological literature in 1952!), most eventually allude to culture as transmitted through social learning and involving categorization and symbolic systems. These may include

social, political, and religious systems; kinship, marriage, and gender relations; expressive forms and rituals; technologies; material artifacts; and shared narratives. (See, for example, Geertz, 1973.)

In the present day, Wikipedia ("Culture," n.d.) offers an overview that captures how the term is used in everyday conversation:

> When used as a noun "a culture" is the set of customs, traditions, and values of a society or community, such as an ethnic group or nation. In this sense, the concept of multiculturalism is a political ideology that values the peaceful coexistence and mutual respect between different cultures inhabiting the same territory. (para. 4)

However, an ideal state where difference is a non-issue is rarely, if ever, truly achieved. Difference is often seen as counter-culture, as dangerous and something that must be controlled to prevent disruption and trauma to the dominant culture.

With both *creative* and *pathological* so heavily determined by culture, it is clear that in order to come to be identified as the first rather than the second, it is necessary to present oneself and one's novel ideas in a way that deviates optimally—not too little, not too much—from the current thinking of those in a position to evaluate. Too little, and we will seem run-of-the-mill, *normal*. Too much, and we will be written off as invalid (crazy, or at least odd)—and the consequences of that can be dire.

People who are different are often experienced as threatening. People like and crave order, predictability, and (ideally) control, in everything from their bedtime routines and religious practices to everyday social interactions (see Carpenter, 2000; Evans, Wener, & Phillips, 2002). Why is it so stressful to walk by homeless people on the street as they rant things we don't understand? Mainly it is because we don't know what to expect from them. Are they dangerous? Are they going to confront us? If so, how should we act? All bets are off, and because the normal rules don't apply, we feel unsettled and uncertain.

People don't like difference because they don't like unpredictability, and they don't like unpredictability because one cannot control what one cannot predict. We can see just how uncomfortable this is in the research on depression, anxiety, and stress. Although some people (*sensation seekers*) get an enjoyable sense of adventure out of this sort of thing, most experience feeling out of control as negative and frightening—to the point where we delude ourselves on a regular basis about how much control we have in our lives. A consistent finding within the fields of clinical and health psychology is that, in laboratory studies, psychologically healthy people distort reality to exaggerate their perceptions of predictability and control. In contrast, depressed people may be more accurate judges of the extent to which they are in control of things (Abramson & Alloy, 1980; Bandura, 1989; Langer & Roth, 1975; Taylor & Brown, 1988).

People not only differ from each other in the extent to which they feel

threatened by difference and lack of predictability, but also in the extent to which they crave novelty. A personality dimension called *need for structure* describes the extent to which one can tolerate ambiguity and lack of structure without experiencing anxiety (Thompson, Naccarato, & Parker, 1989) while a similar dimension called *openness to experience* is widely accepted as one of the five personality traits that characterize humans across cultures (McCrae & Costa, 1987). Items from the *need for structure* scale include questions such as:

> *It upsets me to go into a situation without knowing what I can expect from it.*
> *I find that a well-ordered life with regular hours makes my life tedious.* (reverse coded)
> *I don't like situations that are uncertain.*
> *I hate to be with people who are unpredictable.*

Especially for high need for structure individuals, something new, different, and apparently out of left field (because their own thinking doesn't go there) is likely to generate anxiety. Anxiety as a biopsychological state is geared to survival and associated with many cognitive and perceptual changes—most of which are exactly the opposite of creativity/acceptance enhancing. Anxiety narrows the field of attention, triggers previously learned habits, and boosts rigidity of thinking (see Robinson, Vytal, Cornwell, & Grillon, 2013). Depending on how much anxiety is evoked, people may passively or actively resist that which is different, and/or react with anger.

Beyond these personality dimensions, society as a whole and social groups on a smaller scale can and do react negatively, even brutally, to others who are identified as deviant—that is, on the negative/threatening side of different. The psychological and sociological literatures abound with studies of marginalized groups, the devastating effects of social ostracism, and the lengths to which people will go to enact and enforce conformity (e.g., Baumeister & Tice, 1990; Baumeister & Leary, 1995; Park, 1937).

Humans are seen by evolutionary psychologists as "social animals" that must be part of a group in order to survive (Axelrod & Hamilton, 1981; Barash, 1977); most social institutions and culture itself exist mainly to synchronize and systematize human behavior. Groups of people generate and maintain shared sets of cognitive schemas among their members, and may come together in the first place because of shared ways of thinking. This means that acceptance is also, by its very nature, culturally defined.

The take home message is this: If you don't want to be seen as crazy, it is important to be able to sell your ideas to people less creative than you in ways that are non-threatening, building bridges from their current ways of thinking to the new vision.

Acceptance Finding

The process of persuading others that one's ideas are worthwhile is called *acceptance-finding*. Following problem definition, idea generation, and solution evaluation, it is the final stage of the creative process, also called idea implementation (Parnes, 1981). Clearly, this is a critical skill for creatives in general, but all the more so for those operating in less than creative contexts, where gate-keepers and/or budget-holders can and often do quash creative ideas before they can even reach those who might adopt or promote them.

Sadly, creatives often struggle at the acceptance finding stage of the process. Here is what creative individuals might not know: the burden is on *them* to promote their ideas. To the extent that there is a gap between the idea/ product and the vision or understanding of the person who needs to approve it, the creative's job is to close that gap.

In the field of cognitive psychology, researchers talk of cognitive schemas, mental structures that bring order and meaning to our thinking. The notion of *schema* was introduced by Frederic Bartlett who proposed that networks of abstract mental structures form the underpinnings for our understandings of the world (Carbon & Albrecht, 2012). In 1926, developmental psychologist Jean Piaget noted that through their interaction with the world, children develop initial schemas, then assimilate new information into their existing schemas until, as discrepancies grow, assimilation no longer suffices. At this point, the schemas are stretched to accommodate to the new reality (Piaget, 1952). The cognitive schema concept is quite helpful in our understanding of acceptance finding.

Acceptance-finding involves learning how to present your novel ideas in a way that is close enough to existing ways of thinking that it can be assimilated, rather than simply bouncing off of recipients' cognitive schemas and being met with indifference (e.g., appearing not to have heard; a brief, blank, pause in a conversation followed by continuing as though the creative hadn't spoken; etc.). If the novel idea is so discrepant from current thinking that it cannot be assimilated, the creative will need to build cognitive bridges to stretch existing schemas to the point where they can accommodate the new vision (called "scaffolding" in some contexts). That is, rather than simply presenting something new and expecting others to immediately see its obvious value, the creative must take the time to understand the current conceptual model from which others are operating and work through a logical progression of steps to bring the audience to the final vision.

Depending on how unique one's thinking is relative to one's context, this is not always easy to do. Sometimes, a poor reaction to creative ideas goes beyond indifference to "blind argument or outright obstruction[1]". When this occurs, you have crossed a line in the eyes of the other, and have become a threat. Key to avoiding this line is to do a thorough analysis of the decision

1 *(see http://creatingminds.org/articles/cps_framework.htm).*

makers, what they value, and who has access to their ears.

First, the creative must determine who the decision makers are. This might not always be who we think it is. Decision makers can come from all levels of a hierarchy, and it is important to correctly assess who has the keys to the gates. Is it your immediate supervisor? Is it the division manager? Is it the CFO? Who else might have a say in the matter? Taking the time to accurately uncover who has decision making power and the politics behind the decisions they will be making is essential to successfully taking a creative idea to implementation.

After the pool of decision makers has been determined, it is critically important to analyze what these people value. All that we communicate is filtered through the perceptions of our audiences. It is these perceptions rather than our intent that determines what our audience thinks of us and our ideas. Let us look at this through the lens of Uncertainty Reduction Theory which suggests that listeners will try to gather whatever information they can about a speaker so that the speaker's communication is more easily predictable and explainable (McCornack, 2007). It is at this point that it is best for creatives to present themselves, as best they can, in alignment with the shared values of the cultural orientations of their listeners.

Of course, it is not just the creative but the novel idea itself that must be perceived by the audience as a good fit. Schemata help each listener individually understand a concept's characteristics, but this understanding will also be heavily influenced by the beliefs, attitudes, and practices of the listeners' combined experience. Before pitching a new idea, the creative should define everything that makes up the new concept, both the elements that harken to a previous idea and that which makes it new. The more the new is linked to the old the easier it will be for the audience to accept, and eventually embrace, it. Representations such as the automobile as a horseless carriage, the flashlight as a new torch, and films as moving pictures are all examples of this technique.

Clearly, we are much more likely to achieve creative success if we position our ideas in terms of what our audiences already know, are comfortable with, and (even better) value. Remember, we want to reduce their uncertainty so that they don't perceive the novel as dangerous. If they are finance managers, position the new idea in terms of revenue increase. If they are educators, put the new idea in terms of important learning. If they are engineers put the new idea in terms of increased efficiency, and so on. Sell to the values of the listeners' cultural make-up, and you are likely to have a willing audience.

As we have argued, *crazy*, *creative*, and *acceptable* are all culturally defined. Creativity will no doubt be seen as different, by definition, because the core of the creative is that it is new. However, it is quite possible through careful, culturally sensitive positioning of creatives and their ideas that this difference is not seen as crazy or threatening, but instead is seen as an invaluable asset.

Wise creatives give their ideas a fighting chance by talking the following

steps to achieve successful idea implementation:

- A thorough audience analysis.
- A thorough values assessment.
- A thorough product definition.
- A matching of product characteristics to the values of the audience.

If creatives pitch to the values of the audience, the values inherent in the culture (or subcultures) it belongs to, then they have a much better chance of seeing their ideas reach full implementation.

Of course, creative people might always be seen as a little crazy. In truth, crazy represents a judgment of difference (or dysfunction) that is dictated by the culture in which the behavior occurs. However, creativity that is recognized as such represents a judgment of difference coupled with a determination of usefulness (i.e., optimal functioning, in fact). Given how much these judgments depend on the fit between the creative and an environment, it is crucial to pursue acceptance finding within the context of culture.

Authors' Brief Bio

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CHAPTER SEVEN

AMBIGUITY, UNCERTAINTY AND NEW REALITIES: PERSPECTIVES OF CREATIVE VALUE, UTILITY AND AUTHENTICITY

CHRIS WILSON & MICHAEL BROWN

Abstract

The concept of creativity is synonymous with the formulation of value judgements. Related primarily to the experience of new and unfamiliar ideas, creativity is a subject directly connected to conceptions of adjustment, recalibration, measurement and evaluation. Albeit a subjective term open to considerable flexibility of interpretation, creativity has nevertheless become a capacity and commodity of notionally high social and economic value. Consequently, creativity has never been subject to greater scrutiny and judgement and understanding of creative value subject to greater discussion and evaluation.

Exploring aspects of creativity associated with ambiguity and uncertainty through the discourse of authenticity and aesthetics, this chapter positions analysis in the narratives of insight and imagination, the romanticism of discovery and talent, and debates about the increasing virtualisation of creative practice and emerging prospect of artificial creativity. Investigating the potential for what might be described as authentic creativity, notions of forgery and fakery, serendipity, accidental discovery, and the dynamics of positive and negative creative conditions, provide a basis for focused consideration of the 'how' and 'why' of creative activity and the various ways these relate to the determination of value in the 'what' of creative outcomes.

Exploring first the nature of creative value and closely related definitions of creativity, consideration is then given to the temporal and cultural dynamics of creative value judgements before focusing more specifically on contexts of creativity and areas of creative ambiguity. Introducing a series of illustrative case studies, discussion focuses on the parameters of creative value judgements to underpin a tentative definition of creative authenticity. Conclusions highlight a range of possible perspectives related to the subjective nature of creativity and definitions of creative value. Creativity and creative value can be determined simply according to the scale of impact on hu-

man well-being, progress, fulfilment, security, or other suitable value indicator, the quality of lived human experience, the intrinsic qualities of the object, artefact or activity, or combination of all three. Given the inherent diversity and instability of creation and reception contexts, the search for any form objective measure of creative value may be a fruitless one. However, it is in the very subjectivity of creative experience that creative authenticity is most visible.

Key words: Creativity, authenticity, value, experience.

Lights that shine brightly,
Do most clearly in the dark,
Value and function in phase.

Introduction

For a judgement of creative value judgement to occur, a context is required for a perspective of appreciation to take place. Something new needs to emerge and be recognised in its own terms and then related favourably to previously understood concepts and ideas. Simply speaking, for creative value to be recognised, it needs at least to be immediately if only partially understood. Nevertheless an unstable and culturally dynamic term, creativity remains open to subjectivity of interpretation in the interrelationship between novelty and 'fit' (Beghetto in Kaufman and Sternberg, 2010), and, as observed by Amabile (1996) in discussion of 'phenomenological response states' and the work of Getzels and Csikszentmihalyi (1976), framed by encultured experience, institutionalised expectations and underlying reception biases (Lebuda and Karwowski, 2013).

The definition of creativity, referred to as of central significance in creativity research (Runco and Jaeger, 2012), is paradoxical in that pre-emptive descriptions can only, by definition, ever be predictive and speculative and a satisfactory overarching definition may ultimately prove impossible (Bohn, 1996). Nevertheless, a standard definition of creativity (Runco and Jaeger, 2012) is attributable to a number of authors including Barron (1955) and Stein (1953) and consensus evident in determination of the presence of an appropriate and interdependent balance between novelty and effectiveness according to the "costs and benefits of contrarianism" or uncommonness in any given context and at any given time (Ibid: 92). Creativity is ultimately a social construct (Tornkvist, 1998, p. 10) determined by different emphasise and interests of conceptions of utility and authenticity and related interpretation of honesty, integrity, quality, originality, functionality, and germinability.

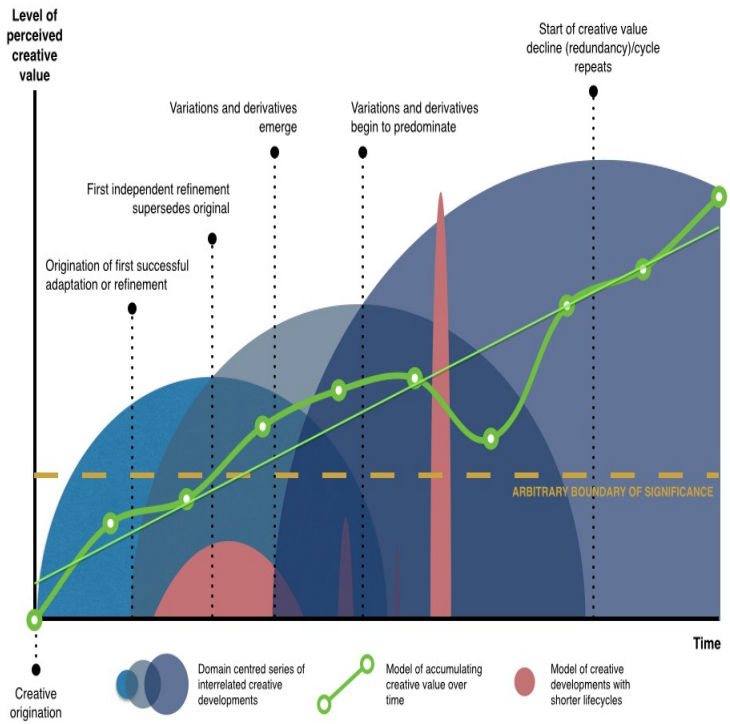

Figure 1: Hypothetical creativity lifecycles

The extent to which something transforms conceptions of what is possible, or how far a new concept or idea may be adapted by others or adopted unchanged can involve a wide dynamic range of variables. There are however discernible patterns and trends evident in the life of creative concepts, ideas and artefacts. Considering figure 1 above, mapping the passage of time against notional levels of perceived creative value, there are a series of definable points that typify the position with which specific examples can be considered to occupy at given points in time. For example, the green line represents a model of gradually accumulating value over time. In the case of historic art works, commercial value, scientific understanding and public awareness and appreciation can be observed to increase gradually over time. Whilst there occasions when financial value can decline according to temporary variations in specific fashions and trends, in general terms the passage of time develops rather than erodes the perception of value in certain contexts. The

green line and projected variations thereof also represents conceptual innovations that require time before becoming either applicable or recognised.

The areas in the figure represented in pink highlight a model of creative developments with shorter lifecycles. Most notable in the commercial environment, there are numerous examples of gadget or personal accessory of definable intrinsic creative value that emerge quickly, perform strongly in the market before undertaking a marked and rapid decline in public interest. A significant example is the global phenomenon of Loom bands in 2013. A rubber band-based craft activity for children adapted from established techniques for rope making by a crast-test engineer at Nissan in 2012, the global impact of loom bracelet making culminated in the bid of over £150000 in an online auction site for a child's dress made entirely from loom bands (Dearden, 2014) before the trend quickly began to subside from public interest. Briefly flourishing as a remarkably adaptive and engaging commercial venture involving extraordinarily low manufacturing costs and high retail value, and engaging children across the world in craft-based creative activity, the example illustrates the potential for creative ideas to peak and then decline. Loom bands have not been superseded by a more engaging craft activity or incremental development of the same idea. The idea has simply come and gone.

The concentric blue hemispheres represent the longer lifecycle of related examples of creativity or domain-based fields of creative activity. Whilst physical art objects are subject to the principles of value accumulation through the passage of time—there being a distinction between the historical and antique status of Beethoven's original score and the value of the music it has long since successfully communicated, as opposed to the status of a painting and any form of duplication or reproduction—many artistic practices are identifiable within a framework of heritage but nevertheless situated within a clearly identifiable timeframe of significance and impact. Perhaps more clearly evident in some areas of modern consumerism, the lifecycle of consumer electronics tends to involve a period of early adoption followed by mainstream adoption. From creative origination, an example such as that of the modern mobile telephone can be seen to trigger competition and adaptation followed by variation and derivation. Many profound and significant examples of creativity have their day, become superseded by albeit derived but nevertheless distinct ideas, or simply become redundant. In questioning creative value, the decision about position or perspective, context or particular milieu can be significant in informing any evaluation or judgement. The model can also be seen to represent that of a creative body of work of an individual. With most artists, scientists and practitioners of other creative disciplines, there is, normally, a retrospective creative peak identifiable in any given body of work. Peaks rarely occur at the very beginning of creative careers or at the very end—except perhaps in the case of careers cut short—and consequently it is possible to map the emergence of creative quality, recognition and success over time, and, as identified earlier in this section, creativity is only ever possible to define in any detail in retrospect anyway.

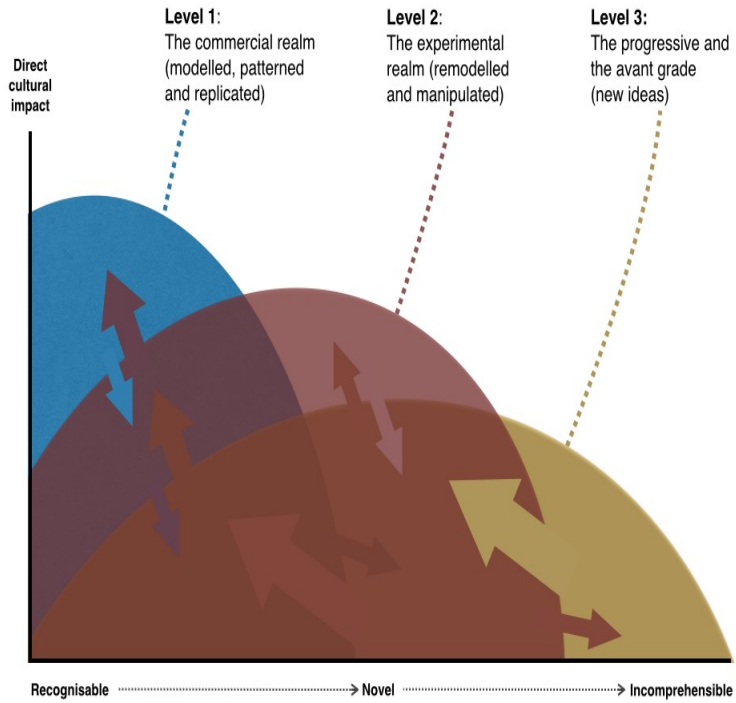

Figure 2: Conformity and creative recognition

Cultural patterns and trends with respect to the macro scale of creative judgement and recognition are also significant. Over time, cultures maintains a balance between different levels of creative activity and expression; never giving undue prominence to the most novel or unusual but maintaining appropriate space through which new ideas can emerge and feed into wider discourse and cultural experience. For example, considering Figure 2 above, developed societies predominantly maintain complex cultural networks incorporating increasingly ready access to modern everyday culture (Levels 1 and 2) and support more progressive and experimental development (Level 3) across a spectrum of activities through cultural conventions, institutions and social structures. As the novel and initially incomprehensible becomes more widely understood and ultimately adopted and adapted, the impact or immediacy of creativity dissipates and becomes normalised; the spontaneous, once

emerged, can only ever be repeated and remodelled and become increasingly mundane or adapted into new forms. With respect to creative value, creative products move in cultural space until eventually settling in a position of posthumous record. Creative value is a dynamic and unpredictable concept reliant on numerous factors, and creative assessment clearly more secure when dealing with explicitly 'original' utilisation of established and well understood mechanisms, conventions, materials, or frameworks, and tangibly more challenging when dealing with the unfamiliar and the unusual, open to subjectivity and interpretation. The unfamiliar is much more palatable when it 'works' and quite alien and certainly marginalised as a minority pursuit when it doesn't.

Considering the anthropology of creativity: Can you be creative in paradise?

There is a common perception of a correlation between 'happiness' and creativity and a general conception of creativity as a 'fun' activity (Tornkvist, 1998, p. 7). However, noting the quite common connection between hypomania and bipolar disorder and artistic and literary creativity, Furnham (et. al., 2008) conclude that satisfied contentment could even have an inhibiting effect on the emergence of creative ideas. Recognising the quite frequent connection between forms of depressive illness and prolific artistic creativity—from Beethoven to Van Gogh, Plath to Milligan—creative activity in the context of often quite debilitating personal circumstances is a common occurrence. Indeed, exploring the biographies of great composers or artists, you can be hard pressed to locate many examples of creativity emerging from anything other than challenging and compromised circumstances. Whilst many transitions in the development of human consciousness and evidence of increasing ingenuity and expression are often characterised anthropologically as being possible due to the alleviation of other pressures (domestication of fire, development of language and writing, the emergence of agriculture), creativity can emerge, and indeed routinely does so, from hostile, difficult, and essentially unexpected places as demonstrated throughout all human history (see Figure 3 on the next page).

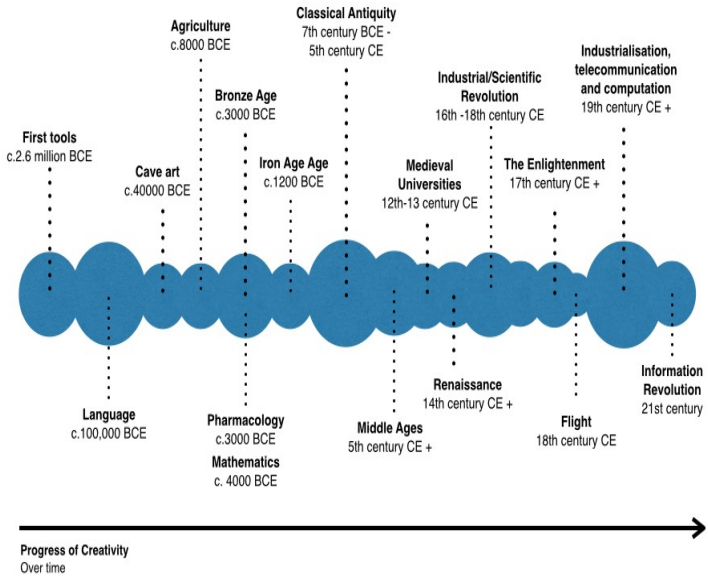

Figure 3: The anthropology of human creativity

There are many factors determining the level to which concepts, ideas, artefacts and actions are interpreted and recorded and creative. Some emerge 'ahead of their time' as with the artistic work of Vincent Van Gogh or many of the scientific developments of Nikola Tesla and become reliant on subsequent recognition and 'impact' as 'prescient creativity'. Others can be forgotten and rediscovered as exemplified by the Renaissance and the resurgent interest in classical antiquity, or the later marginalisation and later re-popularisation and 'rediscovery' of the technically brilliant and visionary work of Bach. The Antikythera Mechanism presents an intriguing example of 'recovered creativity'. In this case, the apparent analog computer incorporating sophisticated gear mechanisms and recording complex astrological data dating from the second century BCE is thought to represent a peak of creative scientific endeavour—potentially of the hands of Archimedes himself—at first lost through the destruction of conflict, the related knowledge was later remodelled and reintroduced through adaptation in the Middle Ages leading ultimately to the birth of the industrial age.

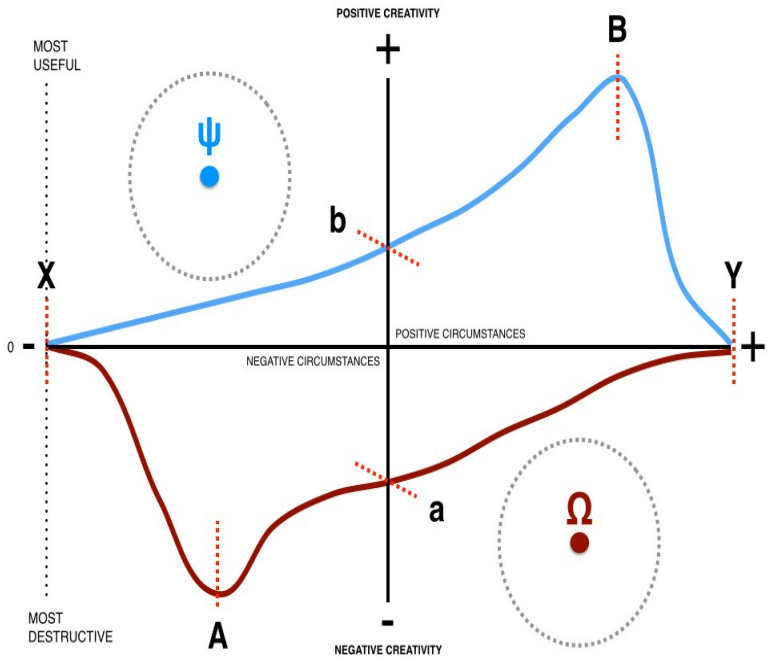

Figure 3: Mapping perspectives of creativity

Whilst positive creativity can emerge from difficult circumstances, negative creativity and the often ingenious activity of those seeking to exploit favourable circumstances for nefarious ends presents an intriguing insight as to what lies beyond a notional zero-point of creative value. Whilst global crime figures and general trends of human violence are demonstrably on a declining trend (Pinker, 2011), there remains clear evidence that an underlying section of human populations seemingly engage in broadly destructive and illegal activity to the detriment of fellow human beings no matter how favourable their own circumstances. The diagram in Figure 3 above represents a theoretical 'zero creativity' along the X-Y axis, with 'X' representing a point of complete creative inhibition, and 'Y' representing an opposing polarity of extreme creative freedom and opportunity and a position where creativity becomes unnecessary or conceptually impossible as 'everything has been created'. The vertical +/- axis represents positive and negative creativity; the former being synonymous with wider cultural definitions of positive creativity, and the latter indicative of creative endeavour designed for or culminating

in negative impact over time (immediately or consequently recognisable as both negative and creative). Examples of positive creativity in this analysis are considered to occupy a spectrum from the small scale 'Little-c' (Kaufman & Beghetto, 2009), to the profound and transformational. Negative creativity is considered to range from the relatively benign but nevertheless spontaneously creative construction of interpersonal white lies approaching the +/- intersection, to the creatively Machiavellian, sociopathic, genocidal and ultimately destructive at the opposite extreme nevertheless involving creative activity to achieve the negative ends.

Point 'B' represents a theoretical position of peak creative productivity and the ideal balance of creative opportunity. This undoubtedly varies by individual; subject to innumerable psychological, social, cultural and environmental influences, and history records a rich record of social conditions through which ideas flourish and invention is more notable and more common (Johnson, 2010). There are definable and often remarkable periods during which creativity appears to be concentrated and a confluence of creative achievements evident across numerous fields of activity (see Figure 3 above). Often synonymous with favourable socio-political structures and cultural environments, the industrial and scientific revolution following the Renaissance as well as the rapid scientific and cultural developments of the late 19th and early 20th centuries represent examples of point 'B' conditions.

Point 'A' denotes peak (or trough) negative creativity and reflects ambiguity in terms of the interpretation of the ethics of creativity in different social contexts. The use of technique and dexterity to effect the pick pocketing of members of the public driven by personal survival needs is arguably very different from the perpetuation of the same act simply for pure financial gain. In other words, actions and motivations are significant in determining the creative value of individual events or at least the interpretive positioning of the act in the context of the diagram in figure 3. Nevertheless, considering any calibration of a declining scale of creative circumstances, there is a point at which possibilities reduce to a point where capacity for any form of creativity moves towards zero. Point 'a' being the point at which individual circumstances enter the positive, most sociological studies indicate that socially destructive behaviour and illegality in particular declines as social opportunities and financial security increase.

Perhaps the two key points on the diagram are the outliers 'ψ' (Psi) and Ω (Omega). Whilst any form of creativity represents a form of outlier for previous conventions or thought, there are nevertheless numerous examples of extraordinary creativity, both in positive and negative terms, that transcend their circumstances and force reassessment of what might be determined as creatively possible. 'ψ' (Psi) represents those examples of socially beneficial creativity that emerge despite negative circumstances. Examples of such occasions exist in nearly every area of human endeavour and encompass a range of examples from the prodigious intellect and focused contributions to disciplines from socially unexpected backgrounds through to the emergence of

significant breakthroughs in the understanding and systemisation of mathematical or scientific knowledge.

Ω (Omega) reflects the opposite and the darker side to human intelligence and ingenuity and the Machiavellian potential of human beings towards activity and behaviours designed with negative impact on others. Leaving to one side the complexity of the issue of psychology, there being significant factors underpinning many known cases of negative creativity, there is nevertheless a clear human potential for negative creativity even under positive conditions. The tendency to disturb the status quo, even under stable conditions and when harm to others may be a consequence is an aspect of humanity that could be argued to have performed a significant role in the development of humanity and civilisation over time.

"A critic is a bunch of biases held loosely together by a sense of taste" (Witney Balliett in Barber, 1998)

Creative ethology

That creativity is ultimately a natural phenomenon is clear. Indeed, "nearly all of the interesting features of biological agents, including intelligence, have arisen through roughly Darwinian evolutionary processes" (Spector, 2006). There are numerous examples of animal behaviour, ingenuity and craft that demonstrate creativity from any standard definition in addition to the innumerable natural phenomenon considered to be aesthetically pleasing to all the senses and consequently of 'creative value'. More importantly, the fundamental nature of genetics and evolutionary biology, and indeed particle physics, is increasingly demonstrating that spontaneous variation and generation are themselves natural phenomenon from the cosmic to the neurological scale. Whilst this position is undoubtedly subject to challenge from a theological perspective, from a scientific perspective, there is no requirement to call upon the supernatural or divine in order to account for the presence of creativity in the natural realm. Indeed, as argued by David Bohm (1996), creativity appears to be merely a natural extension of creative patterns evident in all aspects of reality distinct only by a specific level of awareness. To paraphrase Niels Bohr, humanity may simply be creativity's way of looking at itself.

In Arthur C. Clarke's 1962 short story 'An Ape About the House', Dorcas, a genetically engineered chimpanzee, ultimately becomes recognised as a portrait and landscape painter of creative acclaim. Initially manipulated by a human 'superior' to play an unwitting part in a complex social subterfuge through public demonstration of fabricated 'chimpanzee art', when freed from human control and the attempt to draw the hyper intelligent chimpanzee into human cultural practices, Dorcas eventually manifests independent creativity and craft. Recognising the increasing extent to which intelligence and

imagination can be attributed to non-human animals, Clarke highlights the key questions that relate to art as an aspect of exclusively human experience and, in the context of natural phenomenon and the aesthetics of nature, the extent to which natural phenomenon can be considered creative when divorced from conceptions of human endeavour.

The debate as to whether non-human animals have consciousness or imagination developing through the work of scientists including Don Griffin who coined the term 'cognitive ethology' to refer to what has become more widely established as the study of animal cognition and the nature of conscious awareness (Ristau, 2014). First publishing 'The Question of Animal Awareness' in 1976, Griffin began to identify numerous markers of intelligence, imagination and indicators of creativity. Research continues to identify and document in more detail examples of sophisticated cognition and innovation in the natural world. Tool use of primate species including chimpanzee manufacture and use of spears in the Fongoli savannah representing amongst the most immediately identifiable in terms of human parallels, the remarkable adaptability and ingenuity of the Caledonian Crow (Hunt, 1996), the basic mastery of sign language by great apes, puzzle solving by octopi, dolphins and squirrels, and feats of human-like memory and self-recognition in magpies, dolphins and elephants (Low, 2012) all continue to overturn traditional conceptions of a human preserve of certain psychological capacities and capabilities.

The Cambridge Declaration of Consciousness (Low, 2012) recognises "near human-like levels of consciousness", in many animals and that:

> "The absence of a neocortex does not appear to preclude an organism from experiencing affective states. Convergent evidence indicates that non-human animals have the neuroanatomical, neurochemical, and neurophysiological substrates of conscious states along with the capacity to exhibit intentional behaviors. Consequently, the weight of evidence indicates that humans are not unique in possessing the neurological substrates that generate consciousness. Non-human animals, including all mammals and birds, and many other creatures, including octopuses, also possess these neurological substrates" (Low, 2012).

Amongst the innumerable examples of craft and ingenuity in the animal kingdom (at the scale of intelligent action), the Vogelkop Bowerbird (*Amblyornis inornata),* and the Little Puffer Fish represent significant examples from an aesthetic and creative perspective. Constructing elaborate structures or 'bowers' in the former case and highly decorative and geometrically patterned sea bed structures in the latter, both for the purposes of attracting a female mate, the development of complex engineered structures that serve aesthetic or sensory as well as practical purposes involve aspects of novelty and adaptation synonymous with definitions of creativity, there being a

marked distinction between structures with inherent aesthetic principles over those for which aesthetic qualities are more of a consequence of other factors. Incorporating not merely the demonstration of fruit gathering prowess but also highly ornate approaches to the presentation of nuts and berries arranged by colour as decoration in addition to more straightforward scale of construction ability, bowers embody the fundamental principles of sustainable art and exhibit clear aesthetic qualities beyond the practical context involved. Equally, the structures developed by Puffer fish embody aspects of symmetry, shape and form indicative of pattern-based decorative art. Whilst the development of attentional biases or priming relating to human evolution and psychology, and the mechanisms by which creativity emerges through different contexts and conditions become increasingly well understood, if simply defined as problem solving (as it is by many), then it could be argued that the purest form of creativity is as a survival mechanism in the natural realm and the most valuable simply that which proves most effective in this respect.

Artificial creativity

Accepting, as far as the observable universe is concerned, that everything is a consequence of natural processes, the very concept of the 'un-natural' or 'artificial' represents a slight ontological challenge. Leaving aside the fact that the 'supernatural' remains a prevalent feature of many popular characterizations and explanations of creativity, the emotional as well as practical boundaries between humanity and technology are melting away and are subject to an increasing volume and tempo of debate. From the emerging potential for genetic pharmacology and increasing intervention into 'natural' processes, modern technology continues to challenge basic ethical assumptions about the boundary between the 'real' and the 'synthetic' or 'artificial'. The biomedical sciences are embroiled in almost continued ethical debate relating to the implications of new genetic treatments whilst mechanical and pharmaceutical interventions altering the human body and human experience are becoming increasingly sophisticated and common. From the sophisticated modelling, reproduction and application of physical parts, limbs and artificial organs, the very fabric of human genetics and even consciousness are becoming more readily manipulated and altered. Perhaps most fundamentally, functioning artificial intelligence approaching is now approaching levels of human sophistication and capability including the potential to create and to originate independently.

The history of artificial creativity can be classified in several different ways. Scientific and philosophical debates about the underlying notion of creativity and design and the distinction between supernatural and natural creativity have taken place for centuries if not millennia. From William Paley's arguments for the necessity of an intelligent designer for "complex adaptive systems" (Spector, 2006), exemplified by the history of automata

and machines imitating life as corollaries of "god the divine watchmaker who constructed them and set them in motion" (Williams, 1978), through to Darwin's demonstration of complexity emerging through simple processes over time, and changes in scientific perspective resulting from the emergence of computation and psychology, conceptions of real and artificial continue a dynamic arena of discourse. The term 'artificial creativity' itself emerged through the field of computing in the 1950s and is now well established. Boden (1998), highlights the significance of artificial intelligence in creativity research, most notably in terms of the potential for increased levels of scientific objectivity and control, an example of which being the work of Saunders and Gero (2006a/b/c) who, drawing from Csikszentmihalyi's systems view of creativity, study the dynamics of novelty selection through controlled computer algorithms.

In addition to the study of creativity through artificial systems as a means of better understanding human creativity, the level of sophistication being reached by leading AI systems is presenting a new field of anthropological research. In June 2014 is was widely reported that a computer had finally passed the Turing test and had successfully demonstrated responses indistinguishable from human intelligence under laboratory circumstances. The Turing test itself, or 'Imitation Game' as originally coined by Turing in his 1950 paper *Computing Machinery and Intelligence,* establishes a premise by which computing technology can be judged to have achieved a level of intelligence indistinguishable from human intelligence in controlled contexts of communication.

In many respects the readiness for human acceptance of artificial intelligence is culturally hard-wired. The humanisation of technology and capacity for emotional connection with technology is a common theme in popular culture from Baum's eponymous *Tinman* from *The Wizard of Oz,* Robby the Robot from the 1956 MGM classic, *Forbidden Planet,* through to the significant example of R2D2 and C3PO from the Star Wars films series. Nevertheless, the underlying questions of ownership, authorship and attribution in the digital arts (what is human, what is machine?) continue to present significant challenges in the interpretation and determination of creative quality and value. Whilst the development of artificial intelligence represents a remarkable feat of creativity in and of itself, as does the considerable technical sophistication of modern computer-based tools routinely involved in the creative manipulation of media, the questions of how the presence of machinery and technology impacts on the authenticity or creative value associated with a given example can vary significantly. On the one hand, creativity emerging authentically from an AI source would undoubtedly be accepted, however ultimately interpreted, whereas where origination or attribution becomes complex or difficult to define, the attribution of creativity can become a speculative if not entirely unstable process.

The artist Vermeer presents an intriguing case with respect to the model introduced in Figure 1 considering creative lifecycles as an artist and points

of creative value. On the one hand only modestly successful as an artist during his 17th century lifetime, Vermeer was given little consideration for over two centuries before being later rediscovered as popularised in the 19th century, and, as documented by David Hockney, himself an artist who advocates the use of technology in artistic practice, identified as almost undoubtedly amongst the first to make use of optics in the achievement of photorealism in painting. For many, the use or camera obscura and inventive positioning of a mirror for the production of photorealism reduces the notion of craft and artistry associated with traditional associations of vision and artistic interpretation. With the translation to a two dimensional plane achieved via obscura and projection enabled over canvas, painting simply, albeit painstakingly, becomes a matter of mere color matching, and, as observed in the documentary 'Tim's Vermeer' (2013), a technique capable of quite accurate and credible reproduction even by an amateur such as Tim Jenner in the documentary in question. As with the issue of aesthetics, the integrity of Vermeer's work is unclear and even the attribution of techniques potentially used by Vermeer does not mitigate for the sense that perceived artistic qualities relating to his abilities have been compromised. In any form of artistic expression to which technology plays even a residual role, there will always be an element of doubt and an element of ambiguity and potential for a sense of what Osborne (2010) describes as the "fictionalization of artistic authority". The augmentation of artistic ability and the continual definition of craft and technique through technology undoubtedly involves significant and readily identifiable human expertise and creativity but also draws from the capabilities of mass produced engineering and design expertise itself a myriad of contributory components and separate creative acts.

The amazing prospect of what creativity could emerge via second-generation creativity through artificial intelligence may present challenges to traditionally humanised values of creativity. However, the concept that machine could replace humanity in the generation of the aesthetic and the artistic is clearly overly pessimistic. Technology has only ever led to a proliferation of artistic practices, never to the redundancy of practices. Furthermore, whilst many algorithms emulating the style of great musical composers continue to reach levels of sophistication indistinguishable from the 'real thing', artistic disciplines remain domains of call and response, of sharing and replication as well as innovation. That the product of interaction with technology has been absorbed in artistic practice is clear, the impact of artificial creativity would undoubtedly be an equivalent response; potentially subject to treatment as novelty at least initially, but the speed by which technological ideas can be absorbed and accommodated is generally very rapid with the sound of technology being grasped by every musician that has ever lived. The fundamentally technological nature of music extends through codification (notation), tool manufacture (organology), architecture (sound chambers), replication and reproduction (sound recording, broadcast and distribution), through which music has been an early adopter if not key driver influencing secon-

dary innovations and human developments. Whilst there is a tendency to consider music and the wider arts as 'becoming' technological, in reality that is what they have always ever been. Ultimately, to compose beautiful music for the piano, one does not need to invent a piano or play the piano. But somebody does.

Creative integrity: Fakery, forgery and serendipity

Provenance and the origination and historical significance of artwork remains critical to at least commercial value; the death of the artist and consequent inability for continued production plus the passage of time and consequent antique status elevating certain individual paintings to auctions values exceeding $179 Million as with Picasso's *Woman of Algiers* in May 2015. Provenance is crucial and related discourse can work down to the very hairs on the artists' head, the fabric of their activity and their mentality significant in the cultural decoding of their work. For example, whilst fake paintings auctioned in 2013 by what was fraudulently established as the 'Titans of Modernism', originally sold for over $80 Million in New York (Cohen and Rashbaum, 2013) before later discovery of their lack of authenticity legally reduced at least their commercial value to zero.

As well as overt fakery, there is also the intriguing question of subconscious fakery and the phenomenon of serendipity and accidental discovery in consideration of creative value. From Paul McCartney's 'discovery' of Rolling Stone magazine's all time number one pop song in a dream (Cross, 2005) to Luigi Galvani's chance observation and interpretation of twitching frog legs in 1791 most probably directly responsible for the current field of neurophysiology, and the eponymous eureka moment itself attributed to Archimedes, effortless and often mysterious insight represents a common feature of creativity and creative experience. From the unforeseen side-effects of medicines such as Viagra, originally developed as an angina treatment, to the origins of many artificial sweeteners including aspartame, saccharin, and cyclamate, and Fleming's famous observations of the penicillium mould leading to the development of penicillin, many creative ideas and insights emerge from hidden places and unconscious processes as well as unforeseen circumstances and accidental discoveries. How might we account for creative value if even the originator doesn't feel particularly involved in the creative act?

Characterised as the "clear and sudden understanding of how to solve a problem" (Bowden et al., 2005), insight tends to occur relative to specific domains of practice. Clarifying the preeminent position regarding expertise and creativity on any given field, Robert Sternberg observed that "one needs to know enough about a field to move it forward. One can't move beyond where a field is if one doesn't know where it is" (Sternberg, 2006). Implying that a certain level of creativity can only emerge with a base level of expertise whilst also recognising the inhibiting factor of routine, there is a clear case

that each of the serendipitous examples introduced earlier in this section emerge at least from their home domains and each with strong foundation knowledge and practical expertise. The inability to articulate the reasons for creative decisions, and indeed even to know in a real sense, is an experience common to all practitioners of creative disciplines. Euphemistically defining artistic vision as simply that of 'seeing what others don't' (Gary Klein), intuitive creativity can often be as difficult to deconstruct or rationalize as dreaming.

"The English may not like music--but they absolutely love the noise it makes" (Sir Thomas Beecham in Barber, 1998)

Measuring and evaluating creative value

Evaluation is an inherent part of recognition in the appreciation of creativity. Ultimately, for something to be identified as creative, some recognition of creative value must be evident to the perceiver, either individual to collective. Whilst full consideration may require either time (such as for literature) or specific underpinning expertise (as with complex scientific or mathematical theorem), creativity is only creative if valuable in some respect and is creative because it is, ultimately, observed to be so.

Nevertheless, whilst recognition is significant, impact or popularity can be a questionable factor in and of itself in determining creative value given the significant level to which bad ideas have a tendency thrive. According to the most recent statistics published by Google, the top 40 most viewed YouTube videos are all commercial popular music videos with 'Gangnam Style' by Psi and 'Baby' by Justin Bieber recorded as the first to achieve over a billion views in each case. Without wanting to open a substantive debate about the aesthetic and creative value of either musical example, suffice as to say I suspect most would agree that these particular musical examples do not represent the best two examples of music available on YouTube at least, and perhaps more significantly, do not represent even closely the best of musical values produced by humanity on almost any level despite there being every potential for such a platform to provide such an output. The derision of Theodor Adorno and the Frankfurt School for the perceived qualities of the emerging youth music during the 20th century was a stark and uncompromising critique of the very aesthetic of the rapidly popularising popular song form. Aesthetics and the questioning of the integrity of artworks provides a distinctive case for considering creative value as something that can transcend impact or even operate entirely independently of reception and validation. Identifying a profoundly negative interpretation of the industrialisation of cultural production and the emergence of the 'culture industries', Adorno and his contemporaries developed significant arguments for the potential for and even inevitability of

the systemic suppression of creativity and originality representing the very antithesis of artistic freedom and expression. As observed by Tony Palmer, "The popular music industry has tried, repeatedly, to do with music what Ford attempts to do with cars. It works better with cars" (in Barber, 1998). Whilst there are counter-arguments to Adorno's critique and indeed numerous examples of music emerging through the commercial sector of definable musicological value and integrity, ultimately, as observed by Mencken, "No one ever went broke underestimating the taste of the American public" (in Barber, 1998).

Correspondingly, there are fields of creative activity where recognition and any meaningful appreciation of creative value requires such high levels of technical expertise or contextual knowledge that an example might be considered acutely specialised. Whilst contextual explanation and education may extend understanding over time, the pace at which creative knowledge or insight can be superseded can result in a sphere of relative isolation for creativity in certain fields. As with other examples in this text, there are again parallels between the most technical and complex in science and the artistic avant-garde. From the leading edge of theoretical physics to the most innovative and radical in art, there is a present novelty or complexity that limits or at least serves to dissipate scope for appreciation and understanding. Impact can be a challengeable basis for determination of creative value at best, and perhaps the worst indicator of related creative values in many significant cases.

There are hundreds of established tests for creativity, creative fluency, problem solving, divergent thinking, and creative value, and an increasing amount of research exploring the efficacy of different models (Cropley, 2010). Silvia et al (2012) demonstrate the integrity of self-report mechanisms including the Creative Achievement Questionnaire, the Biographical Inventory of Creative Behaviours, the revised Creative Behaviour Inventory and the Creative Domain Questionnaire, in determining creative value, whilst Pluker and Makel (in Kaufman & Sternberg, 2010) highlight the general reliability of psychometric and psychological measures. Whilst the criterion problem in any study of creativity and the inevitable paradox of novelty presents a challenge in general terms, it is possible to determine at least broad frameworks around which to approach the determination of creative value. From Boden's (1998) characterisation of three types of creativity in the improbable (1), exploratory (2) and the transformational (3), to Kaufman and Beghetto's (2009) '4C' model comprising 'mini-c', 'little-c', 'pro-c', and 'Big-C' creativity across the intuitive and everyday activity of new ideas (mini-c), development of competence in domains or fields through education and practice (little-c), professional competence (Pro-C), there are broad categories to which creative value can be related in any given context. As outlined by Amabile (1996), citing Jackson and Messick (1965), the essential nature of 'outstanding creativity' is essentially a combination of four key aesthetic responses: 1) Surprise (novelty); 2) Satisfaction (suitability); 3) Stimulation (breaking the boundaries); and, 4) Savoring (elegance and emotional

meaning).

Creativity, by definition, inherently defies complete understanding or definition and is subject to continual reinterpretation and creative value is determined by intrinsic and extrinsic factors ranging from the practical to the esoteric. As such, the determination of creative value relies upon consensual approaches where shared understanding and appreciation is to take place and the measurement of creativity is ultimately intuitive; filtered by context and experience.

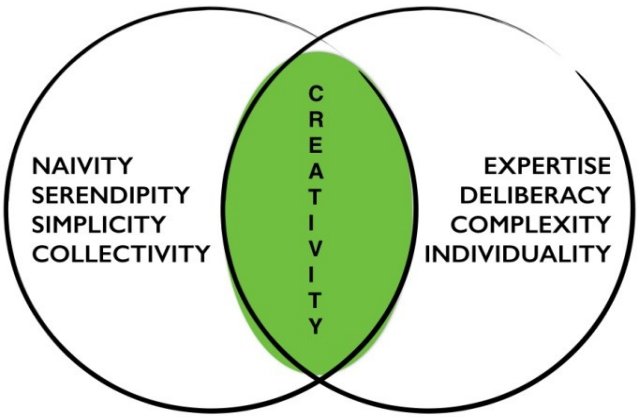

Figure 5: Considering creativity as the intersection of creative states.

For the purposes of establishing a framework for the support of creative practice in music and the development of authentic creative experience, there are number of factors that inform specific pedagogical approaches at the authors' own institution. Considering figure 5 above, In music, there is an evident and often highly dynamic relationship between technical knowledge and creative ability, with intuition, successful error and accidental discovery proving as, if not more, successful than technical grounding in the development of successful musical ideas. Rarely does prior experience with composing in a particular idiom prove a necessary condition for creative success. Pedagogic practice therefore needs to be designed in such a way as to support intuitive practice through the development of technical competence without the former becoming compromised in the context of an increasing focus on both group-based creative practice in the arts and co-creation using online tools across a range of formats and disciplines. Evident qualities can emerge through group creation and the synergies apparent in many examples difficult to attribute clearly. Nevertheless, where the objective is to involve learners with successful crea-

tive experience, collective activity can be highly successful allowing for a level of flexibility and specialisation in combination with exposure to new experiences and insights; the common experience of identifying particular features of musical compositions with students only to discover that these were unintended, unconscious, or accidental. The stunning use of block chords and harmonies can be interpreted very differently when it becomes clear this was the consequence of a cat sitting on a keyboard. The discovered and the embraced remain significant features of artistic practice and whilst overall control over a creative process will always remain the responsibility of the artist, frameworks that encourage deviation from planned courses of action or lines of enquiry need to be matched with frameworks for the acknowledgement of the unintended in creative practice. Finally, technical complexity and sophistication provide objective frameworks for the judgement at least of creative dexterity and related insight, but the quality associated with simplicity of form, of knowing what not to include, is as important in the art of composition as in any artistic domain. Recognising this, narrative about what is abandoned or precluded can also provide for an important basis by which to consider the resulting form. Less can be more.

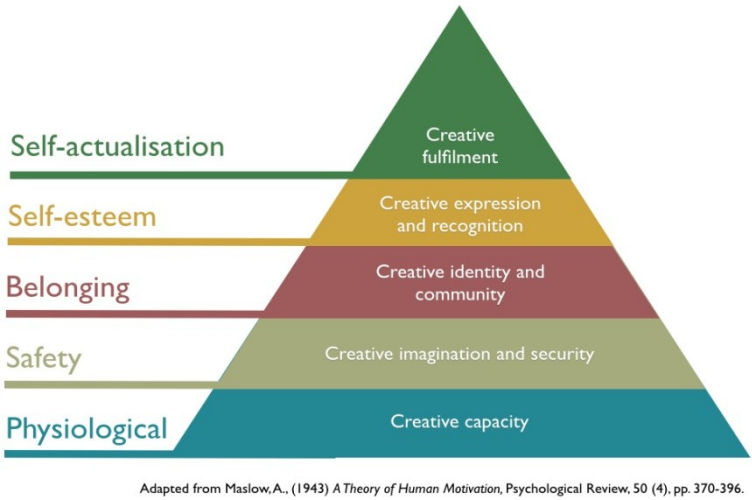

Figure 6: A hierarchy of creative values. Adapted from Maslow, A., (1943).

As artists, creative experience is a primary factor in determining creative value. Whilst there is satisfaction in the completion and retrospective appreciation of a particular project, the deepest fulfilment invariably falls elsewhere 'within' the process and appreciation of the opportunity for creative

activity itself. If a baseline of creative value is attached to the capacity and space to create, and creative fulfilment used to characterise the highest levels of creative experience (see Figure 6 above), the subjectivity of personal experience remains central to the continuing paradox of creativity as an unstable and contested term. Nevertheless, it is this ambiguity and mystery that highlights perhaps the most important feature of creativity and demonstrates that the fascination with mystery, novelty and the 'new', is both an instinctive and natural capacity of what it is to be human.

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Chris holds the position of Senior Lead in Learning Enhancement at the University of Derby in the UK and is a Senior Academic in the College of Arts. He is a classically trained musician and practitioner in the technological arts and has presented and published internationally on the subjects of creativity, artistry, technology and education. An active member of the American Creativity Association, Associate of the Digital and Material Arts Research Centre in the UK, and a governor for his local primary school, Chris teaches across a number of subjects and works to actively promote creative practice in higher education.

Michael Brown
Michael is the Programme Leader for the *BA (Hons) Popular Music with Music Technology* degree in the College of Arts, at the University of Derby, UK. He holds diplomas in both Art and Music, a BSc (Hons) degree in Software Engineering, Mathematics and Music, and a Masters degree in Contemporary Composition, which combine to serve his interest in computer creativity. He is a Principal Researcher with over twenty-five years of teaching experience, an active artist, composer and musician. As well as maintaining his profes-

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CHAPTER EIGHT

ART AS OPEN SOURCE INTELLIGENCE

RICK KANTOR

Abstract

This chapter proposes that the cultural preeminence of rational, scientific and materialistic thinking today is limiting the field of Creativity and Innovation. Art and the work of today's emerging artists who grapple with deeply understanding the forces shaping our world, as artists have throughout history, offer us the semiotics that may probe our own unconscious to find deeper connections. Beyond the dialectic of art as either rarified and effete or functional lies Banathy's concept of social systems design (Banathy, 1996). How might artists' work and their probing thought processes make connections for us to use in our own domains, to stretch our minds to go beyond the conventional or intentional? Art is more than the bridge between the sciences and the humanities: it is its own technology with the potential to evolve our consciousness. This chapter will briefly present how we progressed to today's contemporary art scene, and then will look at selected artists' work to illustrate the creative inspiration that may be found in simply understanding the artists' creative enterprise. Their synthesis of the disparate cultural influences revealed in these works serves to catalyze our own imagination for our innovation efforts. Using Art as 'code' for programming deeper and more remote thinking is another powerful tool for developing the learned skills for fostering creativity.

Introduction

It is safe to say that at no time in civilization's history has the pace of change been as urgent and incessant as it is in our world today. The combination of digital technology and globalization has unleashed infinite possibility simultaneously with the threat of immediate irrelevance or obsolescence. Looking back, the industrial revolution, of course, brought enormous change to manufacturing, to the rise of urban centers, factories and a host of social ills as a side effect of the escape from agrarian drudgery and its limitations. But our current revolution of digital interconnectivity is shaping every aspect of science, technology, learning, lifestyle and social interaction at a velocity uni-

maginable even 20 years ago. Major innovations, disruptive products and breakthrough creative ideas are daily occurrences, showcased every morning in Fast Company online.

We know there is no slowing this down. We strive to find ways to accelerate our ability to innovate better and faster, not only to stay at peak performance in our fields but merely to keep up to avoid being insignificant. This is as true for the organization as for the teams it nurtures and the gifted, highly specialized individuals required to continuously generate the creativity that may become tomorrow's coveted innovations.

The landmark 2010 IBM study of 1500 CEO's (IBM.com) revealed that creativity was viewed as the number one requirement for successful organizations to thrive in our increasingly complex world. This confirmed a reality that business people, technologists, professionals, educators, scientists, doctors and artists were already feeling. The pressure of constant change, stress, longer workdays, a work-life imbalance and the anxiety of information overload left us with the sense that we were not keeping up. Bela Banathy in "Designing Social Systems" expressed it perfectly years before:

> "There is an increasing realization of the massive societal changes, transformations and new realities of the post-industrial knowledge era. These changes touch the lives of every person, family, community and the society. Still, we enter the twenty-first century with organizations and institutions designed in the nineteenth" (Banathy, 1996).

The burgeoning field of creativity research offers potential solutions to aid us in mastering our current predicament. Launched by Guilford's 1950 speech to the APA only 65 years ago (Guilford, 1950), the field of Creativity offers growing empirical evidence of effective tools to generate more creativity and improved problem solving to help design more effective systems and generate better ideas. We've learned how to create organizational cultures more conducive to free-flowing idea generation, building cultures of innovation. As new products' shelf lives diminish and obsolescence looms closer for every new invention, technology or product, the theories and skills of creative problem solving and idea generation confirmed that enhanced creativity was a learned skill, available to anyone. The imperative to keep the innovative pipeline full has mandated putting these creativity enhancing tools, systems and facilitators to the test…and quickly.

The copious amounts of excellent research continues to investigate many aspects of creativity—personality traits, cognitive style, multiple intelligences, effect of environment to name a few. We endeavor to find every way possible to enhance our creative fluency, to stimulate our teams, to make veritable innovation petri dishes of our organizations where novel and useful ideas can spring to life like new antibiotic discoveries ready to cure our societal ills or lagging product sales.

Discussion

It is my proposition that one of the most powerful catalysts of creative thinking has been largely left out of our creative toolbox: today's contemporary artists. Here is a deep well of inspired, unusual thinking that is a readily available resource that can launch the kind of remote connections that give birth to creative ideas.

"Recent surveys consistently identify imagination, inspiration, inventiveness, improvisational ability, collaborative and inter-cultural skills, spontaneity, adaptability and presentation as among the most sought-after attributes of business leadership. These qualities are frequently summed up in a single word—creativity—and all over the world, corporations are focused on acquiring the skills and tools they need to tap into the creativity of their workers and unleash the creative potential of their organizations" (Seifter, 2004). Today's artists offer us unique perspectives that can provoke a reaction and dialog among company teams, fostering the kind of remote associations that would be impossible to reach on their own.

It is not surprising that contemporary artists have been largely left out of our organizational search for creative originality. Art today has become separated from the core of our daily lives where it has lived for millennia. Artists throughout history told the tales that carried the culture forward, created the visual representations of our religions and our wars, celebrated our triumphs and defeats and recorded our everyday social events. Artists were the apparatus of semiotic capture (Ebert, 2013) and appropriately central to the culture.

Then the mid-twentieth century world became more complex. Art was no longer just one of two things: either art for arts sake or as the functional conveyor of socio-cultural values. Now Art began to comment on the intersection of industrial change and society. Impressionist landscapes began to reveal smokestacks and trains in the bucolic landscapes of Monet. The factories seen in the distance of Seurat's post-impressionist "Bathers at Aznieres" foreshadowed the vast side effects industrialization would bring to lifestyle and environment. Artists were starting to sound the alarm on the societal cracks they perceived. Through Surrealism they wrestled with our unconscious feelings, our metaphysical, existential angst. Then the Abstract Expressionists in the new art capital of New York after the end of World War Two struggled with what meaning there could possibly be in a nuclear world that had exploded 2 atomic bombs that instantly erased the lives of over a hundred thousand people. It took the painter Mark Rothko to explain what we felt, in his luminous voids that glowed on his evocative canvases, filling even our peripheral vision with his soulful cry.

Society moved on and capitalist consumerism overran the relevance of the abstract expressionists. Pop Art sought to fill the void by making our consumerist world the new religion, where Warhol's silkscreened Coke bottles and

celebrity portraits became the central semiotic of our culture. If this art wasn't confusing enough for the masses, along came Minimalism and Conceptual Art, both rejecting any aesthetic imperative. Artist Joe Kosuth explained: "Conceptual art—simply put—had as its basic tenet an understanding that artists work with meaning, not with shapes, color or materials. When you approach the work you are approaching the idea" (Ebert, p. 219). That 'idea' might be expressed with every type of material available as artists experimented with new forms of expression including technology, light, sound, video, tar, straw, water, any other material they could get their hands on, and live performance.

This new found complexity of artists' intentions confused and alienated the befuddled museumgoer. Unprepared, they struggled to figure out what "it" meant, rather than what they were experiencing. Suddenly the viewer was expected to become an essential part of the artistic equation. The same audience that felt capable of enjoying Van Gogh's sunflowers was left adrift in the changing tides of this new art.

While this was bad news for the artist whose audience had shrunk dramatically, it could not be a more compelling source of new ideas for anyone seeking an inspired jumpstart. Here was fresh dialogue; original thinking that pushed us outside of our proverbial boxes, to hurl us in unexpected directions. If creativity is about finding the novel and useful (Mayer, 1999), then contemporary art has just laid down a powerful springboard if we would only dare to step on it. Listen to the expansive thinking behind the work of bio-artist Eduardo Kac:

> Eduardo Kac "utilizes emergence in his transgenic bio art. In "Genesis" (1999) KAC translated a quote from the Bible (Genesis 1:26) into Morse code and then converted it into a DNA sequence—ordered from a genetics lab—and infused it into a Petri dish with fluorescent E. coli bacteria. Finally the bacteria's light source was connected to the Internet such that web users could turn it off and on, influencing the E. coli's unpredictable mutations" (Ilfeld, 2012, p. 62).

This kind of exceptional, unconventional thinking is the work of artists' minds that are not trying to problem solve but simply drilling down ever deeper into the core of an issue. Does this kind of thinking trigger or inspire you? If you're asking what this piece means, or whether you understand the artist's intention, you are likely missing the value that might be there to catalyze your own thinking. As individuals in pursuit of enhanced creative thought, this is what matters. Here is a third function of art where the artist serves as the sentry on guard looking for cracks in our evolutionary plan.

The contemporary artist is no longer necessarily the artisan of the work. Some never even touch the materials. Damien Hirst famously never makes

any of his own works, nor Jeff Koons. Instead, as artist Joe Kosuth states, "artists are authors within a discourse"(Kosuth, 1996). The confusion most people experience, and why artists have been whisked out of the mainstream and locked inside rarefied galleries, is because the very nature of the artist has changed. Their connection and purpose has deepened, resulting in works of art that often have nothing to do with aesthetic appeal.

If you missed that conceptual change, then understanding why Damien Hirst's shark hung in formaldehyde is, in fact, museum worthy will be incomprehensible. Some people think this artwork is an effete, insider joke, that couldn't possibly have anything to offer you or your company. It is titled, "The Physical Impossibility of Death in the Mind of Someone Living."

Then it gets more complex still. The shark had to be replaced when it deteriorated over time, despite the formaldehyde solution. Did the artist know this would happen? Was deterioration part of his intention? How does this extend the dialog into our own products' dissolution or our own personal disintegration? It may not be pretty, but have you gotten a jolt of creative inspiration to ponder?

Consider instead, Hegel's point of view, that art is no longer made just for its own sake, for its aesthetic beauty, or as a religious spiritual object (Kosuth, 1996). Art today is philosophy, with our best artists serving as our early warning systems that alert us to that which requires our attention. Today's artists serve as our investigative reporters about everything from the uses of new tools and technologies to bringing to light societal changes and issues that need to be addressed.

The artist's job is to dig deeply, not to solve problems but to find problems; to make the connections we missed. Artists can be a resource for our *own* creative thinking. According to Banathy, "The salient intellectual process is synthesis; its guiding orientation is expansionist; and its thrust is seeking, formulating and fulfilling purpose." (Banathy, 1996, p.106)

Instead of welcoming the prescient work and thinking of these dedicated artists scattered in every town and city across the United States, the gatekeepers of the contemporary art world have anointed the chosen few and largely ignored the rest. In Mihaly Csikszentmihalyi's view, creativity is the intersection of the individual, the gatekeepers of the field and the domain (Tanner & Reisman, 2014, p. 13). The art world's curators and gallery owners, as the gatekeepers, have decreed who will be today's collectable, celebrity artists. In this commodification of art, these artists' products have become a luxury asset, an investment, a trophy. Consumerism has usurped the artist's importance to our society. What has happened to the deeply felt message of the philosopher artist trying to communicate to us all? The intention and clarion call of the artist has been drowned out by the auctioneer's gavel.

Dr. Don Baciagalupi, former-President of Crystal Bridges Museum of American Art and now President of the Lucas Museum of Narrative Art being built in Chicago, sought to redress this usurping of the artist's intention for the mere product to be sold for the profit of the few and privileged. He envi-

sioned a show, "State of The Art", which would dare to risk censure by the leading gatekeepers of the Art world by asking which artists were being left out of the contemporary art dialog.

The journey began with outreach to every colleague in every town across the U.S., to find the most promising, unheard from artists with a deep commitment to their art making. The resulting list of 8,000 names was whittled down by Internet review to 900. Baciagalupi and curator Chad Alligood then spent a year visiting every studio to find what they were looking for: 102 artists speaking to the issues of our time and our communities. Artists who made incisive connections, placing before our eyes things we had never conceived; thought provoking, complex pieces that left us pondering, marveling, confused, nourished, intrigued. They found artists with a fierce commitment to their communities, which they served by embedding their studios in these villages, inner cities and small towns and cities.

Here, at this show at Crystal Bridges in 2014, contemporary artists were put back into our society where they belong: as our visionaries, our provocateurs, and our philosophers. They were returned to their historic role as the canary in the coalmine, pointing out the dangers and wonders of the place we find ourselves as a society and as individuals struggling with our warp speed global world. Dr. Baciagalupi explained:

> "Historically, art has had a central role in communicating the beliefs, the mythologies, and the cultural history. It's a huge loss to our culture that the marketplace of commodification has filtered the contemporary art we view. The voices and intentions of the artist have been lost. The mainstream media won't discover these artists because it can't deal with the complexity of this work. Our world now is in binary mode, where you are either for or against something. The complex meaning of today's artists is too difficult to grasp easily. The work requires the audience to make their own meaning, to engage their minds and emotions to give the work its value. It requires today's Art gatekeepers to be more complex, not just the suppliers of million dollar art to galleries and collectors."

Baciagalupi's audacity, backed by the forward thinking Crystal Bridges Board of Directors, was to posit that a new museum could be a gatekeeper of its own and in the process, reinvigorate the dialog of the public with contemporary artists. The gamble would be whether the public would be willing to grapple with the complex conversations these selected artists were demanding in their work.

"What I saw at the museum", said Baciagalupi, "was 176,000 people who came, they investigated, they challenged, and they had discussions with complete strangers. This doesn't happen at a Jeff Koons exhibition where every-

one already knows the brand, so you can no longer see the work. At our show, it's all novel."

Here is a sampling of the kind of thought provoking, creativity inspiring works by selected "State of the Art" artists whose intentions and process might provoke new creative meaning and connection with your own projects and issues. These artists are creative power tools who have a lot to teach us about where innovation comes from:

Nate Larson and Mimi Shindelman:

Their Geo-location series uses GPS information embedded in actual 'tweets' to locate the exact physical location of that particular Twitter update. The artists travelled to the location to photograph the originating site of the 'tweet'. They exhibit the photo image with the 'tweet' captioned below. In one image, a sad dog's face sticks out of a dilapidated porch screen door with the 'tweet' caption below, "Two years ago today I lost my Dad…time sure flies! I miss you Dad. #RIP."

The show catalog elucidates the artist's work: "Culling the digital material of our everyday lives and anchoring it to the spaces we inhabit, the artists compel you to reconsider the intersections between public and private, virtual and real, spoken and seen." In the artist's words, "We're talking about the loneliness of the Internet." (State of the Art catalog).

Jonathan Shipper:

"To me, art is the process of somebody looking at the world and rethinking what it is." In his work, "Slow Room", the artist has taken a familiar and homey looking living room and attached cables to each and every object: the couch, the lamp, the television, the vase, the chair, the rug. The cables connect through a hole in the back wall to a mechanism that imperceptibly over days and weeks will drag each object to the hole, slowly destroying each in a final heap of waste.

"The work compels you to stop and consider the slow change of your own form and that of the world around you", the catalog explained. Mr. Shipper offered, "These pieces are about destroying the old but they are also about creativity itself, which is in part an act of destruction. To make a chair you have to destroy a tree." (State of the Art catalog).

Hamilton Poe:

In his work "Stack", 6 working household box fans are attached sideways to a wall in a vertical stack from the floor toward the ceiling, with space between for mini-sombreros, anchored by an egg, to spin about in the breeze. It's a humorous installation referencing Donald Judd's sleek and iconic wall mounted sculptures. Describing his creative process, Poe says "Artists come

to art through displacement from the norm. My issue is being bombarded with information. I get overwhelmed and that produced this feeling—right before I reach exhaustion—of giving up and releasing anxiety. Pushing through is very important, and then finding something new" (State of the Art catalog).

Susan Goethel Campbell:

Susan's work focuses on the intersection and fusion of natural earth elements with those that are manufactured and engineered. In her series "Clods" and "Grounds" she grows root-bound forms that make perfect living casts of manufactured containers, capturing their indented concentric circles and plastic patterns in root formations and grass. The surprising tribal art-like beauty comes from the translation of one material form into another (State of the Art catalog).

Gabriel Dawe:

His mesmerizing construction of miles of colored thread strung between hooks on walls and floor surfaces may appear to be colored beams of light overhead. Growing up in Mexico City, he watched his grandmother teach embroidery to the females in the family. "Dawe sought to explode the gender-bound tradition. He sees the structure of his installation as a metaphor to the social structure—and strictures—that often rule our everyday lives" (State of the Art catalog).

Joel S. Allen:

The loss of his sister to pharmaceutical side effects began for Joel as grieving and transmuted into art making using hundreds of ubiquitous amber pill bottles. Appearing like giant tribal "shaggy beehives suspended in space, Allen wants to remind us that the potential for unearthly beauty lies everywhere around us, waiting only for the touch of human imagination" (State of the Art catalog).

Flora C. Mace:

"I never know what our work's about until we make it", Flora says in the catalog. As a glass artist, she has invented new ways to use glass. In "Tazetta Narcissus", she has invented a way to preserve forever a living, flowering narcissus bulb. By deconstructing each petal and leaf and painstakingly encasing it in glass before reassembly, the flowering form will last forever, something never before accomplished with a carbon-based life form. She says of this remarkable achievement, "I hope that the techniques we have developed…will help other artists realize that there is another way, and just keep

looking" (State of the Art catalog).

These are some of the undiscovered artistic provocateurs in our midst. There are many established, well-known contemporary artists whose extravagant works may spark new avenues of creative thinking. The otherworldly beauty and sheer scale of James Turrell's sculpting of light into Roden Crater, an extinct volcanic cinder cone in Arizona, is one provocative example of Eminent creativity in our time.

> John David Ebert, author of "Art after Metaphysics" writes,
>
> "With contemporary art, there is no single world that is being articulated. Each artist is busy constructing his own plane of signification on the inside of his or her own semiosphere, and the interested individual can either show up to view the experiment or else completely ignore it.
>
> However: we are living in an age when all the previous structuring Forms of civilization…are in complete disintegration and disarray. And in such an age of breakdown, the contemporary artist IS necessary as a sort of fisherman of Forms…he is busy extracting from this middelheap temporary singularities that may serve…to construct a new cosmology for a new epoch"
> (Ebert, 2013, p. 219)

In the literature on creative ideation in organizations, one of the catalysts recommended to spur more expansive, less conscious thinking in groups is to bring in a Wild Card, a provocateur, a zero gravity thinker (Rabe, 2006, p. 5). This describes today's contemporary artists who are connection-making marvels. Free of group thinking or organizational expectations, non-conformist and independent, there are artists whose works align to every business type and domain. Bring these artistic minds to sit at the conference table when brainstorming; ask them to do a presentation discussing the intentions and concerns of their work before a group creativity work session. Hire an art historian to showcase and discuss artists' work relevant to any given topic—education, healthcare, guns and violence, the environment, family and social structures, water shortages around the world.

In one creative ideation technique called Brutethink (Tanner & Reisman, 2014, p. 29), a group is shown a random item and asked to force meaning of this item onto their problem. For example, "How is a Frisbee like my problem?" "It flies far away but then sometimes boomerangs back". "It's enjoyed by people and dogs" "It's best played in a group and outdoors". Instead of a Frisbee, let an artist's work inform these same questions, starting off the session with a much deeper well of thought from which to draw connections. Pondy and Mitroffs Law of Limited Variety describes the possible advantage:

a system will exhibit no more variety than the variety to which it has been exposed in its environment. (Scott & Davis, 2007, p. 97). Seeking complexity, as artists do, may increase your creative output.

We need artists to assist us creatively because not all connections are made cognitively through the left hemisphere of the brain. Music and visual arts are processed in the right hemisphere, making connection through the corpus callosum with the brain's left hemisphere. The visual work of artists, the auditory compositions of musicians, the kinesthetic works of dancers stimulate the non-verbal parts of our brain. This forces us to stretch for the remote kind of connection making and creative thinking that innovation requires. Bringing an artist to the conference table may increase the fluency and flexibility of your creative ideations.

In the field of Creativity, we speak of the importance of a deliberate creative practice. When you regularly include the artist and their works in your culture, you are building a "learning organization", defined by Human Performance Technology as "organizations that encourage, support and celebrate personal mastery of knowledge" (Van Tiem et al., 2012, p. 496). Invite artistic complexity to start to filter into the conversations of your teams. It's infusion builds more open, expansive cultures, where richer dialog and broader perspectives take root in an environment committed to creativity and learning.

One of the ways organizations are increasingly incorporating art is through artist residencies. From Amtrak, to Hallmark to the UCSF Memory and Aging Center, organizations are bringing artists into the dialog, to shed a new light where there was darkness. Dr. Bruce Miller is the esteemed behavioral neurologist and founder of the University of California at San Francisco (UCSF) Memory and Aging Center, whose mission is to provide the highest quality of care for individuals with cognitive problems while also conducting research on the causes and cures for degenerative brain diseases. This may seem an unlikely home for artists.

As one of the world's leading authorities on fronto-temporal dementia, Dr. Miller's understanding of how the Arts can effect brain function and inform their work was the impetus behind creating the Hellman Visiting Artist Program, a 3-month residency where artists immerse themselves with patients experiencing cognitive loss. Asked why he wanted to build this residency program he replied, "People listen to artists. They translate our message to society. We need to rely on artists because we are interested in speaking to a broader San Francisco community. Second, as we age we each have a need to preserve our own systems through visual arts, dance, music and writing. Our involvement with the Arts preserves and even enhances our abilities. When the left side of the brain degenerates, the right side remodels itself and responds. People never interested in art suddenly become interested with left hemisphere loss."

Asked about the benefit of the art residency program for his staff, other doctors and patients, he admits it's difficult to measure the ROI. "I think so. It

humanizes the patients for the doctors. They listen to the way great artists think about the brain. It encourages creative exchange between artist and researcher." He recalled the deep understanding of their work on Aging and Memory expressed through poet Jane Hirshfield's work, who spent 3 months deeply engaged with UCSF's daily work with patients and neuro-scientific research.

Amtrak got into the artist residency business by public demand. Writer Alexander Chee, author of "Edinburgh" and "The Queen of the Night", in an interview with PEN America mentioned that his favorite place to write is a train. "I wish Amtrak had residencies for writers" (pen.org). The twitter sphere got hold of this, # Amtrak residency, and pressed Amtrak which wisely saw the benefits to their brand and their customers. The first recipient of the residency was New York based writer Jessica Gross, who wrote, "Writing the Lakeshore Limited", published in February 2014 by The Paris Review. This artist program has been featured on "The Wire", in the New Yorker and the Huffington Post.

Fashion house Hermes also recognizes the value of bringing independent artists into their workplace. "The Foundation d' enterprise Hermes pursues a commitment to the creative men and women whose work helps us to see our world in a new light, challenging and consolidating the foundation of our shared culture" (Fondation Enterprise Hermes.org).

At Hallmark, where workers are encouraged to revive their creativity with a wide variety of offerings, an engraver spent 3 weeks in a ceramic studio making pots. Robert Hurlburt's excited response to the value that this immersion into an artist's experience has given him succinctly sums up the impact of art: "It's given me an opportunity to get back to thinking wild and crazy things" (Hallmark, www.fastcompany.com). One of the first principles of creative thinking skills is to go for remote associations and not to censor our thinking: those "wild and crazy" thoughts are the golden threads we seek to capture to weave into creative tapestries.

One of the oldest artist residency programs was begun in 1974 at Kohler Company, a leader in the plumbing fixture industry in Sheboygan, Wisconsin (Laabs, 1994) There, 14-20 artists from around the world are selected to work in their pottery, iron foundry, enamel shop and brass machine shop. By exploring the uses of industrial technology for art making, these artists are expanding the creative vision of a company in an industry not otherwise known for pushing the boundaries of artistic creation. Inviting artists to see with fresh eyes how to work Kohler's materials invites synergy and connection that would not be possible otherwise.

Beyond this, the benefits to the culture of Kohler are notably positive. Having these rotating artists around all the time uplifts factory worker morale, creating an exchange of ideas about methods and approach to materials. "Tapping into creativity, experimentation and awareness of abstract concepts helped combat fatigue on the factory floor. I saw a marked increase in self-confidence and willingness to put ideas forward" (Laabs, 1994). Since it is

widely understood in organizational creativity that the next great idea can as likely come from the line worker as the Research and Development department, this stimulating effect of having 'artists in their midst" has huge bottom line potential.

Dr. Baciagalupi recalled that when he was Director of The Toledo Museum of Art, industry (including General Motors) would approach the Museum to build creative arts programs for them to "get them out of their ruts". His education staff built hands-on workshops to shake up these industrial giants' thinking; to teach them about the artist's way of thinking. Not seeking to solve specific problems, these companies were looking for metaphors and processes that might be appropriate to their own work and applicable to their industry.

Facebook is in its second year of supporting artists' residencies campus-wide that has made art an omni-present feature in every building. The program founder and curator, Drew Bennett, not only commissions the art for exhibition and installation on every corner of the complex, but encourages the artists to co-mingle and interface with Facebook employees, spreading the seeds of artistic vision everywhere. (Facebook at www.artbusiness.com). His belief is that workplaces filled with art generate employee work satisfaction and increased productivity. By having constant exposure to art, workers are constantly fed a stream of unconventional thinking and new ways of seeing the world.

Whether the ideas making connection and innovations conceived will tangibly affect the company's success is still a matter of conjecture, but all indications are that the Artist in Resident program at Facebook is an overwhelming success. Bennett believes that the lessons learned about how to successfully create an artist residency program within corporate environments can be rolled out into any organizational settings to promote more expansive thinking, communication and improved workplace satisfaction (Facebook at www.artbusiness.com).

Artist residency programs can now be found at Autodesk, where artists spend 3-6 months working at the digital fabrication facility at Pier 9 in San Francisco. This developed in response to their acquisition of Instructables, a company with Do-It-Yourself projects aligned to the Maker Movement, the thriving subculture of technology enthusiasts who repurpose computer related parts to invent original products for personal satisfaction. The senior creative programs manager at Autodesk, Noah Weinstein, says "Artists are great explorers and discoverers when it comes to using technology. They are asking the software to do things that it does not usually do…they shed light on new functionalities at the cutting edge" (Hallmark, www.fastcompany.com).

Siemens residencies sponsor musicians through its hearing aid division. Honeywell is implementing its own artist residency program, and writer's residencies continue at the Standard East Village Hotel and the Ace Hotel in New York. Threadless, a T-shirt company sponsors a resident graffiti artist to keep creativity and youthful energy thriving[1].

1. (Hallmark, www.fastcompany.com).

Research on the origins of creative thought and how to stimulate its genesis makes it clear why exposure to the non-traditional, uncensored thinking of artists is so beneficial. It has been argued that there is no such thing as an original thought, only a new synthesis of ideas. A cardinal rule of brainstorming is to build on other people's ideas, to make new connections, to find more remote associations to take us farther afield of traditional thought. Anything that takes us out of the confines of our logical mathematical left-brains and opens access to our imagination-rich, unconscious emotions of the right hemisphere offers the tremendous promise of new synthesis in unexplored territory. This is where those "wild and crazy thoughts" of the Hallmark employee live, but are often suffocated or suppressed by our hectic lives. How do we get beyond these limitations to the fertile lands in our minds where creativity lives?

A number of character strengths for unleashing creativity, can be assessed on the Reisman Diagnostic Creativity Assessment (RDCA). These include openness to new ideas, suspension of judgment in the ideation phase, fluency which is going for as many ideas as possible, flexibility in looking at as many realms and fields of inquiry as possible, elaboration, resistance to premature closure which is incubating on ideas before rushing to implementation, enthusiasm for complexity and its cousin, a tolerance of ambiguity, separating divergent thinking from convergent thinking, risk-taking, high intrinsic motivation, having a positive affect, persistence, and originality (Tanner & Reisman, 2014, p. 25). An open, supportive environment that encourages personal expression and freedom, non-conformity, and gives permission to fail allows these qualities to flourish in the workplace.

There are many methods and exercises to help us expand our creative reach. The book "Thinkertoys" by Michalko (Michalko, 2006) is chock full of exercises like Forced Connection, SCAMPER and the Idea Box to spur creative thinking. Creative consultants can facilitate sessions to effectively use Creative Problem Solving methodologies to systematically unlock new approaches and find best solutions. Synectics effectively uses metaphor and analogy to press beyond our conscious minds into our outer creative edges where original ideas lie.

Each of these are valid and powerful tools; each improves our problem solving ability. But consider that all the participants in this kind of organizational training belong to the same culture, bound by similar suppositions and unseen constraints. In the creativity literature we debate whether creativity is domain specific or domain general. Does one need to be an expert in technology to create the next breakthrough technological idea? Can you push the innovative edge of a domain if you are not well immersed in its current capabilities? Yet if you are within that specialized arena, how feasible is it to suspend what you know to be true to approach the domain from a totally new vantage point?

This is where inviting the artist into the dialog can work magic. Dudek wrote in the Creative Research Journal "artists have the greatest degree of

freedom in effecting change by virtue of their temperaments, their inescapable alienation, and until recently, their relative independence of university education. Their greatest freedom comes from a lack of integration into society, their alienation from societal bonds and their needs to question the established pattern of thinking and behaving" (Dudek, 1993, p. 145).

It is our job to embrace the work of the artist. We should strive to comprehend what it is these trained art professionals are concerned about; to see what connections their brains are making that we haven't considered; to see what their intensive search for meaning and expression can tell us about our world. These are other-socialized brains that are not focused on solution finding or problem solving or product making. These are our finest creative resources who offer their genius and their failures, their wisdom and excursions of fantasy to us.

Our job is to accept their offerings with child-like wonder, to process it through our own systems and the needs of our workplace or our lives and take from it what is meaningful for us. Artists don't make meaning: we, the audience are the other half of the equation that does that, as Roy Ascot wrote:

> "As feedback between persons increases and communications become more rapid and precise, so the creative process no longer culminates in the *art work*, but extends beyond it deep into the life of each individual. Art is then determined not by the creativity of the artist alone, but by the creative behavior that his work induces in the spectator, and in society at large…The art of our time tends towards the development of a *cybernetic vision*, in which feedback, dialogue and involvement in some creative interplay at deep levels of experience are paramount…the cybernetic spirit, more than the method or the applied science, creates a continuum of experience and knowledge which radically reshapes our philosophy, influences our behavior and extends our thought" (Ascott, 1968).

It ultimately may not matter to us what the artist intended, though it's informative to know. So much of what scares us away from contemporary art is a fear that we don't understand it, that it's meaning is unknowable to us, and either we, or it, are inadequate. Adopt the first rule of creativity: suspend judgment. Interact with the art and let it expand your creative vision.

If all that the inclusion of artists into our workplaces accomplishes is openness to new experiences and greater acceptance of possibility, then their canvases, their constructions, their songs, their dances, their performance art, their conceptual works and their poems have done us an enormous service. Our organizations will be freer and more conducive environments for creative ideas. We might learn to adopt the first rule of improvisational theatre, which is to agree with whatever suggestion has gone before by saying, "Yes, and…". It should be the same with our artists' offerings. Accept what is pre-

sented so that we may make our own meaning from it.

If we think about what the history of the world might look like if we didn't have art to explain it to us, we might have some idea of how much more limited our organizations are when Art's language is not singing all around us. By including the artist's voice, by welcoming and honoring it in our workplace, we signal to everyone in the culture that diversity of thought is welcome, that originality and non-conformity are expressions to be encouraged. We signal that we are truly dedicated to being creative, innovative powerhouses that consistently produce the highest quality original products, services and thinking.

Conclusion

Apple's famously brilliant "Think Different" ad campaign revealed the magic formula for innovative ideas. The more we are exposed to and surround ourselves with different ways of thinking, the more we raise our own capacity for discovery. We are able to risk sailing into unchartered waters instead of holding back for fear the world may be flat.

My proposal simply urges the inclusion of the artist back into our midst, whether in our schools, our corporations, our politics or our social and leisure activities. We have marginalized the artist, made her "the other". As a society we have either ignored them or cloistered them away in galleries and museums, making them into commodities to be traded for profit or status. In the process we have stripped them of the meaning they bring to our world.

Artists can be the spark of illumination, the catalyst of innovation. But you have to be open to discovering the fuse it lights inside your own brain. Today's artists that can offer us the most creative value may not be the ones who demonstrate an artisan's master craftsmanship. They may not be the artists whose work we can readily comprehend or enjoy. Find the artists who reach beyond pure aesthetics who provoke within you a kind of participatory grappling for meaning.

Contemporary artists have been our most underutilized resource in our quest to stay creatively vibrant and innovatively prolific. Let's put their creative vision and inspiration to work.

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Author's Brief Bio

Art and entrepreneurship are the twin life-long passions that drive Rick's current academic study in the field of Creativity. His 2015 Masters Degree in Creativity and Innovation from Drexel University, under the guidance of Fredricka Reisman, compliments an Oberlin College BA in Psychology and a Bachelor of Fine Arts from Sonoma State University. His successful business ventures have included designing novelty products and stationery for the gift market, a New York City decorative painting and faux finishing company, lifestyle furniture stores in Manhattan, an international Halloween and novelty hat corporation, and a natural materials design showroom and distributorship in Northern California. He has worked as a consultant to the David Allen Company and David Allen, best-selling author of "Getting Things Done." Rick is an avid art collector, art maker, yoga practitioner, public speaker, and inspirational volunteer to young schoolchildren. His diverse and eclectic background uniquely informs his current creative consulting work, executive coaching and public speaking engagements. Rick thrives on being the creative catalyst of great flights of productive inspiration for individuals and companies alike. He currently serves as the Secretary for the American Creativity Association.

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CHAPTER NINE

DEVELOPING A MEASUREMENT FOR THE PERCEPTION OF CREATIVE LEARNING ENVIRONMENTS IN EDUCATIONAL SETTINGS

KUAN CHEN TSAI

Abstract

The purpose of the present study was to develop a parsimonious measure that is specifically relevant to the study of creativity in school environments, and that can be easily administered. Based on the literature review, it was expected that our Creative Learning Environment Perceptions (CLEP) instrument would reflect three underlying dimensions: (a) creativity support; (b) curriculum design, and (c) motivations. Two studies are reported here: the first being a pilot study using a small sample and aimed at checking all coefficients and its internal consistency reliability of the measure, and the second being a large-scale study that assessed the construct validity of the measure through the methods of exploratory factor analysis and confirmatory factor analysis.

Introduction

Numerous scholars have investigated possible links between creativity and individual and contextual factors (e.g., Cummings & Oldham, 1997; Hunter, Bedell, & Mumford, 2007; Oldham & Cummings, 1996; Woodman, Sawyer, & Griffin, 1993; Zhou & Shalley, 2003). Collectively, their work suggests that people's environments – whether at work or in school – have significant impacts on their creative performance. Several studies have indicated that individuals' perceptions that they are working or studying in a creative environment can be enhanced through appropriate organizational structure and intervention (Mayfield & Mayfield, 2010; Sohn & Jung, 2010).

Mathisen and Einarsen (2004) reviewed four instruments (KEYS, Amabile, 1995; CCQ, Ekvall & Ryhammar, 1999; SSSI, Siegel & Kaemmerer, 1978; TCI, Anderson & West, 1998) which were all designed to measure creative or innovative environments, and noted that all four stressed positive rather than negative factors related to creativity and innovation. The notion of support also common to all instruments, might refer to either material

or spiritual support that the organization might provide to individuals in order to facilitate their creativity. Other factors that appeared repeatedly in the instruments reviewed by Mathisem and Einarsen studies were freedom, information flow, mental challenges, and a safe environment in which to be creative.

As the preceding discussion suggests, a number of efforts have been made to determine the degree to which various areas need to improve if an organization is to promote creativity and innovation, and to point out how such change might be achieved. As valuable as these studies are from the standpoint of organizational development, there remains a scarcity of literature on how creative-environment perceptions affect learners' perceptions of school. Special attention should be paid to this topic, insofar as learners (and learners' creative behavior in particular) are expected to be affected by their school environments.

It is therefore proposed that three dimensions are key to assessing perceptions of a creative-environment in an educational setting. The first is intrinsic and extrinsic motivation (Amabile, 1996) that support the student in being or becoming a creative learner. In particular, extrinsic motivation may include the attitudes expressed by teachers vis-à-vis the toleration of uncertainty and the free exchange of ideas, which has been found to play an important role in shaping creativity (Creme, 2003; Oral, 2006). The second dimension is curriculum design (including pedagogy), which is treated as a potential resource for the facilitation of creativity development (Lin, 2011; Petocz, Reid, & Taylor, 2009). For example, some pedagogical techniques employed by teachers are more suitable to unleashing students' creative potential than others (Dineen, Samuel, & Livesey, 2005; Sawyer, 2004). Lastly, school policy may tend either to stifle or encourage the development of creative potential (Halpern, 2010; Shaheen, 2010). For instance, if the school supports teachers in their implementation of creative teaching, or sets up workshops for teacher development, it is more likely that its teachers will be willing to embrace a pluralistic or varied approach that is conducive to the establishment of a creative learning environment (Bleakley, 2004; Fasko, 2001).

The purpose of the present study was to develop a parsimonious measure that is specifically relevant to the study of creativity in school environments, and that can be easily administered. It is hoped that this instrument will be beneficial for educators and administrators seeking to understand learners' perceptions of the learning environment in terms of creativity development, with the wider aim of aiding the design of creativity-friendly learning environments. Two studies are reported here: the first being a pilot study using a small sample and aimed at checking all coefficients of our instrument's 30 items and its internal consistency reliability of the measure, and the second being a large-scale study that assessed the construct validity of the measure through the method of exploratory factor analysis and confirmatory factor analysis.

Study 1

Method

Participants

The subjects were Chinese undergraduate art and design students from a small university located in Macau. They were mostly nontraditional students, in that they had part- or full-time jobs concurrently with their university enrollment. Participation in the study was voluntary and without incentives, and survey completion or non-completion did not affect course grades. There were 22 participants, 12 men and 10 women. The age range was 19-36 years old, not counting three students who declined to declare their age, with a mean age of 22.53 years (SD = 3.78).

Instrument

Based on the literature review, it was expected that our Creative Learning Environment Perceptions (CLEP) instrument would reflect three underlying dimensions: (a) creativity support; (b) curriculum design, and (c) motivations. The first measures how much encouragement a student receives from their school and classmates. The second focuses on how well the course structure and teaching strategies promote creativity. The third assesses the degree to which individuals are encouraged toward creative learning via strategies employed by teachers and the school's culture. The CLEP consists of 30 items, each of which is answered using a 5-point Likert-type scale, ranging from 1, "completely disagree" to 5 "completely agree." Three of the 30 items required reverse coding. All items were written in Chinese, but an English translation was created and is provided in full in the Appendix.

Results

Descriptive statistics and internal consistency

The pilot study examined response distribution of the CLEP items, screening the data set for means, standard deviations, skewness, and kurtosis. As shown in Table 1, all 30 items fell within the acceptable range in terms of both skewness and kurtosis values. The items as answered by the 22 pilot-study participants were also examined for internal consistency and item-scale correlation. Corrected item-scale correlations ranged from .36 to .88, indicating high internal consistency. Additionally, the internal-consistency rating for the CLEP as a whole was strong, at a= .96. Split-half reliabilities for the two halves of the CLEP were a= .92 (15 items of the first half) and a= .93 (15 items of the second half).

Table 1

Descriptive Statistics for Initial CLEP

Item	*M*	*SD*	Skewness	Kurtosis
CLEP 1	3.68	0.89	.27	-.97
CLEP 2	3.50	1.01	-.61	.47
CLEP 3	3.27	0.83	.54	.20
CLEP 4	3.05	1.25	.23	-.83
CLEP 5	3.27	0.83	.54	.20
CLEP 6	3.23	0.87	.47	-.08
CLEP 7	3.32	0.84	.37	-.09
CLEP 8	3.23	0.87	-.49	1.14
CLEP 9	3.27	1.24	-.24	-.78
CLEP 10	3.68	0.95	-.40	-.53
CLEP 11	2.73	0.94	.22	.79
CLEP 12	3.41	0.67	.37	.27
CLEP 13	3.55	0.86	.10	-.44
CLEP 14	3.59	0.85	.45	-.66
CLEP 15	3.55	0.91	-.15	-.59
CLEP 16	3.32	0.84	.37	-.09
CLEP 17	3.27	0.94	-.22	.79
CLEP 18	3.41	0.85	.06	-.40
CLEP 19	3.41	0.80	-.30	-.38
CLEP 20	3.82	0.96	-.32	-.75
CLEP 21	3.32	0.99	-.08	.41
CLEP 22	3.36	0.95	.25	-.68
CLEP 23	3.09	0.97	.83	.06
CLEP 24	3.55	0.86	-.40	-.31
CLEP 25	3.41	0.96	-.25	.86
CLEP 26	3.32	0.72	.29	.30
CLEP 27	3.59	0.85	-.06	-.40
CLEP 28	3.41	0.96	.46	-.62
CLEP 29	3.14	0.89	.61	.04
CLEP 30	3.64	0.90	-.02	-.65

Discussion

The preliminary results of the pilot study indicate good internal consistency for the 30 items CLEP as a whole. Response distributions of the 30 items were also checked, and indicate the reliability of the CLEP.

Study 2

Method

Participants

The sample for the second study consisted of 224 Chinese undergraduates (125 first-year students and 99 second-year students) attending the same university in Macau as the pilot-study participants. They were traditional students and among them, eighty seven were male and 137 female, and the mean age of the groups as a whole was 19.59 years (*SD* = 1.60), excluding four students who did not disclose their ages.

Instrument

Because the pilot study established that the 30-item CLEP had good reliability, the same instrument was distributed to students in the second study for further validity analysis. The internal consistency rating for the CLEP as a whole was a = .94, indicating strong internal reliability.

Results

Exploratory Factor Analysis (EFA)

To assess the dimensionality of the CLEP'S 30 items, a preliminary Principal Components Analysis with maximum likelihood extraction and varimax rotation was conducted using SPSS. The initial run resulted in a four-factor solution, based on both the EV >1 rule and the scree plot. Hair, Black, Babin, and Anderson (2009) suggest that when identifying significant factor loadings based on sample size, of 200, a factor loading of .40 is required to establish significance (p. 116). In addition, variables with communalities greater than .50 should be retained in the analysis (p. 121).

As Table 2 shows, the pattern of factor loadings indicated that all items had values larger than .40, and that eight items had cross loadings on two or more factors. In terms of communalities, only three items were less than .50. The three-factor model explained 62.51% of the total variance.

Table 2

Factor Loadings From Principal Component Factor Analysis: Communalities, Eigenvalues, and Percentages of Variance for the 30 Original Items of the CLEP

	Factor loading			
Item	1	2	3	Communality
CLEP 1	**.51**	**.61**	.15	.65
CLEP 2	.40	**.57**	.22	.53
CLEP 3	.**43**	**.69**	.16	.69
CLEP 4	.20	.**74**	.34	.71
CLEP 5	.14	.**75**	.32	.68
CLEP 6	.34	.**72**	.20	.67
CLEP 7	.30	.**73**	.29	.71
CLEP 8	.32	.**68**	.36	.68
CLEP 9	.38	.**62**	.13	.54
CLEP 10	.**55**	.**55**	.17	.63
CLEP 11	.02	.25	.**64**	.48
CLEP 12	.38	.**47**	.**46**	.58
CLEP 13	.35	.**54**	.29	.51
CLEP 14	**.70**	.35	.19	.65
CLEP 15	**.46**	.36	.34	.46
CLEP 16	.**43**	.38	.**47**	.55
CLEP 17	.**49**	.35	.**42**	.54
CLEP 18	.**73**	.30	.35	.75
CLEP 19	.40	.16	.**52**	.46
CLEP 20	.**75**	.27	.23	.69
CLEP 21	.14	.21	.**75**	.63
CLEP 22	.**42**	.16	**.70**	.68
CLEP 23	.31	.31	.**70**	.68
CLEP 24	.**57**	.28	.**50**	.66
CLEP 25	.38	.21	.**68**	.64
CLEP 26	.**55**	.**43**	.31	.58
CLEP 27	.**65**	.34	.18	.57
CLEP 28	.**80**	.28	.27	.79
CLEP 29	.**69**	.37	.30	.70
CLEP 30	.**70**	.34	.29	.69
Eigenvalue	15.80	1.59	1.36	
% of variance	52.68	5.29	4.54	

Note. Boldface indicates factor loadings > .40.

Af-

ter deleting 12 items that had cross loadings, the same factor analysis procedure was employed to assess the factor structure. As shown in Table 3, a new three-factor solution emerged, which retains 18 of the original 30 CLEP items. All factor loadings were larger than .40, all communalities were larger than .50, and no items had cross loadings on two or more factors. The new three-factor model explained 67.01% of the total variance, an improvement of 4.50% compared to the previous model.

Confirmatory Factor Analysis (CFA)

To determine the validity of the previously hypothesized three-factor solutions, CFA with maximum likelihood estimation procedure was conducted. The results indicated fit indices as follows: $c^2 = 190.36$, $df = 124$, $p < .001$, RMSEA = .049 (90% CI = .035, .062), CFI = .975, GFI = .920, TLI = .969. Although the chi-square statistic was statistically significant, all other measures of goodness of fit supported the three-factor model. A path diagram of this model with the complete set of parameters from the standardized solution is depicted in Figure 1, which shows that the standardized coefficients for all 18 indicators were statistically significant ($p < .001$) as well as moderate or high in magnitude. The sizes of the factor loadings ranged from .52 to .87, reflecting the convergent validity of the construct. The values of average variance extracted (AVE), a summary measure of convergence among a set of items representing a latent construct, were also calculated. AVE values ranged from .66 to .78, suggesting adequate convergence. Construct reliability (CR), values greater than .70 suggest good reliability of the construct, and in this case, they ranged from .80 to .93. The correlations among the three factors (creativity support, design, and motivation) were between .41 and .46, moderate correlations that suggest the discriminant validity of these three dimensions.

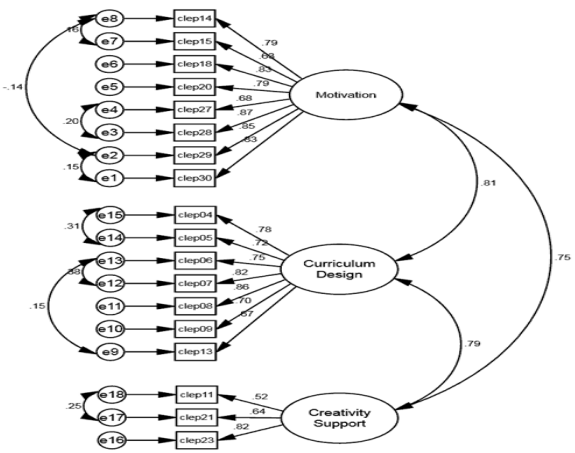

Figure 1: Standard coefficients for the 18-items CLEP

Table 3

Factor Loadings From Principal Component Factor Analysis: Communalities, Eigenvalues, and Percentages of Variance for the 18 Final Items of the CLEP

	Factor loading			
Item	1	2	3	Communality
CLEP 4	.26	.**76**	.27	.71
CLEP 5	.17	.**77**	.25	.69
CLEP 6	.37	.**71**	.16	.67
CLEP 7	.36	.**75**	.22	.74
CLEP 8	.37	.**74**	.23	.73
CLEP 9	.40	**.64**	.03	.58
CLEP 11	.12	.14	.**84**	.74
CLEP 13	.40	.**59**	.20	.51
CLEP 14	.**73**	.29	.20	.67
CLEP 15	.**51**	.29	.40	.51
CLEP 18	.**77**	.31	.21	.74
CLEP 20	.**79**	.25	.16	.69
CLEP 21	.22	.24	.**75**	.66
CLEP 23	.37	.39	.**56**	.60
CLEP 27	.**66**	.37	.05	.57
CLEP 28	.**84**	.27	.20	.82
CLEP 29	.**74**	.35	.25	.73
CLEP 30	.**75**	.33	.21	.71
Eigenvalue	9.63	1.32	1.11	
% of variance	53.51	7.32	6.18	

Note. Boldface indicates factor loadings > .40.

Discussion

EFA and CFA results indicated that the 18-item CLEP had good measurement qualities. The scale was a good fit with the sample data, and all items significantly loaded on the expected latent factors, with acceptable construct reliability, convergent validity, and discriminant validity. In addition, these latent variables significantly covaried with each other. In sum, the 18-item CLEP provides a useful measurement instrument for assessing perceptions of a creative learning environment in university level educational settings.

General Discussion

The CLEP that we developed is a useful instrument with psychometric properties including a three-factor structure—creativity support, design, and motivation —were confirmed via the evidence of high internal consistency, model fit indexes, construct reliability, convergence validity, and discriminant validity. The correlated three-factor structure is consistent with previous theoretical accounts of the effects of extrinsic motivation on people's creativity. Furthermore, our findings show that the attitudes of educators toward supporting creativity, and the strategies they employ also play important roles in shaping students' perceptions of creative learning. In addition, the results suggest that school policy and culture might facilitate creativity.

Perhaps most importantly, our findings show that perceptions of creative learning can be measured by an instrument that involves both personal and school-environment dimensions. The CLEP was deliberately designed as a measure to capture learners' perceptions about their learning as influenced by outside factors. As such, CLEP can provide richer information and better critical perspectives for the identification of creative learning environments, appropriate intervention in enhancing learning experience, and curriculum design than other measures that have been devised in the past. In sum, three variables—creativity support, design, and motivation —in the CLEP were a first look we have studied. The preliminary results show that the CLEP is a reliable and valid scale, and could provide a criterion by which to efficiently measure and study students' perceptions of creative learning environments. It is parsimonious and easily administrable. As such, it provides a useful measurement instrument for researching creativity-learning issues among learners.

Limitations and Implications

Though the results of the present research are encouraging, several possible limitations should be kept in mind. First, the sample's age was both relatively uniform and quite low (approximately 20 years old). Future studies should test this limitation by including older learners. It should be noted that the cur-

rent study was at the university level, and future researchers might examine other educational levels, such as k-12 or middle school levels. Additionally, the study was conducted on a homogenous selection of learners from a single institution and the same cultural background. This relative lack of diversity raises the possibility that the scale may not be suitable in other institutional and/or cultural contexts. Future work will need to include multiple learning sites, and subjects from multiple cultural groups. Lastly, the examination of external validity was not included in the present study, and future research is needed to address this limitation.

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Appendix

CLEP Items

Motivation Items

I am encouraged to attain my goals which I am interested of.
My teacher is tolerant of uncertainty.
My school is open to independent thoughts and autonomy.
My teacher expects me to show more creative behaviors.
I feel more creative in this environment.
My teacher uses a lot of teaching strategies to help me being creative.
I believe that I am currently very creative in my learning.

Curriculum Design Items

I have the resources I need to be creative.
My studying is challenging.
My teacher gives me more freedom to approach how I lean the subject.
The curriculum makes it easy to be creative.
The school policies promote creative thinking.
There is cultural diversity in my school.
People in my surroundings have different perspectives.

Creativity Support Items

My classmates challenge most of my ideas rather than accepting them.
*My school determines many of my decisions.
People value my observations and unique thoughts.
*means reversed coding.

CHAPTER TEN

THE COMPLEXITY OF THE ASSESSMENT OF CREATIVE CLIMATE AND GROUP CREATIVITY

LINGLING LUO, XUEMEI DENG & CHUNFANG ZHOU

Abstract

This paper provides a literature review that firstly demonstrates a growing interests in studies on creative climate and group creativity that is followed by a discussion on the important methodological significances of assessment of climate and the complexity of assessing group creativity. From the discussion, we suggest that the nature of the diversity of members of a group should be part of an assessment index. This contributes to future instrument development in assessment of group creativity.

Keywords: creative climate, group creativity, complexity, assessment

Instrument of Assessing Climate and Group Creativity

In recent years, the literature demonstrates a growing interest in studies on creativity and group creativity (Ekvall, 1983； Ekvall & Arvonen, 1984; Ekvall et al., 1983, 1996; Sawyer, 2007). Among the various aspects of studies, the most prominent accomplishment is the development of various sophisticated tools to assess group creativity (Ekvall et al., 1983, 1996). Most of these tools have the assessment of group climate as their core function.

Ekvall first developed an instrument to measure group creativity (Ekvall, 1983； Ekvall & Arvonen, 1984; Ekvall et al., 1983, 1996). In 1980, he developed the Creative Climate Questionnaire (CCQ). Through factor analysis, CCQ has produced 10 creative climate dimensions（Ekvall, 1983) including challenge, freedom, risk taking, debates, idea support, conflicts, humor (playfulness), liveliness, idea time, and trust/openness. Laurer (1994) further developed the CCQ to provide some new conceptual bases and was revised as

the Climate for Innovation Questionnaire.

Sackmann (1992) noted that organisations at different levels have different sub-cultures, some of which maybe changed by the overall organizational environment. Gersick (1988) found that different groups in an organisation may experience completely different work environments. However, Amabile (1987) she advocated using the assessment of the work environment to forecast creative activity; the assessment of the work environment is realised by people's perceptions of the environment or, to be exact, the work environment for creativity. She suggests that the components fall into two general categories: "stimulants to creativity" and "obstacles to creativity". She views the one positively related to creativity as the important mechanism of group creation. Amabile (1987) designed an instrument to assess the environmental climate, based on the conceptual model that was previously called the "work environment inventory" (WEI) and afterwards revised as "assessing the climate for creativity" (namely KEYS).

Isaksen, Lauer & Ekvall (1999) from the Creative Problem Solving Institute at Buffalo University developed an instrument to assess organisational climate for creativity, the Situation Outlook Questionnaire (SOQ), on the basis of a Model for Organizational Change. Ekvall participated in the revision and tested the instrument's reliability and validity using statistics from 1111 samples. The results support both the reliability and validity. The SOQ was developed, which involved assessing nine aspects, namely, challenge/ intervention, risk taking, debates, idea support, conflicts, game loving/ humour sense, idea time, trust and openness, and freedom. Isaksen et al. (2000-2001) spent 15 years working on the scale that incorporates Ekvall's early scale and the work done by the Research Centre, concerning the tests on reliability and factor structure of the Creative Climate Questionnaire and concerning the exploratory proof of the relationship between cognitive style and perception of creative climate (Isaksen, Lauer, Ekvall, & Britz, 2000-2001).

British scholars Anderson and West (1998) developed the Team Climate Inventory (TCI) as an assessment scale suitable at the group level. A proximal work group was defined as either the permanent or semi-permanent team to which individuals are assigned, whom they interact with regularly in order to perform work-related tasks. The early version of the TCI comprised 61 items; the present 38-item scale was developed in 1994, and is available in several languages, including Swedish and Finnish, and is widely used in research across Europe.

Mathisen and Einarsen (2004) performed a detailed analysis and comparison of the TCI for assessing innovative environments within organisations. In addition, the Siegel Scale of Support for Innovation (SSSI) was designed by the American scholars Siegel and Kaemmerer (1978) for the supposedly existing organisational climate in an innovative organisation. The SSSI consists of 61 items and 5 subscales: 1) leadership supporting innovation; 2) autonomy in work; 3) norms encouraging diversity; 4) sustainable development; and 5) consistency of work processes and results.

It is difficult to determine whether the above-mentioned scales, all of which were designed by scholars from differernt countries are suitable for conditions in a particular context or not, for exmple, Mainland China; no such scales have been developed in this country. Athough the CCQ was adapted by Professor Wu and his colleagues in Taiwan in 2004, it is necessary to design the scale assessing group creative climates for use in Mainland China, due to the differences of regional culture between the two areas. In particular, future research should deepen the understanding of how the work environment interacts with other factors in influencing creativity and innovation within work groups and organisations so that investigation can be directed to the most appropriate areas. This further indicates the necessity of discussing the complexity of assessment of group creativity in this paper.

Significance and Changes of Assessing Creativity Climate

The climate of creativity is of greater importance than other factors (such as ability) to group creativity. Creativity is a factor that a group can directly control. Woodman, Sawyer and Griffin (1993) suggest that individual creativity is a function of antecedent conditions, for example, cognitive style and ability, personality factors, relevant knowledge, motivation, social influences, contextual influences, and so on. The steadily in individuals, impossibly changeable and called something of the past formation. It is impossible for managers to influence cognitive style and ability, or personality factors that group members have formed in the past, but it is possible for them to influence group members' motivation and relevant knowledge and provide group members with different backgrounds and environments.

One of the problems existing in prior research on the assessment of creativity is to make a people-made separation of man from the environment, so that it is impossible to test creative behaviours accurately. There has been a change in the assessment of creativity in recent years, that is, a change from the assessment of subjects to that of the environment, concentrating on the conditions under which qualified personnel come into being and develop and how their creative potentials develop into reality, by means of the assessment of the psychological climate and environmental conditions.

Therefore, this paper empahsizes to assess the subjects within their environment and instead of the assessment of "what creativity is" to that of "where creativity comes from"; from the assessment of psychological features developed by subjects in the past to that of the environment in which the subject work; from the assessment results in simulated situations (the test of creativity, such as TTCT) to those carried out in the real situation. Furthermore, this paper suggests the following tendency characteristics and methodological meanings:

First of all, the research method has changed. The discussion of where creativity lies can be answered in that it appears in the climate which pro-

motes its birth. The change of research route has been very important in that it has brought about a new methodology, namely authentic proof that obtains information from authentic situations, different from scientifism. Environmental psychologist Barker (1978) depicted this in terms of giving up the "operator" function of traditional psychologists (controlling the experiment and obtaining the experimental result) and choosing their "sensor" function, observing and interpreting the authentic environment and activity. The dominant method to test creativity is to simulate authentic and creative situations, tightly controlling the stimulant condition (the introductory words, timing and stimulant factors), requiring the respondents to answer questionnaires there and then. These contrived conditions may not accurately reflect the creator's creative processes, depriving the creator of the opportunity to consider the problems and demonstrate intuition and inspiration. The authentic situation in which the creator stays is also taken away so that he/she has no way to obtain information and communicate with others. Creative activities often happen in authentic situations.

Second, the nature of the focus upon the assessed subject has also been changed. The assessment of subjects focuses on distinguishing their qualities, which represent the measurement of capable people and meets the requirements of people-development. The assessment of environment focuses on the conditions under which a human's capability grow up, taking the group climate and conditions of environment as the determining elements influencing whether people's potential creativity can be maximized, namely, how the creative potentials can be operationalized. As far as developing creative personnel is concerned, the assessment of the environment may be of more significance. Studies have shown that every person has creative potential; how to create a suitable cultural climate for this potential to be realized is well worth studying, perhaps more than other problems such as who has greater creativity. However, previous studies have not distinguished between the climate of large organisations and small teams or how individuals perceive the climate. In this sense, this present study has attempted to redress these shortcomings. Future studies may perhaps analyze the degree to which the climate directly related to individual feelings impacts on individual creativity, and whether the climate of small groups has the greatest impact on group creativity. Future studies may address the question of whether the levels of effect of the three climate factors on individual and group creativity can be distinguished, in order to make the scientific management more effective.

The complexity of assessing group creativity

The components of a group

We suggest that the climate by itself is not enough to assess group creativity even though it is important in the assessment. In assessing group creativity,

another three dimensions should be considered: the components of a group; the task quality of a project undertaken by the group and the work basis of a group. The second dimension means that the achievement in the group.

Diversity in the group's components is very important to its creativity. Milliken et al. (1996) showed that diversity in the group's components affected its creativity process as well as its achievements. They wrote that the group members who come to understand the value that diversity plays in the group's cognitive processes are likely to experience more positive affective reactions to their group during the later stages of the group's life. In fact, differences that were initially seen as problematic may become a source of distinctiveness and pride.

Further to the suggestions made by Milliken et al. (1996), we also considered the known age, sex and disciplines as relevant elements of group structure, and diversity of cognitive style as deep and implicit elements of group structure.

To explore diversity, we begin with cognitive style. The designed cognitive style scale includes 9 dimensions: 1) acuteness-slowness, 2) broadness-depth, 2) whole-detail, 4) divergence-convergence, 5) ideal-reality, 6) steadiness-excitedness, 7) introversion-extroversion, 8) independence-dependence, and 9) risk taking-prudence. Each dimension has 5 items, totaling 45 items (Fu & Luo, 2005). Many factors have been suggested as relating to cognitive style and it is too difficult to assess the differences of group cognitive style. Probably the lesson we can draw from this failure is to consider whether we should have focused on one or two of the most important cognitive styles affecting the creative solutions of problems. Kirton & Manual (1999), for instance, concentrated on a single cognitive style only: the dimension of adaption—innovation. At present, the research on polar balance of cognitive style has proceeded to the stage of empirical analysis and description, just as our project team has done in our trial research and up until now the feature value has not been obtained from the statistics to measure the balance of the structure. In our future research we intend to identify the component factor that can bring about the biggest probability of implicit component factor change. Therefore, the conclusion is drawn that the attention to an explicit component can result in diversity of cognitive style, and in return, cognitive style can improve creative processes and methods. It is necessary to make clear the relationship between explicit and implicit components, and the relationship between diversity and organism in a group.

For instance, in one of previous studies (Fu & Luo, 2005), the subjects were divided into groups by gender and then analysed by means of ANOVA. The conclusion is that males and females were different in some dimensions of cognitive style such as acuteness of perception, steadiness of mood and risk taking. Consequently, mixed gender groups will have a greater probability of diversity of cognitive style. Partners comprising a female and a male will have a higher probability of compensation than same gender partnerships in acuteness of perception, steadiness of mood and risk taking. As to whether

partners made up of people with different disciplines will be favourable to the compensation for cognitive style, the research findings achieved by many researchers serve as a definite "yes" answer. Ekvall (1996) argued that four types of factors in the organizational climate had an important impact on creative activity as follows:

- mutual trust and confidence;
- challenge and motivation;
- freedom to seek information and show initiative;
- pluralism in views, knowledge and experience and exchange of opinions and ideas.

Regarding the last point, Ekvall (1996) also notes that diversity of members is important for group creativity.

Accordingly, the key issue is how to diversify the group's components as a dimension when assessing the group creative climate.

Work basis and exploration of task

It is believed that the assessment of group climate can not simply replace that of group creativity. Knowledge structure of a subject and prior achievements lay a foundation for creative problem solving.

Amabile (1983) argues that, according to the conceptual definition of creativity, products or answers can be said to be creative only when they satisfy the following requirements: (A) a task should have both novelty and suitability as the instant response to it, and (B) a task should be exploratory, not procedural. The TCI model was based on West's theory (1990), containing 4 main factors of work group innovation: 1) vision; 2) participative safety; 3) task orientation; and 4) support for innovation. West (1990) also emphasized that regarding to the "task orientation", the task should be considered in relation to creativity.

Generally speaking, well-based groups, having already occupied the forward position of the research field, have more opportunities to make a breakthrough. However, some of the little-known groups based on nothing, have also made creative achievements. But as far as groups are concerned, it is necessary to consider their work basis.

Conclusions

People's creativity is so complex a phenomenon that it is too simple to treat it by using a single score or index. Treffinger (1980) pointed out that the so-called quick and clear creative index used to do research may break the research clue in the educational field. Therefore, we should not only take the assessment of individual creativity seriously, but also that of group creativity. Theresfore, we suggest that the nature of the diversity of members of a group

should be part of an assessment index. We have discussed our attempt at assessing group construction by examining the group members' cognitive styles, but have not produced a satisfactory result. Secondly, the characteristics of the group tasks should be considered. Then, the participants' prior knowledge and creative accomplishments have established the foundation of subjects' creativity.

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CHAPTER ELEVEN

CONFORMITY, DEFORMITY AND REFORMITY: CONSIDERING THE DOMAIN-IDIOLECT CREATIVITY DYNAMIC

MICHAEL BROWN & CHRIS WILSON

Abstract

In any given field of artistic practice, practitioners position themselves—or find themselves positioned—according to interests and allegiances with specific movements, genres, and traditions. Selecting particular frameworks through which to approach the development of new ideas, patterns and expressions, balance is invariably maintained between the desire to contribute towards and connect with a particular set of domain conventions, whilst at the same time developing distinction and recognition as a creative individual. Creativity through the constraints of artistic domain, discipline and style provides a basis for consideration of notions of originality in the context of activity primarily associated with reconfiguration, manipulation and reorganisation of existing elements and ideas. Drawing from postmodern and post-structuralist perspectives in the analysis of modern hybrid art forms and the emergence of virtual creative environments, the transition from traditional artistic practice and notions of craft and creation, to creative spaces in which elements are manipulated, mutated, combined and distorted with often frivolous or subversive intent are considered.

This chapter presents an educational and musically focused perspective of the relationship between the individual and domain-based creative practice. Drawing primarily from musical and audio-visual examples with particular interest in creative disruption of pre-existing elements, creative strategies of appropriation and recycling are explored in the context of music composition and production. Conclusions focus on the interpretation of creativity as essentially a process of recombination and manipulation and highlight how the relationship between artist and field of practice creates unique creative spaces through which new ideas emerge.

Keywords: creativity, music, education, domain

"The task of the teacher and scholar is to study means, cultivate tradition, and preserve the purity of methods, not to deal in incommunicable experiences which are reserved to the elect – who often enough pay a high price for this privilege." – The Music Master, The Glass Bead Game by Hermann Hesse (1943)

Introduction

This paper has been informed by observations and insights by music practitioners and educators, derived from almost twenty-years of teaching students of popular music in higher education sector at an arts-based college within a UK university. The study of popular music at undergraduate level typically involves a modular-based approach dividing academic focus across a number of separate but interrelated disciplines which may include performance, composition, technology (production and recording), music business, history and contextual studies. The popular music programme of study at The University of Derby was originally designed to respond to a developing interest in the academic study of popular music, predominantly from an Anglo-American rock tradition which is still a fundamental driver, and has evolved to embrace the broader context of music within popular culture. This particular programme of study is integrated into a college which is the academic home of a diverse array of artistic disciplines within which the musicians frequently interact and collaborate on a number of levels.

The primary objective in this study is to explore creative motivations and approaches in the production of new compositional designs in the context of the broader arts, which involve the creation of increasingly sophisticated and distinctive structures merging both through, and as a consequence of, new technologies. The work explores the concept of tradition and the creative processes involved in working sculpturally with pre-existing materials as well as within the constraints of existing, very often commercially facing, stylistic conventions. Unlike the *Music Master* in Hesse's epic final novel, the authors have adopted a less doctrinaire attitude to the teaching of music composition and have attempted to encourage individual interests and approaches in the pursuit of personal expression at the outset. As an integral component of compositional classes, the prevailing theories that offer appropriate insights into our understanding of the creative process are presented and discussed. The paper is divided into three main sections, reflecting the title, to promote discussion of three distinct aspects of musical creativity. The intention is not to offer a qualitative perspective or prescribe a linear progression from one mode of operation to another but to discuss the educational insights gained and the possible dialogue between the domains within which composers of musical composition define themselves creatively.

Conformity: what is 'normal'?

An endearing characteristic often encountered amongst students of popular music is their general capacity to absorb and embrace novel, at least for them, musical ideas. At the start of the undergraduate experience, many are invariably bound by an encultured sense of the aesthetic, informed and steered, more often than not, by informally acquired knowledge gained through peer tuition (Green, 2006), online instrumental insight (Kruse et al., 2012), and subcultural identity, rather than formal educational experience. The motivations for engaging in formal music within higher education are varied, but a degree programme that purports to support primary interests, and provides access to near professional music production facilities, is certainly a primary attraction. From this preliminary perspective the students, left to their own devices, will typically exercise a limited degree of re-creational freedom within the context of their interests, skills, knowledge that serve to define their creative domains. Consequently, they are encouraged to deconstruct their work and associated influences on a number of levels, raising awareness at a structural level to facilitate mechanical understanding, endeavouring to provide insight into intuition, to provide a framework through which new ideas can be integrated into the taxonomy of acceptable techniques as more personalised expressive voices are developed. This is manifested as an open-minded appetite for stylistic and technical novelty, demonstrating stylistic eclecticism, mediated very often through technology, within the constraints of the developing domain. An inventive combinational flair is often exhibited within creative artefacts, that are typically uninhibited by formal knowledge of context, possibly a reflection of the favoured learning methods and diverse sources that have hitherto informed understanding within their musical universes. This perhaps provides some insight as to why John McCormack (2003) made the observation *"much of the innovation today is not achieved within the precious bubble of fine art, but by those that work in the industries of popular culture."* There are a number of common patterns of attitudes and behaviours that may be observed amongst students that will be discussed as this work progresses and a number of *antidotes* to creative conformity will be presented for discussion.

Teaching Musical Creativity

A less universally typical but integral component of music compositional classes at Derby are incorporated sessions on creative thinking. Classic domain-general models of the creative process such as by Wallas (1926), Koestler (1964), Guilford (1967), Baron (1969) and Sternberg (1999) are discussed to raise awareness of potential common creative mechanisms that may serve to promote beneficial creative conditions. The fundamental objec-

tive in this undertaking is to offer meaningful and applicable insights into the creative process and consequently encourage the student to take greater control over their personal creative activities. The extent to which *domain-general* theories can have a meaningful impact upon the productivity and successes of a specific set of creatives is debatable (Baer, 2012) but nevertheless, the sessions are generally very well received and do promote very positive discussions of productive attitudes and practices although, tests of creative potential (Kim, 2006) rarely yield any meaningful insights into the creative potential of the twenty year old student of popular music. A common initial conception that arises out of student discourse is that creative states of mind are inaccessible without some form of inspirational intervention and as such the study of creativity may not be directly beneficial; this perspective for some results in potentially redundant timetabled laboratory sessions within which the creative artefacts that are requested are not immediately forthcoming. This is compounded by the observation that much research into creativity is often preoccupied with the study of examples that transcend the boundaries of the domain, whereas musicians generally wish to refine that which defines creative identity which depends to a large extent upon repetition of behaviours. It is interesting to note that when students are invited to share personal work that is regarded as fundamentally a result of inspiration, no examples offered have ever been realised without a stylistic context. All work was stylistically framed by experiential conditions within a familiar domain. As observed by David Byrne (2012) *"I had an extremely slow-dawning insight about creation. That insight is that context largely determines what is written, painted, sculpted, sung, or performed"*.

Since the commercial world of music production, which this particular programme of study looks to, often depends upon specific musical requirements achieved within tight deadlines, the practical sessions are designed to steer creative production through outcome simulation to serve as agents for creativity productivity defined by rigid and limited operational constraints. Under such conditions productivity, often re-creative, is assured and ultimately cultivates a greater awareness and control over diverse stylistic domains and creative attitudes. Interpretative flexibility within the domain allows for a degree of individuality but it is nevertheless extremely challenging to create work that has enduring commercial appeal. The primary current stylistic domains within popular music as defined by HSD[1] indicate a high degree of formal commonality (see Figure 1 on he next page).

1. Hit Songs Deconstructed. http://reports.hitsongsdeconstructed.com/charts/2015-05-16-genre/ <accessed 12th May 2015>

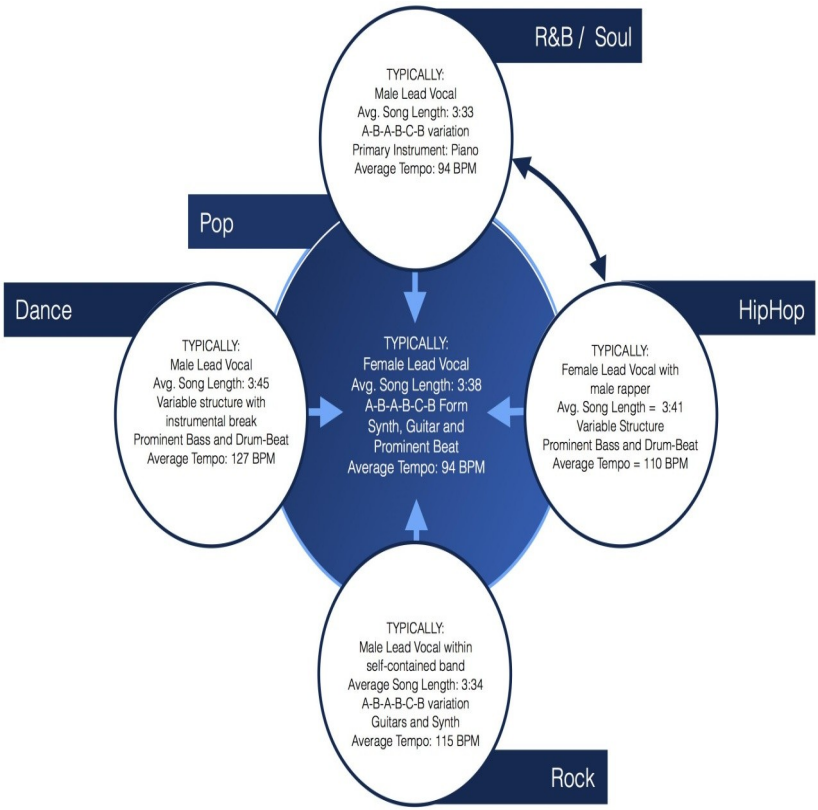

Figure 1: The Primary Stylistic Domains within Commercial Popular Music

Boden (2012) defines creativity as the production of ideas that are *novel*, *surprising* and *valuable*; the extent to which these values are quantifiable depends upon the scope of the evaluative domain. Novelty may be regarded from a number of perspectives, Boden (ibid.) talks of P-creativity and H-creativity to make an evaluative distinction between psychological and historical creativity; psychological to describe an idea that at the time of conception is novel and exciting to the inventor and historical to describe an idea that is deemed to have never been thought of before and is novel to the population as a whole (see Figure 2 below). All artists are generally wishing to produce unique ideas that after scrutiny may be quantified as H-creative but the path, putting plagiarism/imitation aside, to P or H may ultimately be the same; the path to a creative solution, within a similar domain, may be evolutionarily traversed in convergent ways by different individuals at different times. How do we know when we have produced something that is novel? Because it is unfamiliar to us on some level; within the scope of our domain-specific knowledge we determine the idea to be *new*. We seek to validate the

novelty of an idea by sharing it with others, because we cannot be completely sure of all of the artefacts within any particular context.

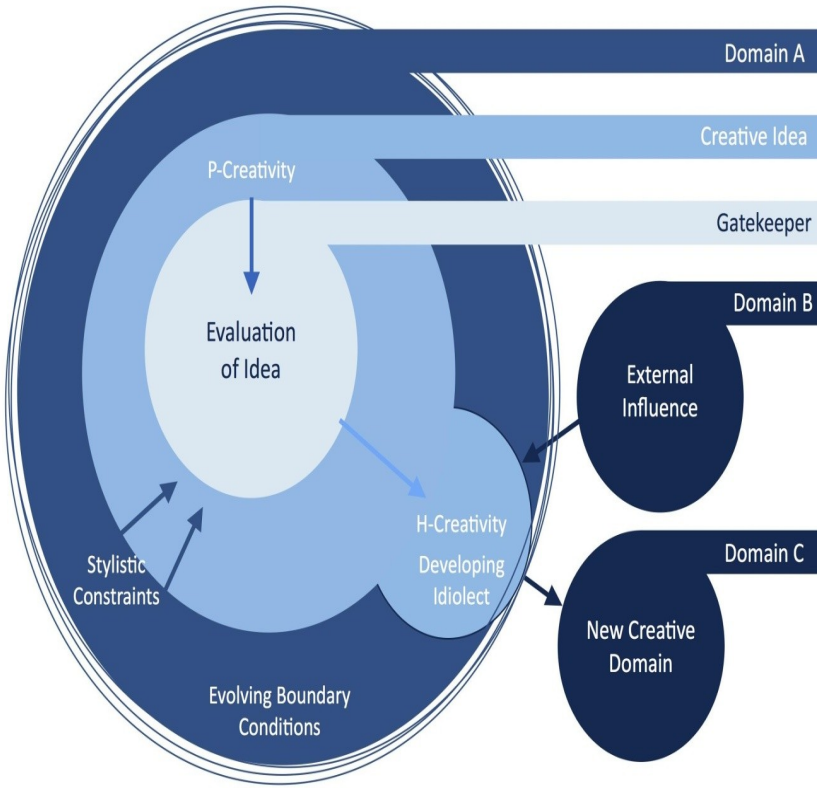

Figure 2: P-creativity and H-creativity. Adapted from Boden (2010)

It may be determined the idea/artefact to indeed be novel but does it have value? In terms of its function or aesthetics. Novelty within music is comparatively easy to find, by choosing unconventional combinations, but very often to do so the work would likely engender contextual incoherence. Novelty itself then is not the only criteria for creative validation; the idea must also have value, at least within a particular stylistic domain. In what ways can a creative idea be said to exhibit value and does this value remain consistent? Creativity according to Boden (2012) can occur via three distinct mechanisms:

- *Combinational*—making unfamiliar associations between familiar components. This could be two or more ideas from a common domain or could be from completely unconnected areas. It may be possible to establish connectionist strategies for achieving such outcomes.

- *Explorational*—the production of variations within familiar styles. This may involve establishing certain starting conditions or constraints within which the known components can be reorganised or reshaped.
- *Transformational*—the creation of a new style that would potentially challenge accepted conventions within a particular creative domain.

The primary mechanism within music is exploration. Very often one domain attribute will contribute to the definition of another because of inherent dynamics, stylistic and/or personal constraints; it is not uncommon for related attributes to receive simultaneous invention as a performer improvisationally explores the domain (see figure 3 below). The teaching of music at a fundamental level often overlooks this mutual structural dependence for the sake of elemental clarity.

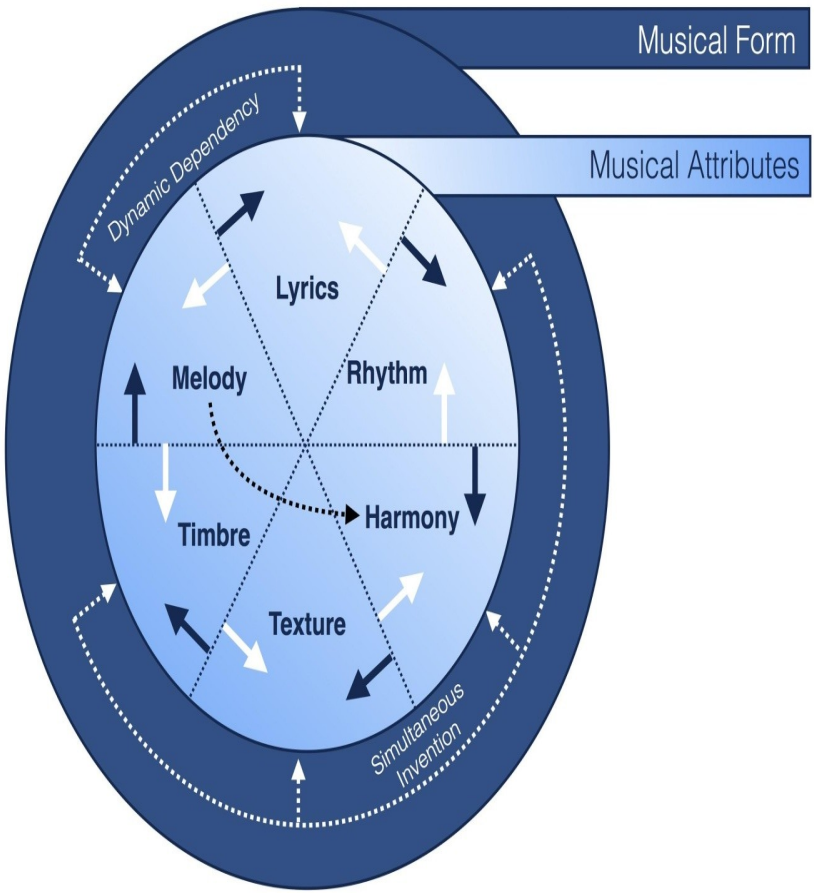

Figure 3: The Interdependency of Musical Attributes

The interrelationship of the elements can result in small-scale musical structures arriving to a greater or lesser extent fully formed in the imagination of the composer. Creativity may be regarded as a *construct*. To be creative, an idea or artefact must connect with established concepts and ideas in ways that resonate with a given domain, extend a domain, or inaugurate new domains closely related to identifiable precursors. In musical creativity, particularly in a popular idiom, the composer will likely work within the accepted constraints of given structures and styles. For the sake of perceived coherence in reception and creator identity the composer adheres to the rules, or guidelines, of the system, often intuitively, and seeks novel patterns and arrangements within ensuring that the ideas, combinations and sequences have a meaningful and useful context. Creativity as such exists within predetermined boundaries and explores the variable relationships of the defined elements; within such a system new styles may evolve through the breaking of structural boundaries as personal identities are established through individual patterns of creative behaviour. The challenge lies in the production of favourable aesthetic solutions; there are perhaps certain configurations that are more likely to yield successful, aesthetically and economically, outcomes offering the right balance of consistency, novelty, complexity, simplicity, or elegance of form, but there is no certainty. Levels of associated creative quality or value relate directly to the level or range of impact or usefulness, perception of creative context or domain, and, most significantly, recognition and appreciation. Why choose one solution over another? There are many choices to me made within any domain. The criteria for selection whether conscious or not may involve issues of aesthetics defined by familiarity and cultural conditioning, or emotional expression to seek empathy, to shock or repel. Aesthetic sensibilities may be influenced by a multitude of criteria, and, as highlighted in figure 4 below;

> *"In aesthetics ... there are no absolutes, we have to choose... decisions about what a work of art is, are personal choices, that does not mean that they are unimportant. On the contrary, like ethical choices, they shape our lives. Nor does it mean that they are unalterable... our aesthetic preferences may change... it may be the result of gradual discovery and persuasion - a process we generally call education."* Carey (2006).

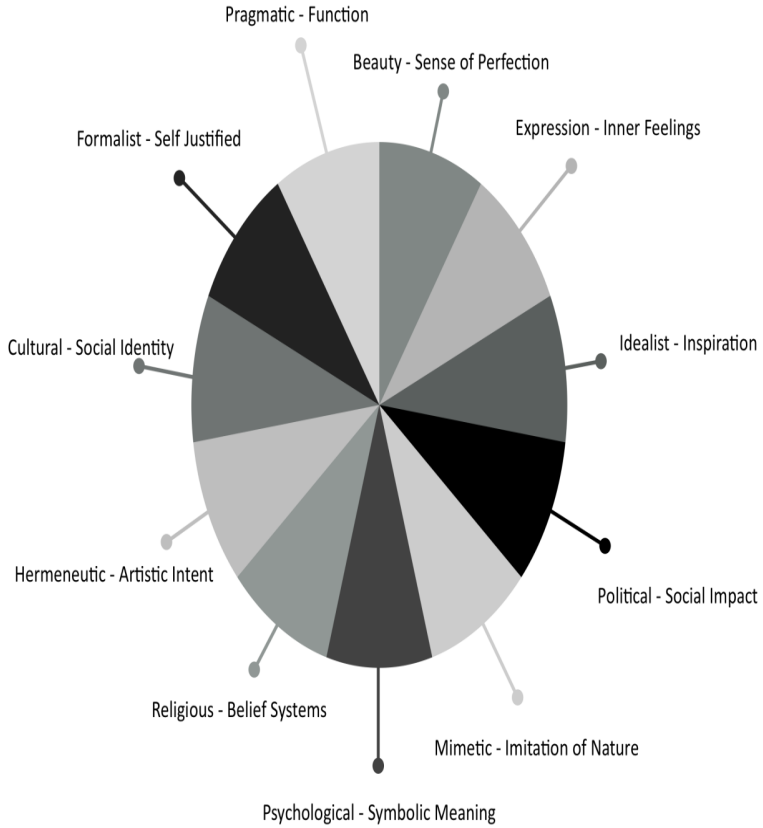

Figure 4: Influences upon Aesthetic Sensibilities

Without connection with previous conventions and a wider framework, perceptual interpretation is divorced from the required solid ground upon which to base assumptions. As expressed by Pete Seeger (within Zollo, 2003):

> *"Even the most original song you can think of is liable to have a good deal of tradition in it. After all, the major scale and the minor scale were invented thousands of years ago… And the English language was invented a long time ago, and the phrases that we use. And we're just rearranging these ancient elements".*

Dutton (2012), when discussing aesthetic norms, said that there is a certain, *"cultural uniformity of aesthetic taste."* This is certainly an interesting perspective when considering musical evolution through which musical styles and trends are steered by familiar forms and solutions as the composer seeks personal expression through coherent frameworks. Mauch, et al., (2015) pro-

vides an interesting insight, born out of audio analytics, stating that "music is the result of a variational-selection process" supporting the analogy to evolution through the production of "an account of how musicians imitate, and modify, existing music when creating new songs, that is, an account of the mode of inheritance, the production of musical novelty and its constraints".

In the arts in general, fields of activity and domains of practice have become extremely well defined over centuries of endeavour and documentary. Commonly delineated by the related sensory focus, there now exists an extremely well established series of cognate disciplines in the performing arts, the visual arts, and crafts including more contemporary disciplines emerging through new technology. It can be challenging however to offer meaningful insight and applicable guidance to students of music; prevalent theoretical models provide a good foundation and discussions of creative environment and productive attitudes are well documented and helpful, but are often very limited in relation to musical creation particularly when the domain appears to the uninitiated to be very tightly 'locked-down'. The narratives and traditions surrounding defined artistic disciplines operate through established systems, frameworks and institutions defining and maintaining through shared activity a precarious path from the old to the new, the history to the future, and a loose series of interconnected narratives. Artists define themselves in many ways with many active in the discourse that surrounds their work and others reticent or unable to engage with qualifying discussion.

If we can accept Hamilton's (2007) general definition of music as a *"practice involving skill or craft whose ends are essentially aesthetic, that is the enrichment and intensification of experience"* and regard the composition of music essentially achieved through *the organisation of sound over time*; coherence and identity then depends upon the mechanism inherent within the organisational framework which often involves repeated, stylistic and personal, frames of reference. Whatever the level of involvement, creative work that reaches a sufficient level of interest and attention is inevitably enveloped by a wealth of qualifying decryption, analysis and commentary. Art, and the artist, even where attempts are made to subvert normal categorisation or definition, is inevitably categorised.

The inevitable connection between art and domain is primarily one that is actively cultivated. With artistic practice emerging through cultural contexts and established practices, affiliation and identification is maintained through enculturation and discipline. The terminology of artistic domains becomes a means of efficiency of communication and a matter of internal dialogue relating to the creative motivations and processes of practice itself. Ultimately, all creative practice is positioned on a spectrum between domain (the shared or common elements of artistic practice) and idiolect (personal expression). In a context where the technology continues to collapse boundaries between domains previously maintained by geography, information or opportunity, and distinctions between domains through virtualisation of modelling, sound and image, self identification with any given cultural code of practice or tradition

of expression has never before been so open to choice or happenstance of influence, and perspective of interpretation so potentially diversified. Furthermore, with all acts of human creativity definable as intersections between domain and individual (both in inception and reception), that meeting point represents perhaps the most important space conceptually for the consideration of creativity itself. Authorial identity is defined within any strictly constrained creative domain through the repetition of particular identifiable attributes that leave fingerprints within the elemental arrangement. The creative DNA of the composer/performer resides in learned patterns of physical and technical behaviour; it is the *syntax* that is born out of sustained listening, analysis, tuition and repertoire development, merging a number of sources into a unique identifier.

Deformity: evolving the domain and the limits of originality

Creative identity and diversity is very much dependent upon the scope of the observer; the similarities appear greater than the differences to the uninitiated, but such idiolectic variations give rise to a distinctiveness that defines authorial identity. The development of the domain and the cultivation of an individual voice depends then upon scope and perspective; for a small minority of creatives (see Duchamp and Cage) an individual identity may be defined by continual *disruption* or *transformation* of the domain and stylistic migration. Deforming a known domain, by pushing the limits of stylistic acceptance, can trigger novelty but can also engender incoherence.

A common theme in the study of creativity is that of novelty or originality. Without seemingly questioning the implications or perhaps referring more generally to the abstract ambition to attain recognition or professional distinction, a focus on originality remains a frequently cited ambition of many studying artistic disciplines. The following scenario reveals the conceptual fallacy of simplicity in the implications of this assumption:

> *The tutor assigns a musical composition task for students of an undergraduate music degree to compose a short musical composition for any instrumentation or style of approximately 2 minutes in duration. The assessment criteria is specified very clearly as originality as the work is introducing experimentalism in music. During shared discussion of resulting work, one student stands and presents their chair with the word 'Love' written on a piece of paper on the seat - "I have subverted the normal conventions of sound use and replaced musical structure with three-dimensional form, I also present the composition as a musical pastiche of the work of Duchamp using this found object. The audience is invited to consider this for exactly two minutes."*

That the example in question would represent originality given the specifics of the brief is undoubtedly the case. That this particular response to the brief would ultimately be judged the most creative is however questionable. Firstly, the fundamental premise of the example is reminiscent not only of the cited artistic reference (Duchamp), it is also reminiscent of the work of John Cage and many more contemporary artists and ultimately identifiable as a composite model of pre-existing ideas. Secondly, whilst other classroom examples may well fall short in terms of contextual imagination, more immediate functionality may well prove significantly superior and result in the highest level of creativity being judged to lie elsewhere. Finally, if this idea was replicated as a consequence of reading this text it would then be plagiarism. Only if the specific example emerged without any contextual placement or foundational knowledge ('I just made this up'), would this demonstrate insight or higher levels of imagination. Even if truly original responses were evident in the context of this example, the further the reduction in application of pre-existing conventions, the further removed from consideration as a creative act within the boundaries of those conventions. Ultimately, as observed by Martindale in his book 'The Clockwork Muse', "if they do not innovate in appropriate ways their audience will ignore them" (in Saunders & Giro, J. S., 2006c). A musical idea expressed using no aspect of musical convention is not a musical expression.

The ultimate extremes of originality in the context of creative disciplines can either be transformational in extremely rare cases or entirely useless as is most commonly the case. Originality within the constraints of any given artistic discipline remains primarily concerned with the development of novel combinations of pre-existing elements and ideas. As a consequence in part of so much ground having already been covered, traditions established and frameworks of reception negotiated, and in part a consequence of conscious and unconscious patterning and variation though replication, originality is invariably sought and invariably gained in context and in discipline.

A question of identity: the domain-idiolect spectrum

Whatever the self-conception of the artist in any given context of creative practice, a proximal relationship is inevitable with a particular domain of practice. Potentially centred on materials of practice and related traditions, educational structures provide further demarcation and codification to the extent that identification with well defined aspects of a particular domain is irresistible. To do what can be recognised and celebrated within a particular domain without awareness of a given domain is unlikely, without connection is impossible. Whilst technology is central to the emergence of new creative arts practice in which visual, auditory, virtual, physical, performance and participatory, and the distinction between artistic disciplines subject to such challenge and redefinition, there invariably exists a form of narrative around

which or through which creative arts practice emerges. Stratified according to levels of specificity, art emerges primarily to engage specific or particular senses, under a broad definition of closest possible form of artistic category (art, music, prose, literature, photography, film, technological arts), and through a series of self conceptions of the processes of creative communication and the contexts to which this relates. Art may well emerge by accident, but wherever identified, there is invariably a network of conceptual connections and common understandings between the emitter and the receiver.

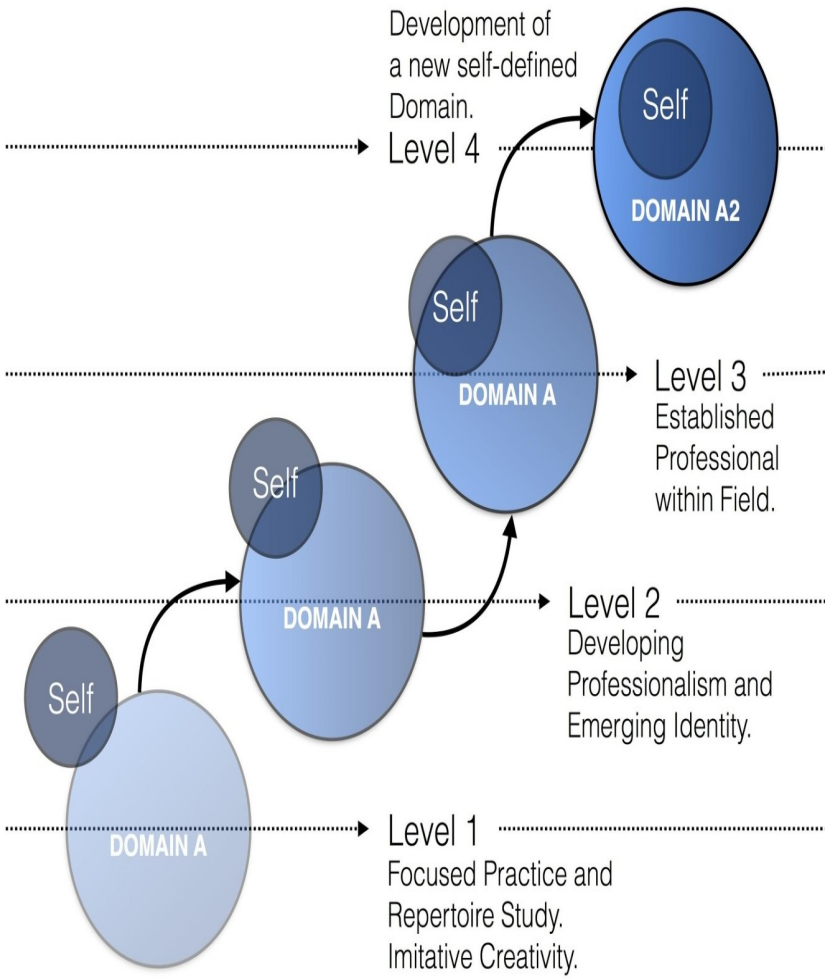

Figure 5: Levels of Creativity by Domain

With respect to domain affiliation, this is a common feature in musicians. In undergraduate students of the authors' institution, self-identification as a composer or performer invariably connects with varying levels of specificity in terms of musical genre or tradition. Indeed, the subject of musical identities is a well-established field of social science research in cultural studies more generally. More broadly, from an educational and professional development perspective, Figure 5 above represents a four-stage model of artistic transition from aspiring amateur to professional competency and beyond. Level 1 represents the initial stages of focused practice and deliberate steps towards absorption within a domain. Intriguingly this is the level for some that is the most productive creatively. Level 2 represents the development of professional competency where individual practice becomes indistinguishable from prevailing standards and norms. Level 3 reflects the attainment of professional standards and emerging potential to stand out within the field. Level 4 represents the rare occasion where individuals transcend a given domain and inaugurate a distinct variation according to their particular contribution. A frustrating observation sometimes manifest is the inverse proportion of developing knowledge and skill, and diminishing creative productivity; as the domain becomes so well understood novelty becomes more difficult to imagine. This is perhaps compounded by the tendency for the expert to seek more sophisticated creative solutions reflective of the advanced understanding rendering more simple solutions inaccessible.

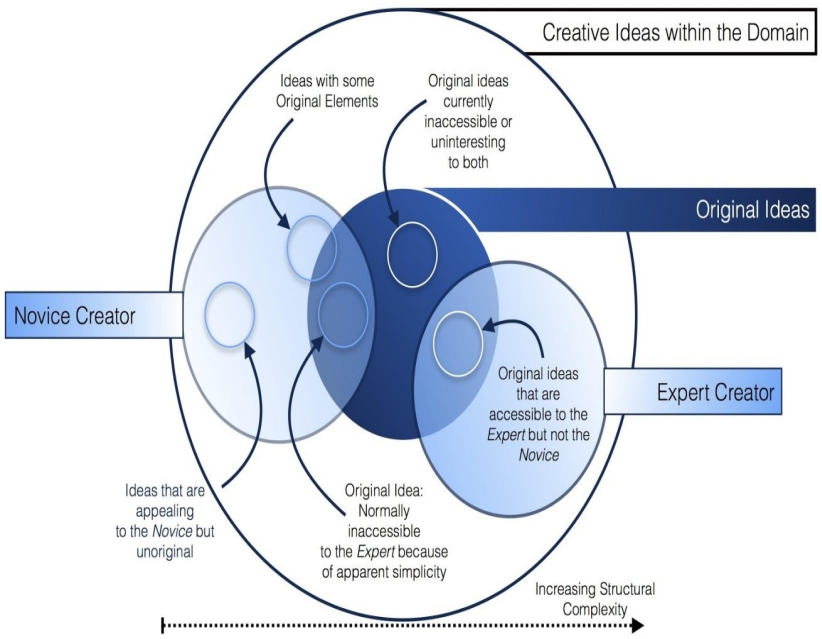

Figure 6: Increasing Complexity

A creative strategy for the *expert* is to try to recapture a more naive perspective through a variety of provocation mechanisms, see Brown & Wilson (2014). Considering Csikszentmihalyi's systems model of creativity, Figure 7 below represents the ultimate position of individual practitioners in the arts and wider forms of cultural practice with respect to the generation of novelty and originality and the definition or realisation of idiolect. In any given context of artistic practice, a series of different contributions to, and factors motivating development of, originality, play through related circumstances to set conditions both through which creative acts can emerge and through which distinctive attributes can be identified.

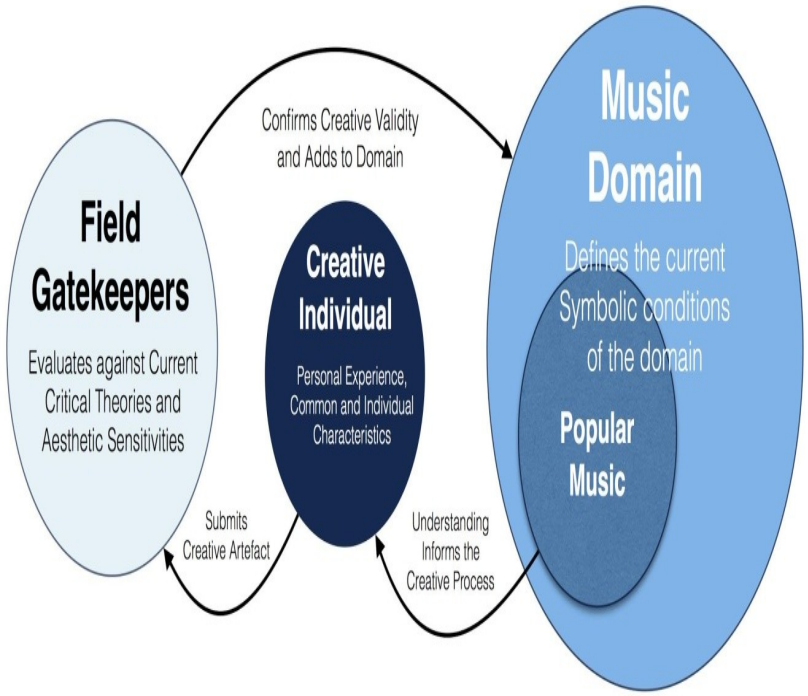

Figure 7: A systems dynamic view of creativity. Adapted from Csikszentmihalyi (1996)

The emancipation of technology and increasing human mobility provides ground for potentially exponential diversification of societal and cultural circumstances and experiences. Shifting and dynamic geographies, cultures, paradigms, and means of documenting, manipulating and sharing cultural expression may even constitute fertile ground for the development of new ideas and new forms of cultural behaviours. Recognising that many with the ability to create significant new ideas operate on the fringes of security, opportunity or clarity, narratives remain central to the development of creative

artistic ideas and dynamics of experience, expression and reception significant in determination of originality and identity.

Uncomfortable territory

A common strategy in educational practice is to confront values and comfort zones. Recognising the virtuous drive towards personalisation of learning at all levels of education and fundamental need to match challenge with the necessary support and guidance, educational development being predicated on 'movement beyond', provocation is an inherent feature of successful pedagogic practice across all cognate disciplines, perhaps most notably in the arts, and key to specific creative thinking exercises, most significantly in the work of De Bono's lateral thinking. With respect to musical creativity in particular and the notion of stable creative musical identity, there is an immediate potential for pedagogic provocation to challenge a defined sense of personal style and working practice. As well as supporting all creative identities (there being capacity to personalise and follow self-designated approaches as a component of most creative music assessments in the authors' degree programme), there is also a concerted effort to structure provocation and creative challenge in ways appropriate to general and individual circumstances. Constriction and constraint are evident in most aspects of modern educational practice. In the context of musical creativity, there suddenly appear deadlines, specifications and stakes. Solutions need to be developed for an audience, according to prescription or commission, completed by a specific time, and the quality of results matter. For many experiencing formal education in the arts, all fundamental components of educational experience jar against the freedom of open artistic practice and foundational experience. In addition to the systemic abrasion of often archaic educational processes, the formalising of scrutiny on aspects of creative capability most recently acquired (creative expression through current learning), and using musical elements both generally unfamiliar and, given the close relationship between musical identities and personal identities, often in unfavoured styles and genres, can be considered to be significantly provocative.

In the context of undergraduate study of musical composition and production at the authors' own institution, one particular educational exercise designed to draw learners into uncomfortable territory relates to the study of musical value judgements and aesthetics. Exploring the work of Theodore Adorno and the Frankfurt School and related position on artistic aesthetics and identification and critique of the 'culture industries', students explore their own musical tastes and preferences, engage in primary research about musical taste preferences and potential correlates, and, in a compositional setting, are invited to identify the epitome of low aesthetic qualities and as far as possible the polar opposite of their own individual musical tastes and preferences. Having articulated the rationale for their individual selections—often

including examples to which a distinct lack of musical appreciation is matched by often closely relating ideological opposition--the compositional challenge is then presented to pastiche the identified musical example as credibly as possible. Invariably greeted with disdain, often acutely, the exercise nevertheless poses a useful illustration of working relating to the professional environment, and often leads to quite remarkable outcomes.

Firstly, many learners who initially express different levels of opposition to the concept often exhibit ‘convert’ behaviour during the early stages of

Reformity: inserting yourself into the 'narrative'

Increasingly students of popular music, when called upon to create musical forms, will routinely draw upon a variety of pre-composed structures that are *combined* to provide definition to the musical design; from pre-existing loops of music to acquired and manipulated fragments of sound, to the employment of instruments exhibiting automaton musical intelligences. Such activities may be employed to kick-start the creative process, provide a foundational undercurrent to the production process or may result in a complete mosaic of sound. The re-use of musical material is ingrained into musical history, with musical evolution dependent on this gradual process to develop. Educationally, students of music develop their craft and eventual identities through learning repertoire and imitating style through the production of pastiche. Historically a common practice for the early medieval composer of Gregorian chant was to utilise the techniques of *melody-type* and *centonization*. *Melody-type* prescribed the complete reuse of existing melodies as vehicles for new text and *centonization* encouraged the development of new melodies from collections of pre-existing melodic phrases. The development of musical dice games in the 18th century, one of which was attributed to Mozart (Hedges, 1978), may be considered precursors of algorithmic composition. Pre-composed musical segments were selected according to the roll of dice to generate a likely unique minuet through virtue of the high number of possible variants. It is also not uncommon for established composers to quote one another; *"So-called creative thievery isn't just the privilege of pop musicians; it is the God-given right of all musicians and the very basis of Western music, ... Music was born as an art of absorption. ... You would be hard put to find a great composer who didn't use what came before, and the more progressive the composer, the bigger the bandit."* (Swed quoted in O'Bannon, 2015). In popular music the use of the standard 12-bar progression or the chord sequence from Gershwin's 'I Got Rhythm' is considered a rite-of-passage for many Jazz improvisers, and common turn-around chord patterns provide a foundation for modern popular song structures. It was common place in the bebop era (1940s) to utilise the chord progressions of popular songs since chord progressions alone were not considered intellectual property; more recent copyright cases indicate that caution here also is required.

Craft, creation, bricolage: The impact of technology on the arts

When Oswald (1985) presented his *Plunderphonics* paper the technology was still in its infancy but he had a vision of a potential future, not without problems, but a future in which the creative musical community embraced technological advances as they have always been from the advances in instrument design to electronic production and manipulation techniques:

> *"Musical instruments produce sounds. Composers produce music. Musical instruments reproduce music. Tape recorders, radios, disc players, etc., reproduce sound. A device such as a wind-up music box produces sound and reproduces music. A phonograph in the hands of a hip hop/scratch artist who plays a record like an electronic washboard with a phonographic needle as a plectrum, produces sounds which are unique and not reproduced - the record player becomes a musical instrument. A sampler, in essence a recording, transforming instrument, is simultaneously a documenting device and a creative device, in effect reducing a distinction manifested by copyright."* Oswald (1985).

The sampler offered composers, in particular DJ's or musicians with non-traditional instrumental skills, a mechanism to create music by combining extracts derived from existing recordings, often from diverse contextual sources; in effect create collages of sounds that converge in unique ways. The collected extracts could be processed (distorted, time adjusted, modulated, reversed etc.) and repeated or looped. Composers using this technology sought to create unique combinations out of collected sounds but also to establish stylistic coherence. Certain sources consequently became more frequently used; one famously in the form of the 'Amen Break' which is a four-bar drum solo recorded in 1969 within the song "Amen, Brother" by the group The Winstons. This six-second drum-loop defined a series of popular electronic music sub-genres by providing a foundation upon which to develop unique expressions bounded by familiar structure. Currently *WhoSampled*[2] lists the 'Amen Break' as the most sampled loop with 1668 registered inclusions. The practice of utilising loops of material became an industry within popular music as companies began supplying ready-made loops in a variety of styles eventually integrating into common software and hardware systems. What began as an innovative use of technology defining genre capable of *transforming* or introducing new *combinatorial* solutions is now to some extent potentially becoming *conformed* as normalised behaviour.

Conclusions: The self and the collective and authorial identity

Music as an art form provides a rich heritage of cultural information through which traditions and innovations have been developed and maintained over time. The digital medium offers a mechanism for the development of electronic dialogues between different art-forms through virtue of common data storage and transmission models allowing translation from one element to another or one domain to another. If the artist's expression is a collage of other people's work where then lies ownership and identity? Whilst authorial identity is a more focused consideration in creative writing than perhaps in

2. WhoSampled.com http://www.whosampled.com/most-sampled-tracks/1/ <accessed 19th May 2015>

other disciplines, it is certainly an explicit point of consideration in terms of developing an individual musical voice in the light of the new technological tools in which collage is a primary creative technique. In many ways nothing has changed, music evolves on the back of older forms to create the new. Identities are established through the craft of the reproductive processes: *".. the selection, arrangement, and juxtaposition of the found bits of prior culture is the art"* (Keller in Miller, 2008). Through the choice combinations of pre-recorded sound, novelty is created: *"We live in the post-sampling era. We take the things that we love and we build on them. That's just how it goes. And when we really add something significant and original and we merge our musical journey with this, then we have a chance to be a part of the evolution of that music that we love and be linked with it once it becomes something new again."* Mark Ronson (2014).

The challenge for education, especially in arts-based disciplines, is to maintain the appropriate balance between the maintenance of established disciplines and the cultivation of the new. The notional transition through formal instruction to develop technical and intellectual mastery and, ultimately, 'professionalism'—itself a complex and contested term—is an unstable paradigm. The nature of professionalism is open to continual redefinition and reconstitution and, in the arts, there are also evident tensions between mechanisms designed to inculcate students with the necessary knowledge and skills to thrive professionally, and the conditions necessary to promote the most effective personalisation of creative practice and expression. Whilst the educational objective would always be to enable learners to express themselves freely and productively, there will inevitably be compromises as to how practitioners develop effective ways by which careers can be developed and individuality maintained and nourished.

The compromise position for university study in the arts is often to combine elements of artistic freedom and self direction with more prescribed and focused inculcation into new practices and creative processes, or to combine approaches and to build educational progress on the development of individual practice more exclusively and to relinquish control over the direction of progress to the learner more progressively. In any eventuality, the dynamic remains subject to an increasingly diverse range of destabilizing factors and an increasing range of potential starting points; students at all stages of education and higher education in particular are as evident, and to be increasingly expected, subject to increasing diversity of cultural influence, knowledge, learning motivations, and experiences of subject and practice.

In this paper three modes of observable creative operation have been discussed in the form of 1. *Conformity*, where the creative product is bounded by strict constraints; 2. *Deformity,* where the boundaries that define the constraints are systematically broken, and; 3. *Reformity*, in which existing components are reused to create new hybrid forms. The presentation in not advocating a creative linear progression or a qualitative review for in this context defining and maintaining creative identity within the confines of commercial

music can be exceptionally challenging. The objective of the paper is to provide an overview of the primary mechanisms of musical creativity, with a view to facilitating and nourishing educational experience and professional resilience through transferable insights into the creative process. Ultimately, the tension between what is known and understood and what is novel and unfamiliar is a significant basis for understanding creativity both as lived and received experience. Far from signalling an end to traditional notions of craft or tradition, technology may be opening up significant new spaces for creative activity and developing the means by which different ideas can be brought together, manipulated and communicated as never before. The final word here is given over to Bernstein:

> *"I believe that a great new era of eclecticism is at hand — eclecticism in the highest sense — and I believe that it has been made possible by the rediscovery, the reacceptance of tonality, that universal earth out of which such diversity can spring"* (Bernstein, 1972) - The Unanswered Question: VI - The Poetry of Earth, The Norton Lectures, 1972.

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Authors' Brief Bios

Michael Brown is the Programme Leader for the *BA (Hons) Popular Music with Music Technology* degree in the College of Arts, at the University of Derby, UK. He holds diplomas in both Art and Music, a BSc (Hons) degree in Software Engineering, Mathematics and Music, and a Masters degree in Contemporary Composition, which combine to serve his interest in computer creativity. He is a Principal Researcher with over twenty-five years of teaching experience, an active artist, composer and musician. As well as maintaining his professional role, he is a member of the American Creativity Association and has presented his research in multimodal creativity internationally.

Chris Wilson holds the position of Senior Lead in Learning Enhancement at the University of Derby in the UK and is a Senior Academic in the College of Arts. He is a classically trained musician and practitioner in the technological arts and has presented and published internationally on the subjects of creativity, artistry, technology and education. An active member of the American Creativity Association, Associate of the Digital and Material Arts Research Centre in the UK, and a governor for his local primary school, Chris teaches across a number of subjects and works to actively promote creative practice in higher education.

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CHAPTER TWELVE

EMBRACING A CREATIVE PRAXIS: THE CREATIVITY FELLOWS PROGRAM AT BRYANT UNIVERSITY

TERRI A. HASSELER, SANDRA ENOS, MAURA ANN DOWLING & ROBERT E. SHEA

Abstract

The Creativity Fellows Program (CF) at Bryant University is a one-year seminar devoted to nurturing faculty members' creative practices with the long-term purpose of fundamentally transforming both teaching modalities and educational philosophies. The program draws faculty from all parts of the institution. With pressure to be more "creative," faculty are often at a loss; many feel that they themselves are not creative. Furthermore, assignments meant to encourage creativity are frequently reliant on extrinsic motivation, which generally diminishes students' creativity and disappoints the teacher. The premise of the seminar is that we start with the mindset: If faculty do not have an active creative practice, it is impossible to model and to speak to creativity in authentic ways. The seminar focuses on providing spaces to help Fellows develop a creative practice through activities (in visual, 3D, written, technical art forms), visiting artists, one-on-one creative mentoring, sketching, and a final installation of work. In the process, faculty become reacquainted with their own intrinsic motivation, which contributes to fostering student engagement.

Embracing a Creative Praxis:
The Creativity Fellows Program at Bryant University

The Creativity Fellows Program (CF) at Bryant University is a one-year seminar devoted to nurturing faculty members' creative practices with the long-term purpose of fundamentally transforming both teaching modalities and educational philosophies. Drawing faculty from Business and the Arts & Sciences, the seminar's premise is that we start with the mindset: If faculty

do not have an active creative practice, it is impossible to model and to speak to creativity with authenticity.

Most faculty, trained in their discipline, understand themselves as critical thinkers and content providers. When teaching, they may be most comfortable using familiar methods—lectures, note taking, and memorization with high stakes examinations. But the increasing pressures to be "creative," even in professions not typically understood as creative, challenge professors to reimagine learning experiences. Faculty, however, often have few skills and less support to take on this challenge. Teaching disciplinary knowledge within a context that allows for choice, exploration, experimentation, formative feedback, and reflection (all elements of the creative process) is daunting to many. And even if convinced of the pedagogical value of these learning experiences, reinventing courses and assignments can be overwhelming. Faculty need training and support, but training and support cannot come in cookbook form. Rather, faculty need time, space, and a supportive collegial environment in which to explore their own creative process. The hoped-for result of a fellows program designed to address these challenges would be that participants develop the courage to reimagine the learning environment they create for their students.

The CF Seminar started with an emphasis on creating and making, providing spaces to help Fellows develop a creative practice through exposure to activities (in visual, 3D, written, technical art forms), visiting artists, one-on-one creative mentoring, and a final installation of work. "Embracing a creative praxis" took the CF one step beyond a creative practice into the ethics that guide any action faculty might take as "makers" in the world. Mark Smith (1999, 2011) defines "praxis" as "informed, committed action" (para. 9): The processes of thought and theory interact with the world of action and making, but are guided by ethics and wisdom. He argues, "It is not simply action based on reflection. It is action which embodies certain qualities. These include a commitment to human well being and the search for truth, and respect for others" (para. 9). Integrating the work of W. Carr and S. Kemmis (1986), Smith observes that, "*praxis* is always risky. It requires that a person 'makes a wise and prudent practical judgment about how to act in *this* situation'" (as cited in Smith, 1999, 2011, para. 9). Thinking and making are in and of themselves not enough, he states. Creativity, in its most complex form, emerges in *praxis* because it is "other-seeking and dialogic" (para. 11). Applying the concept of "design mindfulness," John Thackara (2006) argues similarly, stating that, "ethics and responsibility can inform design decisions without constraining the social and technical innovation we all need to do" (7). Thackara argues that designers and creators must, "think about the consequences of design actions before we take them . . . give priority to human agency and not treat humans as a 'factor' in some bigger picture" (8). An emphasis on praxis also shifts the definition of efficiency from cost-related streamlining to the reality that creating and learning human beings are

highly inefficient (Thackara, 2006, p. 3). Systems of education, which currently overvalue efficiency, leave behind praxis.

The faculty member's development of a fuller, creative teaching self follows the progression of practice to praxis: a long history of active engagement with the world of thought and theory contributes to the faculty member's position as a thinker; for many, this is first and foremost. Thinking exists in an engagement with making and doing—sometimes in the act of academic research, building companies, consulting, etc. As faculty, however, it is generally the encounter with the student that brings their work from thought/practice to praxis. A circuitous and evolving journey is often necessary to the search for praxis. The example of the CF demonstrates one such route.

Context of the Creativity Fellows Seminar

With a history of more than 150 years, Bryant University has its origin in business education. Eighty percent of its 3800 undergraduates major in business. The College of Arts & Sciences, established ten years ago, offers programs in liberal arts education. Although studio courses have existed since 2003, until 2012, the college had no degree program in the creative arts. In the College of Business, programs in entrepreneurship have been only recently established. In this context, building a creative culture faces several obstacles. Students don't see themselves as creative. In career orientation, students imagine themselves as managers, not creators of businesses or nonprofits. Faculty, similarly, do not see themselves as creative, and some still suggest that creativity is innate, not learned.

When Terri A. Hasseler, Professor of Literary and Cultural Studies, and Robert Shea, Director of the Center on Teaching and Learning, established the CF in 2012, the goal was to develop a University-funded faculty program that was rather heterodox: The emphasis would not be on the final products of research and publications but on process; the purpose of being a Fellow would be just that, to "be" a member of the seminar; and pedagogy would *not* be placed at the forefront of discussion, rather the faculty members' developing creative practice would be the focus. The Seminar was invested in basic science (the development of the creative teaching self), not in applied research (the passing down of a how-to manual on creativity pedagogy). Delaying the focus on pedagogy was decidedly out of the ordinary, but was necessary to provide the physical and critical space that would allow teaching and learning to emerge in more complex ways as the seminar proceeded. Maura Ann Dowling, Finance Lecturer, and Sandra Enos, Associate Professor of Sociology, were participants in the first CF community and served as consultants and mentors for the most recent community.

Despite the deferred emphasis on pedagogy, student learning was an impetus for the program. Bryant University has been increasingly interested in

encouraging innovation in its students. The word, "innovation," is tossed around a lot, but there is limited discussion of what it means. Moreover, while administrators and faculty devote significant time and resources to a first-year program aimed at teaching design thinking, they have not widely explored the possibilities for multiple forms of innovation instituted across the curriculum. Ideally, the goal is to encourage students to explore their creative practice. However, the continued focus on content knowledge mastery as the measure of student achievement is too rigid to allow for choice, exploration, formative feedback, experimentation, reconceptualization, and reflection. The course, the credit hour, the fifteen-week semester, all measure inputs and achievement. None is designed to optimize the exploration of creative practice. This is not to say that fostering creative practice is impossible within these constraints of higher education. Certainly, learning outcomes can be amended, courses can be redesigned, and assessments, both formative and summative, can be reimagined. For the CF, the focus was on both creating in the middle (Maisel, 2010), as well as conceptualizing an educational paradigm shift.

With these challenges in mind, initial discussions for the seminar participants centered around issues of trusting the process—that if a space were made for reflection, creativity and community, the teaching methodologies and the professional products would naturally emerge, because, after all, it is hard to get people deeply committed to their teaching and research to stay away from either for too long. This emphasis was called "purposelessness," a willingness to do something without a goal or a final intention in order to play with possibilities. The syllabus (Hasseler, 2012, 2014) encouraged faculty to view the seminar more as a "what if," rather than a "how to":

> What if you were given a space to play, time to think about it, and a cohort of colleagues to encourage you? What if you were able to participate in activities within which your very presence was the purpose? What if you could play with the distractions to see what they yield, rather than immediately aiming for some objective? (p. 3)

As noted, pedagogy would eventually emerge: "As faculty tackle their own anxieties about creativity, they will gain a stronger sense of their students' anxieties about creating" (p. 3). What was most important for the program, however, was the re-invigoration of a faculty member's personal commitment to creativity as a central tenet of her own learning and growth.

Room and space to play, as well as playmates to play with, were essential. A key element of enabling a creative process is providing multiple opportunities for "play" and experimentation when trying new things. Because faculty may be intimidated or anxious about an expectation that they should be "creative," replacing high stakes projects with lower stakes activities was a good strategy for encouraging flexibility. Modeling creativity and innovation in front of each other was another important learning and teaching tool, so

that faculty experienced the multiple steps required for creativity (developing a creative insight or vision) and innovation (putting the idea into practice). Process was key, as was place. In these safe creative spaces, ideas could be launched and built, and faculty could learn how to recognize each other's good work. A communal physical space, initially separate from outside questions or comments, was essential to building familiarity, comfort, and trust.
Trust was central to building the community of playmates. The initial application process drew dozens of applicants, but the communities were kept small (averaging 10 people) in order to allow for full participation and individual mentoring. The group was also quite diverse, crossing numerous demographic and institutional boundaries: age, gender, profession (scholars and practitioners), rank (adjunct, lecturer, tenure-track), and fields of expertise. Because the goal was to build a collaborative community, activities that revealed different strengths, skills, and enthusiasms were necessary to dismantle pre-existing hierarchies, expectations, and authority. In these sessions, participants recognized that what one member found easy (making a pot) might be more of a challenge to another. The point was not mastery or pecking order but exploration and collaboration.

This purposelessness and play evoked a third concern—fear and its relationship with failure and risk-taking. Writing about the first CF community, Suhong Li, an Associate Professor in Computer Information Systems and CF participant, and Hasseler state, "To make space for our students to fail and try again is perhaps less disconcerting than making such a space for ourselves-as-instructors. To encourage a 'proficiency' in creativity, we, as educators, must also be willing to take risks, make leaps of faith, and plan on a large number of Mulligans" (p. 3). The Association of American Colleges and Universities (AAC&U) lists "risk-taking" as a primary skill needed for creative thinking. However, faculty are rarely pulled completely out of their comfort zones. Most faculty teach and research in fields to which they have devoted a lifetime of study. Because of the academic structure, faculty frequently move farther and farther away from meaningful risk-taking, at least the risk-taking that is on the level of the student's experience—confronting a whole new way of thinking or making with little to no context. Thus, faculty making a potted bowl might seem "purposeless" for some, but it is "purposelessness" in the best meaning of that process as we define it. Amongst a group of peers, faculty leapt into the unknown, where they felt the same sense of uncertainty, incompetence, and fear that students often feel. However, the Fellows provided a space to catch the "failure" and encourage the risks. The Seminar would also teach the intrinsic value in creating, physically manipulating materials, and displaying one's results for discussion and reflection.

As a part of the practice of creating, Fellows were introduced to several visual media (including collage work and photography), 3-D sculptural experiences (paper-making, bookbinding, ceramics), and physical activity (meditation, Improv). Artists from the local community were brought in to work with faculty on several activities, including coil pottery, Improv per-

formance, and mind-mapping. In complement with the "practice" part of praxis, the Seminar offered opportunities for faculty to read theoretical essays on creativity, thereby bringing thinking directly into the experience: the first community reading the work of cultural anthropologist Tim Ingold (2007), and the second community reading theoretical observations on the creative process from choreographer and dancer Twyla Tharp (2006), psychologist Mihaly Csikszentmihalyi (1997), composer and film-maker Robert Fritz, and artist Betty Edwards (2012); videos of Ken Robinson (2012) on the definition of creativity and Jill Bolte Taylor (2008) on the processing of right and left brain hemispheres; and other readings addressing neuroplasticity and bio-evolutionary origins of art and storytelling.

The first activity that both communities completed was constructing a clay animal that reflected their understanding of inspiration and creativity. When the misshapen little figures emerged, lacking in proportion, bent, but much loved, Fellows embraced this experience to talk about their fears and personal familial connections with creativity. The second part of the activity asked Fellows to put their animals in a shared habitat. In the quiet uncertainty that results from this task, participants start to reflect on several concerns—they don't get to keep their figure, they need to think in terms of a habitat that would house all these diverse creatures (some real animals, others magical), and they have to do this in a very short period of time. The first community constructed an amusement park, which seemed to reflect some of the be-mused uncertainty of their time together: I have an advanced degree and you want me to make what? But it also provided a metaphor for their approach to creativity—amusement, play, and irony. The second constructed a garden, choosing an organic, agricultural metaphor.

Constructing the habitat was central to building a community of practice. Over the past four years, Bryant University has taken major steps toward becoming a learning outcomes-based institution. With a conscious eye toward what students should know and do, faculty have re-tooled a significant portion of the curriculum to align with a set of foundational outcomes, including effective communication, critical thinking, information literacy, diversity awareness, and ethical reasoning. While most colleges and universities share these broad learning outcomes, Bryant has made significant strides toward operationalizing a curriculum that fosters and measures student development on each. Students maintain e-portfolios, containing selected artifacts, as well as reflections aimed at demonstrating metacognitive awareness of growth on foundational outcomes. A sample of representative artifacts and reflections is assessed annually as a measure of institutional performance. Results inform the creation of targeted professional development activities for faculty and staff.

Much of Bryant's success results from developing a community of practice model (Wenger, 1998) that is focused on student learning. Communities of practice (COP) are groups that share a common passion, and individual members and the community improve through interactions. Participants in

COPs share practices, give voice to concerns and challenges, and benefit from the experiences of colleagues and from the collective wisdom of the group. The successful COP requires the establishment of trust among members. All learning requires a measure of humility and vulnerability, and COPs provide a context rich in social capital that enables members to push perceived limitations, explore boundaries, and celebrate individual and collective achievements.

Bryant University's COP model is not limited to curriculum redesign; rather, it has characterized much of the professional development opportunities sponsored by the institution's Center for Teaching and Learning (CTL). The CTL has sponsored a number of Faculty Fellows programs over the past several years. Though distinct in approach or content, all Fellows programs share characteristics of successful COPs. All ask colleagues to make a commitment to come together regularly to study, explore, and apply new knowledge and skills in practice. All are purposeful about the establishment of social capital and include opportunities for celebrating achievements. Indeed, members are encouraged to share results of their work with the broader Bryant community, as well as with professional audiences in conference presentations and published manuscripts. The CF was built upon this model of a COP.

This paper will address the implications and results of the CF more fully in later sections, but it is important to highlight, at this point, the most important results of the seminar. A first was in taking a faculty, many of whom did not consider themselves creatively-inclined, and helping them to find these possibilities within themselves. It also built a critical mass of faculty, who know there are others in the institution invested in "informed, committed action," insuring that students experience creativity across the curriculum, not just in isolated instances in particular classrooms. The Fellows also functioned as a form of creativity consciousness building across the University-structure. Although larger and more heavily funded "creativity" exercises exist at the institution, the quiet and introspective nature of the Fellows seeped into the bones of the place, manifesting itself in different activities, affiliations, programs, events, courses, and new degrees. The collaborative-nature of the program made participants a member of a *shared* experience, and yet each participant could also claim what was practiced and learned in the seminar as her *own*.

Narratives of a Creative Practice

Because the CF was both a group and an individual encounter, this paper will look at several narratives that speak to the particular experience of participants. These stories highlight what gets "stirred" in participants when the mindset is allowed to shift and change because of embracing a fundamentally different approach to the self-as-learner and the self-as-teacher.

Maura Dowling's Story

Dowling is a lecturer in the Finance Department and maintains a financial planning consulting practice. She teaches undergraduate finance full-time and consults part-time. Fear and financial decision-making are of particular interest to Dowling, as well as work-life integration. A creativity practice in music and yoga has allowed her to explore deeper conceptual understandings for both students and clients alike.

"Creativity recovered." The phrase "*my creative practice*" is profoundly empowering to me. My upbringing was overshadowed by the idea that creativity was an unimportant talent. Yes, creativity was a talent, but it was not deemed useful to my clan. Creativity was thought to be "artsy-craftsy" and quaint, at best. Important talents were related to mathematics, science, or business. Of course, this is a limited view of creativity—and mathematics, science and business, too. From the 1970's forward, as manufacturing lumbered to off-shore locales for tactical cost-savings, the air around the New York City metropolitan area where I grew up was filled with talk of cost-savings in public education. Educational cost savings were extracted from early foreign language, music, and art programs. The first layoffs I ever experienced up-close were arts and language teachers in elementary school. Surprisingly, over forty years later, I can still sing a French Canadian song I learned from the gutted music program. The irony is that U.S. and likely all manufacturing would have been helped by creativity, and this is now understood in some quarters. What makes me smile is that I am now teaching in a College of Business that is concerned with innovation and creativity. How full of purpose and meaning that is for me—like visiting old ideas and experiencing them in a new way, as if for the first time.

When Terri led the second group of CF, I was a co-facilitator. And the new Fellows would tell me how tortured they were with guilt that they couldn't always find the time to finish projects. They loved what they were experiencing and yet couldn't serve that experience's demands as a personal priority. And I would just smile, almost laughing, and say, "that is part of the process!" The first level of this reply relates to a class I was teaching when I was first in the Fellows. This class was meant to have elements of creativity. However, some institutional rigidity about how the course was taught in the past felt like a vacuum-sealed bell jar environment. And I didn't see the glass. I was moving around with creative ideas and enthusiasm and conking against the glass. My projects in the Fellows began to become very challenging to complete. Terri caught me, at times, shut down, scared, or on the verge of tears. The bell jar ideas of creativity from childhood were dissolving.

Then I worked on a small clay bowl with my fingers in terra cotta clay. We were to snake the bowl, and I snaked the symbols of reptile, mammal, and a heart representing the triune brain and the levels of fear from each level. A small snaked heart came up one side of the bowl, representing fear's

resolution in the neo cortex. Once the bowl was complete, I was empty. Or perhaps, I was empty because the fear was fully experienced and was complete in the bowl. The bowl still sits in my office as a symbol of letting the past go. Two years later, the class I was teaching at that time has continued, and I have changed my version of it, I speak about it, and the bell jar is no longer sealed.

My own acceptance of the limited view of creativity of my clan has been dispelled. Creativity is beautiful, expansive, and profoundly important. In a way, it extends my feminism to a more graceful humanism. Marion Woodman (Bly, 1998), a Jungian analyst, speaks about the divine marriage of the feminine and masculine in our psyche, which has nothing to do with the power principles of patriarchy or matriarchy (pp. 183-197). Western culture, she argues, lacks a gritty, earthy, senescent feminine energy that she calls the Baba Yaga from Eastern Folklore. Encountering this energetic idea in readings, while exploring a broader more fully human notion of creativity, has literally healed me of the burdens from working many years in the Wall Street broker-dealer-system, which must be one of western civilization's last great strongholds of pure patriarchy. Masculinity and femininity are coming together in creative movements like Conscious Capitalism, while patriarchal values are dissolving in the process. This is the transforming power of creativity. All of my history is being reshaped and reused in new empowering ways—creatively.

Sandra Enos's Story

Enos earned her PhD late in life after a long career in public service, motivated by a desire to teach sociology in an inspired, active, and engaged way. She considers herself a public sociologist and leads community engagement efforts on campus and on the national stage. With a focus on engaged-learning, her aim is to help students understand the deep lessons of sociology by connecting their personal lives to those of others.

"Divided no more." Two practices are especially important for me. The first is music, the second drawing. For forty years or so, I have played the guitar, completely self-taught. I learned by ear, formed musical groups when I was young, and wrote some music: all for my own pleasure. Two years ago, I started playing the mandolin, and for the first time in my life, took music lessons. I did this because I was becoming tired in my teaching. I was losing patience with students, who seemed to have unaccountable difficulties understanding what I was teaching. Of course, I realized my disciplinary training in sociology was so ingrained that it is sometimes hard for me to understand what it is like to be a novice learner in a subject. I thought I would take up a new instrument, learn to read music (something I have failed to teach myself despite years of effort), and be open to performing with an ensemble in public concerts. I wanted to put myself in the place of the new

learner and feel that challenge and anxiety. Additionally, I wanted this to be in something I do not easily master, unlike writing, reading, and analysis. I wanted to get out of my comfort zone and have an opportunity to think carefully about metacognition—how the brain, the hands, the soul learn music—with the hope that this would illuminate my own teaching in sociology. In his wonderful book tracking his journey from being non-musical to playing the guitar, Gary Marcus (2012) demonstrates that our ideas about what and how we learn can either erect overwhelming obstacles or build powerful levers for deep learning.

For twenty years, I tried to teach myself how to draw using the books by Edwards (1979, 2012). I have the earliest editions to her classic, *Drawing on the Right Side of the Brain*. No lesson in that book was more important than the one that taught that drawing was not a matter of brilliant hand-eye coordination, nor was it a case of native talent. Drawing was learning to see, to bury your left-brained knowledge of how the world was, and instead to use your eyes to really scope out how images appear. The idea that with study and practice I could learn a skill that I thought was confined to the talented few was a significant moment of learning liberation. To comprehend that to learn some things one has to unlearn others was also a profound realization. These lessons carry into the classroom, as I consider the deeply held beliefs and the mental models that students bring to the classroom and to the study of sociology. It is challenging for them to jettison their ideas about social relationships. They need to unlearn some things before we can move on.

The belief that without natural talent one can learn music and master the skills of drawing rests upon a belief in what Carol Dweck (2012) calls, "growth mindset." A growth mindset suggests that skills can be acquired through practice and effort. Opposed to a fixed mindset, which proposes that some of us are good at math and others are good at language skills, a growth mindset puts us in the position of reflecting on how we learn. We move from regretting that we are not more talented to imagining that we can expand our learning.

The CF program provided me with the intellectual and practical space I needed to move forward on ideas I had been considering for a while. I am asking more of students and allowing them more freedom in the classroom. I have a developed a new course in the "Sociology of Innovation and Creativity," which was inspired by the CF experience. When a CF participant, I realized that I had enough interest, material, and energy to teach about creativity and innovation—a full semester's course was in order. The aim of the class is two-fold: (1) to examine the sociological aspects of creativity (Where does creativity and innovation come from? What is the role of community in creativity and innovation? Can creativity be taught?) and (2) to develop and strengthen students' creative confidence. Students are challenged to put their faith in a growth mindset. They must jettison the belief that only a few are truly creative. And, they must suspend their expectation that a twenty-page paper and rote learning will suffice to earn a good grade.

Terri Hasseler's Story

Hasseler is a professor of literary and cultural studies, who started teaching in narrative, theory, and film, but has since developed an interest in teaching the creative process and a studio course in the book arts. With a PhD in British Victorian literature, she is now studying children's book illustration and writing.

"**Drawing a straight line."** In the early 2000s, the Department of English and Humanities at Bryant University underwent a soul-searching look at its place in the institution and the purpose of its pedagogy. The faculty felt that the programmatic student outcomes should continue to include applying theoretical lenses to cultural artifacts, but should also include the ability to actively create and produce. At the time, we did not have a course that put these activities in connection with each other. There were many courses focused on critical theory and a few that engaged in creative production, but none that integrated the two. The result of this soul-searching was a reformed program in Literary and Cultural Studies with a culminating course, combining creative production with critical theory.

The Senior Practicum, as the course would be known, was not officially offered until Spring 2012, and I was given the chance to teach it. From the beginning, I had helped define the course and was a strong supporter. However, when faced with the chance to teach it, I was overwhelmed and confused. I did not have an active creative practice of my own. I did not "make things," as I understood creating to be, and I saw myself as a theory person, who could take apart ideas, but was rarely forced to put them back together. In fact, this had become one of my personal pet peeves with Cultural Theory—that it dismantled concepts while offering few options for putting them back together. For students and for me, this was becoming increasingly more unsatisfying, hence my support and interest in a course that would purposefully emphasize creating. But now that I was actually going to be teaching it, I felt like a fraud and a fake. I had a history in music, playing and singing, but I had a complex emotional relationship with my own creativity. In my family, creativity was widely accepted and encouraged, but as a child, I felt the competition with my siblings very painfully. Both my brother and sister were talented artists, and I was, as my brother would joke, "the one in the family who couldn't draw straight line." Of course, this was not entirely true, but I learned to keep my creativity very personal and quiet. I did not share my writings and did not want to engage in any performance outside of music.

But now I had to design a course whose purpose was creative production. Quickly, I threw myself into several different experiences to reawaken some creative places that had gone dormant through graduate school and, then, the tenure process. I tried pottery, some writing, and experimented with new instruments. Although I had a personal background in music and writing and I enjoyed craft-related activities (I was an expert DIYer), I had never looked at

creative production as something that I needed to attend to as a teacher and critical thinker. Keep in mind, I taught students about creative productions. So the first time I taught the Senior Practicum, I used it as a laboratory to explore possibilities. I was as much a student to the process as the students were. We read Tim Ingold's critical theory book on lines (2007), and used it as the inspiration for a series of creative productions—in writing, pottery, visual art, etc. The course culminated in two presentations of their work—an installation and a public reading of their written work. I presented my work at the installation, as well. For students, the experience was career-affirming, one telling me that this course reminded her of why she wanted to study literature and culture. For me, the experience was transformative. At the end of the semester, I told the class that their encouragement had inspired me to pursue a degree in children's book illustration and writing. From there, I knew that this was an experience that needed to be shared with others.

Robert Shea's Story

Shea is the Associate Vice President for Teaching & Learning and the Director of the Center for Teaching & Learning at Bryant University. He has oversight responsibility for many of the institution's teaching and learning support units, including the Academic Center for Excellence, the Writing Center, English as a Second Language Programming, Disability Services, Peer Tutoring, Undergraduate Advising, Study Abroad, and the First-Year Experience Curriculum. A sociologist by training, Shea teaches in the first-year seminar.

"A mashing success?" For many years, I have approached course development, as well as faculty and professional development activities, using a backward design process. That is, clarity about the broad learning outcomes I had for students and colleagues enabled me to structure my courses and workshops to support learning and success. It helped me think about the timing and nature of assignments, as well as the scaffolding that would be necessary to help students move toward meaningful performance. Participating in the CF program was eye-opening for me. I approached each of our creativity assignments in this same way, and I do know that the assignments that caused me the most anxiety were those with a time constraint. Before putting my hands to work, I typically think for a long time about my desired outcome: What do I want my project to look like? What message do I want to relay? When I have a clear vision for a project in my head, I feel more confident about starting my task. Yet even here, I often found myself thinking for a long time about the pieces and the process before moving forward. What materials did I have at my disposal? In what ways might they come together in support of my imagined outcome? What foundation did I have to establish in order to accomplish my vision? Only then did I feel comfortable setting to work. Of course, nothing ever went exactly as planned. It was always the case that I met unforeseen challenges, reimagined possibilities, and took to

heart the feedback of other Fellows. Consequently, completed projects always departed to some degree from my original vision, usually for the better.

The CF program enhanced my classroom practice in a number of ways, but chief among these is creating meaningful and authentic tasks that allow students, individually and collectively, to explore ways of making their voice heard. I put into practice the reflection on my learning that I experienced in the Fellows by developing assignments that allow students choice in how they demonstrate learning. One such assignment has worked successfully in my course on "Citizenship in a Digital Age." Students are asked to produce a 30-60 second public service announcement (PSA) on a topic of their choice. The PSA assignment flows from a lengthy annotated bibliography assignment that informed a speech they delivered in a public setting in the center of campus, in the style of London's Speakers Corner. Students record their speeches and reflect on their performance. We collectively note that despite their preparation and the spectacle of the event, few people stopped to listen. We question the value of such a venue as a means of conveying a message in a digital age. As an alternative approach, students are then asked to create a PSA aimed at raising awareness and/or prompting action on their topic. They are asked to experiment with a variety of images, audio tracks, video clips, designs, platforms, etc. Additionally, they are encouraged to seek feedback throughout the design phase and to amend their work accordingly. We discuss copyright and fair uses issues, and explore the ethics of "mashing content," which includes the intellectual property of others. The lesson culminates with a showing of the PSAs in class. Students are proud of the work they have produced, often expressing excitement about their ability to effectively convey a powerful message about their subject. Similarly, they appreciate their classmates' work, recognizing that these too are engaging, creative, and powerful personal statements. As evidenced in most student reflections, this assignment is empowering because it enables them "to mash" diverse content and different learning practices into a personal and coherent whole. A typical comment was offered by one student:

This project was a great way for us to develop our ability and willingness to share our voice with the public. Before this project, I had never attempted to compile and edit material to create a video. I had never tinkered with movie-editing software, but I am glad I had the opportunity to for this project. I learned that it isn't difficult! After asking around and deciding on a user-friendly, polished program and exploring its features, I was able to work through the process of creating a video. Now that I have the capacity and confidence to make my voice heard through filmmaking, I truly realize how incredible a medium technology is for creating a message and broadcasting that message to others. Expression of ideas is the key to inspiring meaningful and positive change. This project was the culmination of a semester in which I learned about the importance of having a voice and the importance of being able to effectively communicate that voice to others. I implemented this learned knowledge and can now make my voice heard effectively, broadly,

and confidently in speech and in film.

The Impact of Praxis for the Student

Ivan Illich (1968), in his acerbic lecture, "To Hell with Good Intentions," addresses the problem of "good hearted" First Worlders forcing their charitable acts upon suspicious Third Worlders. Those "good intentions" originate, he argues, in places of privilege and an aggressive need to "help" without really understanding what that means and whether it is wanted in the first place. Speaking to a group of American college students about to engage in volunteer work in Mexico, Illich states,

> I am here to suggest that you voluntarily renounce exercising the power which being an American gives you. I am here to entreat you to freely, consciously and humbly give up the legal right you have to impose your benevolence on Mexico. I am here to challenge you to recognize your inability, your powerlessness and your incapacity to do the "good" which you intended to do. (para. 34).

Faculty can often be like these "good-hearted" folks, whose actions lack a solid sense of praxis, who embrace the idea of helping the student, but still understand "help" from their perspective: (i.e., I know how to help you! I know what you need!) However good-intentioned, faculty sometimes impose their will on students, not recognizing their inability, powerlessness and, often, incapacity to effectively understand the experiences of the student. These impositions can inhibit new learner excitement, forcing the student back down to the foot of the guru, rather than standing up and claiming learning as their own.

As noted earlier, praxis emerges most often in the encounter with the student. In the CF, faculty experienced being a student, of course, never exactly like students who are in their classrooms, but a student, nevertheless. That is humbling; it creates feelings of powerlessness, and although we did not encourage faculty to give up their right to teach, as Illich suggests for the volunteers, we did try to question the motivations that are at the core of their teaching. If praxis, as Smith (1999, 2011) argues, is meaningful only in each particular situation (a classroom on a particular day), and each new encounter might require radical rethinking and understanding (an individual student from unique contexts), then teaching, at its best, is always about praxis. Each teaching moment requires a reconnection with the "dialogic" and "other-seeking" nature of praxis. Students can disappoint, content can grow old, and academic hoop-jumping can exhaust, but the "search for truth" and the emphasis on "human well-being" sustain the teacher. They do so because they are humbling and awe-inspiring pursuits. Even though we all fail miserably at this, it is the continued attempt and the commitment to informed action that sustains the teacher through the doubts and uncertainties, the moments of bravado and of despair.

To measure this kind of accomplishment, as a part of the CF experience, is both hard to do and a little absurd: How do you measure newfound humility? How do you justify multiple failures? How do you assess a faculty member's ability to commit to human well-being? In fact, some of these ventures can be career-damaging for faculty—the poor student perceptions that might emerge for a junior faculty member, who is trying new activities for the first time and is bucking a system built upon grades and content coverage. Institutional changes are essential for any measurement to be actually measuring learning. Some future measurements might include the oxymoronic approach of measuring the success of a "failure," narratives that allow faculty to put student comments in a much broader context of learning objectives, and a tenure-process that rewards experimentation and puts failure in context.

Nevertheless, we offer two possibilities that come from the CF experience: the development of intrinsically-motivated activities and assignments, with the direct purpose of making space for students to claim their education as their own, and faculty modeling of reflection and metacognition. The first crucial change has been the focus on intrinsically-motivated activities and assignments. Extrinsic motivation is a powerful motivator for students: What grade am I going to get? And sadly, even though faculty wish students were more intrinsically motivated, they often quickly turn to rapping the stick (you'll fail) or wagging the carrot (this will help your grade) to get students to perform. Extrinsic motivation feels like the catch-22 of education: You can't get students to do something without it, and they will never fully embrace learning if that is the motivation. Intrinsic motivation is a part of Csikszentmihaly's (1997) concept of creative flow, a process demonstrated by designers and creators of all sorts. When in "flow," actions become "autotelic," meaning "something that is an end for itself" (p. 113). Csikszentmihalyi states,

> Some activities such as art, music, and sports are usually autotelic: There is not reason for doing them except to feel the experience they provide. Most things in life are *exotelic.* We do them not because we enjoy them but in order to get at some later goal. (p. 113)

Exotelic activities are often a necessary part of creating (doing steps that need to get done to pave the way for later goals), but education often resides solely in the exotelic for students—hoops to jump through to become credentialed for professions. Fritz (2003, 2009) argues that exotelic activities are often necessary for creating, but without the desire for the creative object and process, without the structural tension that propels one from nothing to something, creating does not happen. It may replicate creativity on some level, but the process is devoid of a meaningful connection with the creating and the creation (pp. 12-18).

Second, through installations and discussion, the CF community modeled how to reflect upon learning for students, which positively affect students'

perceptions of creativity and risk-taking, itself. N. Kenny, K. Mann and H. MacLeod (2003) acknowledge that role modeling is an untapped pedagogical tool; role modeling guides the student in processing through observation and nuanced reflection. Through a public installation, the CF modeled both visually and verbally their creative processes, their self-reflection on their processes, and their observations on further growth. The community's enthusiasm and pride were infectious.

Students unanimously indicated that it was valuable for them to see the creative works of professors. Seeing faculty taking risks, demonstrating process, and making themselves vulnerable to critique helped students recognize that creating was possible for them, too. As one student stated, "Seeing teachers that may or may not seem 'creative', be creative. It shows me that I can do anything." Furthermore, students often do not see faculty embracing their own risk, uncertainty, and process. One student noted,

I found this valuable because it shows that these people who are experts in their fields are willing to take risks. I am sure doing these projects felt a little unnatural and it was interesting to see how they dealt with that and created something to be proud of. This is much like what the student (sic) experience here at Bryant. We are all comfortable going to school, but the professors push us to do more that may not feel natural right away.

Perhaps the most common response from students was that they were surprised to see Business faculty creating because "creativity" was not something they associated with business:

> I found that it was valuable because it not only showed talent in people you wouldn't necessarily think of (businessmen/women) but it also showed that people like businessmen, who are traditionally in a very structured atmosphere, were willing to leave their comfort zones and try something new.

The result of this new understanding was translated into an understanding of the connection between the liberal arts and business, "I think it is valuable because it shows that Business and Arts & Sciences can be combined. Skills in both fields are very useful and can help one develop a diverse background."

One further result is that students glimpsed the humanity of faculty—having a creative practice and producing art revealed something that students saw as crucial to understanding faculty as full human beings:

I found it valuable because sometimes you only look at professors just as guiders who specialize in a particular area, the subject they are teaching. And we can forget that our professors do more than just "teach." They can take part in activities just like us students and express themselves through art activities.

Or as another noted, "It was interesting to see professors doing the same things that we are in class and how proud they were of their work." This, perhaps more than anything, provides a valuable insight into student reception of

faculty modeling since seeing each other as fully human can translate into a greater understanding of each other in the learning process. For faculty, displaying their work to students turned the tables on them. It was uniquely uncomfortable given that faculty, more often than not, are the ones assessing and critiquing students' work. One student noted the value of this experience, stating, "It was valuable because you could also relate to things you had in common with professors you knew who had their artwork presented. When i walked in, i (sic) felt like it was my turn to critique, assess, and become the professor." Becoming both critic and colleague, the student and faculty member reverse and share roles, at the same time, thereby experiencing each other's place within academia.

CF refined existing assignments and developed new courses and programs to reflect these elements of praxis, focusing on developing intrinsic motivation and modeling processes of reflection. Relevance, meaningfulness, and authenticity are the features of courses and assignments that promote student ownership of their learning. Designing courses around big questions provides the content for the expression of a creative process. It is within such a context that students feel empowered and supported to explore, experiment, reflect, and learn. The Fellows program enhanced Shea's classroom practice in a number of ways, but chief among these was creating meaningful and authentic tasks that allow students, individually and collectively, to explore ways of making their voice heard. In his course on "Citizenship in a Digital Age," he developed numerous assignments that meet these criteria, including, drafting letters to the editor, redesigning high school websites to include language on global citizenship, recording videos of students reading from their choice of banned books, delivering a public speech in the center of campus, and creating the previously mentioned 30-60 second PSA on topic of choice.

In the past year, Dowling changed her Financial Management 201 course to focus on contrasts and tensions that propel students to goals and objectives that are personally meaningful. In this course, she orients students thinking about finance: Finance is about creating value. It is about the future, which is unknown. Tools and framing are used to develop ideas about the future (forecasting). However, at its core finance and mathematics are incredibly creative fields. This can be highlighted by changing the way we teach—in particular by placing more emphasis on creating value rather than on strategic decision-making. The use of what Peter Senge (2006) calls "the fifth discipline," the readings of Paolo Freire (1970, 2000), and her industry experience made her rethink this class. As noted above, there is a lot of focus on curriculum coverage and the idea of "exposing students" to finance tools. However, in the new assignment, students negotiate a house purchase and learn about the motivations of the Principal and Agent; they are given "checks" for $100,000 that they use to finance a mortgage, and, then, they see if in the Craigslist rental market they would have positive cash flow. They learn the concepts of debt and equity in practice. They seek to improve the property and raise the level of the rent above market and recalculate their net income.

In this way, they see financing and operational cash flows more distinctly. Equity and debt together form the contrast that illustrates, educates, and attracts interest. A basis of this assignment comes from the work of a musician and composer, Fritz (2003, 2008). His emphasis on creating contrasts and tensions that set up a structural dynamic that propel the creator from point A to point B was very helpful to this course.

In Enos's "Sociology of Creativity and Innovation" course, students searched their personal lives for creative inspiration and analysis. In their final project, which she did alongside them, they used 3D, visual, and other representations to make connections between a key sociological concept, "sociological imagination," and their own lives: "The sociological imagination enables us to grasp history and biography and the relations between the two within society. That is its task and its promise" (Mills, 1959, p. 3). She insisted that the students not do a research paper but instead use other means to express their ideas. As a group, they brainstormed ideas—maps, slide shows, pop-up books, collections of poetry, board games, flip books and others—and worked on them in class. To guide students on how to reflect upon their learning, the class discussed how to evaluate their results. Could the students create a rubric for themselves so that they could appropriately and authentically evaluate each other's work and hers? This exercise was not intended to support extrinsic motivation but to have them consider the various levels of effort, achievement, and mastery required by the assignment. She was interested in how they decided what to report on, how they chose their 3D representation, and how they selected the vehicle for the story they wished to tell.

The work was showcased in a poster presentation open to the larger community. Students commented on each other's work, recognizing strengths. In their final essays, they reflected on their own projects and how they could have improved them. Some of the projects were exceptional; others excelled in the presentation format but failed to connect their work to their lives; still others did not integrate the work with the conceptual content of the assignment. Enos suggested a series of changes to improve her own practice with this assignment, and she shared these with students. Despite the challenging nature of the assignment, students reported in course evaluations that this was one of the most memorable assignments that they had ever completed, one that they learned most from, not only because it was different but also because they were asked to relate course materials to their own lives, using talents they hadn't explored before.

The Impact of Praxis at the University Level

Despite the growth of programs like the Fellows, the institution is still left with some difficult challenges to bring creativity and innovation from the periphery to the mainstream. Whether we are talking about whom in a com-

munity will be the first to buy an Apple's newest gizmo or examining who on campus is most likely to embrace a new idea in teaching, scholarship or service, we can look to lessons from research on how ideas spread from experimentation to adoption. Sociologist Everett Rogers (2003) initiated studies of innovation—how ideas move through communities and how quickly they take hold or not. In deliberatively moving an institution to a stronger embrace of creativity and innovation, five findings from innovation research are helpful: That an individual is more likely to perceive that benefits outweigh costs (What I will be able to do vs. the learning curve or other costs?), that resources are available (What time, talent, money, mind, and space are required?), that there is access to communication networks (Who is talking about this? How do I learn more?), that these new ideas are compatible with prized-values, and that these ideas can be tested (Can I can test in little pieces? Do I have to buy the whole program?). If these are present, innovation is more likely (Rogers, 2003, p. 150).

Another important finding in innovation research relates to the arc of adoption. In any population or community, there will be what the researchers call early adopters, those who bring ideas to a community and are eager and confident in trying them out (Rogers, 2003, p. 134). They don't seek absolute proof of the value of ideas, but they are eager to try them out. They seek novelty and new ways to do things. At the other end of the spectrum are the laggards, those last to adopt an innovation. They want proof; they want models. They need to understand that this new idea is much better than what is provided by current practice.

When we think about changing a campus culture around creativity, we need to attract early adopters, support them with resources and tools, engage their willingness to test ideas in classrooms and beyond, and help this emerging community create models and arguments for those who later adopt these models. In his research on paradigm shifts in science, Thomas Kuhn (1962) found models of science that no longer explained phenomenon were often preserved long after their usefulness because of institutional and personal pressures. This is often the case in teaching and learning in higher education. It is challenging for faculty to comprehend that what they are doing in the classroom could be done in radically different ways. To build creativity and innovation opportunities on campus (a creativity paradigm shift), moving it from the periphery to the mainstream, Kuhn offers some advice: "If a paradigm is ever to triumph, it must gain some first supporters . . . men who will develop it . . . improve it, explore its possibilities, and show what it would be like to belong to the community guided by it" (p. 158-159).

A series of changes have emerged from the Fellows program. These include the establishment of the first university-wide commencement award in Creative Expression. New courses and programs of study in creative and applied arts have been established in Literary and Cultural Students. As discussed earlier, a new course in creativity and innovation has been established in sociology. A campus-wide month-long Creativity Sketchbook Challenge

drew more than one hundred participants. Professional papers have been published and presentations given. But it is in the space of the classroom and the mindset of both teachers and students that the greatest changes are starting to emerge, as evidence by the narratives above, the student commentary, and the micro- and macro-changes to experiences of learning. With a group of faculty embracing informed, committed action, changes emerge in ways that are both measurable and felt.

Conclusion

The CF Program started with a physical, intellectual, and creative space dedicated to faculty imagining, thinking, and making outside the accepted structures of academia—less inhibited, among a growing group of similarly committed faculty. Most important, however, has been the continual renewal of praxis—an informed, committed action that is other-centered and focused on human well-being. The CF route has been circuitous, starting with the faculty member's practice, circling into the classroom, back-tracking to personal narratives, jumping forward to experiences with students, getting lost in new approaches to content, and rounding back to individual faculty members as a part of a community compromised, at the most immediate level, of faculty, students, and the institution. By starting with the mindset, faculty become reacquainted with and develop their own creative practices, making them better able to model creative learning, thinking, and behavior for students. Better able to embody and embrace praxis.

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Robert Shea: Shea is the Associate Vice President for Teaching & Learning and the Director of the Center for Teaching & Learning at Bryant University. He has oversight responsibility for many of the institution's teaching and learning support units. A sociologist by training, Shea co-founded the Creativity Fellows with Hasseler in 2012.

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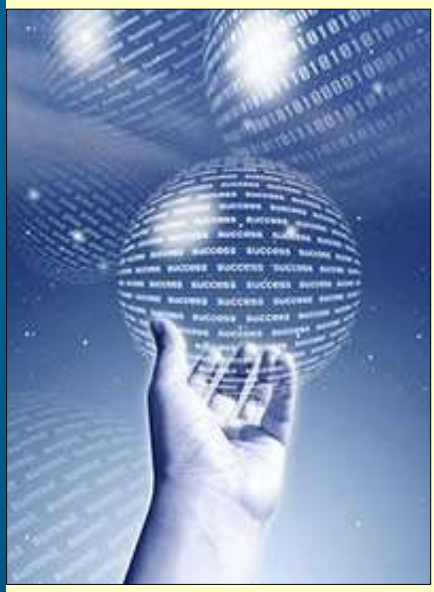

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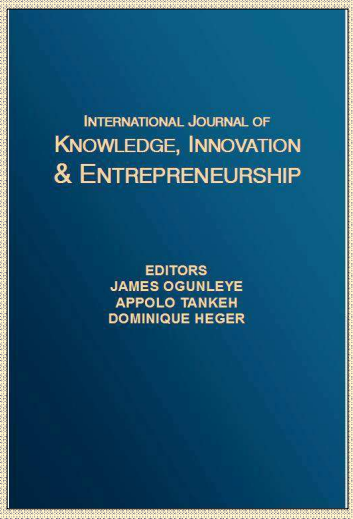

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