

Core Knowledge Area Module Number 1:

Environmental factors of creativity in modern American society

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Walden University

August 2, 2007

Breadth Abstract

The Breadth section of this KAM includes the identification and exploration of environmental factors that impact creativity with special regard to modern American society. The works of Thomas S. Kuhn, Charles W. Mills, and George H. Mead are critically analyzed and interpreted for their insight into this topic. At first glance it might seem that people, places, and things are the only environmental factors. But these are only the most obvious of factors. This paper asserts, argues, and concludes that science, tasks, languages, cultures, education, history, governmental forms, politics, beliefs, and parenting are also aspects of a person's environment that influence their creativity. Scientific theories are creative. Tasks motivate curiosity and creativity. Language is used to express ideas. Culture, government forms, and politics set up the backdrop for creativity to operate in. History and beliefs serve as a foundation that ideas are built upon. Education and parenting develop the creative capacities of the individual.

Depth Abstract

Creativity is a vital aspect of thinking. A person generating an idea does so within some environment. This analysis sets out to investigate the main environmental factors that influence creativity in the context of modern American society. Creative environmental factors are aspects of a person's surroundings that inspire imagination, foster creativity, and spark ingenuity. The seminal philosophers and theorists are synthesized with the prevailing research for insight into the question. The Breadth component concluded that science, things, tasks, languages, people, cultures, education, history, governmental forms, politics, beliefs, parenting, and places are the principle environmental factors in creativity. This analysis expands on that work. New evidence, new perspectives, and new theories for this conclusion in are demonstrated in this analysis. Individual researchers bring novel insights into specific environmental factor. However, none have tried to identify and bring together all of the factors under one roof. Using the prevailing research, the modern aspects of the environmental factors are brought to bear on the problem. For example, in modern times, product innovation becomes an economic and political imperative for creative tasks. As another example, this analysis shows the impact of the internet upon creative activities for culture, people, and social networks.

Application Abstract

The Breadth component concluded that the environmental factors of creativity are people, places, things, science, tasks, languages, cultures, education, history, governmental forms, politics, beliefs, and parenting. The Depth component synthesized current research with the theorists and brought new perspectives on the relationship between environment and creativity. These conclusions from the analysis on the environmental factors related to creativity within modern American society are presented in the form of a seminar. The actual seminar slide package used in the seminar is included in this essay. The purpose of the seminar was to inform an audience about the principle environmental factors involved in creativity. A brief introduction and some background to the problem are given. This is followed by a critique and commentary of the seminar. The commentary collects the evidence for the identified environmental factors with creativity. Finally, the actual slide package used in the seminar is included.

Learning Agreement Walden Approval

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Learning Agreement
Core Knowledge Area Module Number 1:
Principles of Societal Development

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Walden University
June 12, 2005

Overview of the KAM

My interests lie in the application of intelligence, specifically creativity. So the funnel, theme, and thread that will tie this KAM and all of my KAMs is creativity. Eventually, my work on creativity will be interwoven into a professional setting and further academic work. Thus, this paper will analyze how creativity was applied by each of the principle theorists to develop their theories. This KAM paper will examine the theories for insight into some questions about creativity at the societal level within modern American society. The paper will survey the way creativity manifests itself at the societal level. Is creativity only fostered by individual action? How do culture, social structure, and environment play a role in fostering creativity? In other words, what fosters creativity? This is the creative environment component of creativity. This Knowledge Area Module (KAM) broadly concerns societal and cultural development. Specifically, this paper will explore this question at the societal and cultural level as it relates to modern American society.

First, the KAM will critically analyze the theories proposed by Thomas Samuel Kuhn, George Herbert Mead, and Charles Wright Mills, principle theorists in the area. Theories of societal and cultural development include issues such as crime, demographics, social behavior, deviance, organizations, government, gender, law, class, and politics. This specific area that this paper will focus on is creativity in modern American culture. Of the four main aspects of creativity (the creative person, the creative product, the creative process, the creative environment), this paper will focus on the environmental aspect of creativity.

From the dozens of seminal sociologists reviewed, Charles W. Mills, Thomas S. Kuhn, and George H. Mead were selected for this KAM. Thomas S. Kuhn, who introduced the concept of paradigm shifts, was seminal in the sociology of knowledge. He changed the way we think about thinking. Thus Kuhn is quite relevant to this selected focus for the paper. Charles W. Mills created the idea of social imagination. His theory on social imagination sculpts the mental landscape of our knowledge of social structures that are relevant to understanding the environmental aspects of creativity in American society. Mills urged intellectuals to engage in an active, scholarly-practitioner role in society. George Herbert Mead was influential in social psychology. His theories on the development of mind and self through social processes will be important in this KAM.

. Next, the Depth component of this paper will analyze the current research in the chosen area of the role that environment plays to foster or hinder creativity as it relates to modern American culture and society. The Depth component will also examine how the current theories relate to the seminal theorists, Thomas S. Kuhn and Charles W. Mills, identified in the Breadth section.

Finally, the Application section will develop a practical application, in the form of a professional seminar, transforming theory into practice. The application component will be composed of a scholarly seminar created in way that would make it appropriate for delivery in an academic or professional environment. The contents of the seminar will relate the seminal theories of the principle investigators, Thomas S. Kuhn, George H. Mead, and Charles W. Mills and the contemporary researchers in the area of societal and cultural development as it relates to the environmental aspect of creativity within modern American society.

SBSF 8110: Theories of Societal and Cultural Development

Breadth

Breadth Objectives

1. Analyze the principle theories of the seminal theorists, Charles Wright Mills, Thomas Samuel Kuhn, and George Herbert Mead.
2. Relate the development of the theories put forth by the seminal theorists to the environmental aspect of creativity in contemporary American Society.
3. Compare and contrast the central theories and what creative methods were used in relation to the environmental aspect of creativity in modern American Society.

Breadth References

Kuhn, T.S. (1957). *The Copernican revolution: Planetary astronomy in the development of western thought*. Cambridge, MA: Harvard University Press.

Kuhn, T.S. (1962). *The structure of scientific revolutions*. Chicago: University of Chicago Press.

Mead, G.H. (1934). *Mind, self and society: From the standpoint of a social behaviorist*. Chicago: University Chicago Press

Mead, G.H. (1932). *The philosophy of the present*. New York: Prometheus Books.

Mills, C.W. (1959). *The sociological imagination*. London: Oxford University Press.

Mills, C.W. (1951). *White collar: the American middle classes*. London: Oxford University Press.

Breadth Demonstration

In a scholarly paper of approximately 30 pages in length, I will critically assess the societal and cultural development theories of the seminal theorists Charles Wright Mills, Thomas Samuel Kuhn, and George Herbert Mead. Charles Wright Mills created the idea of social imagination; Thomas Kuhn was seminal in the sociology of knowledge;

George Herbert Mead was influential in social psychology. I will critically analyze, describe, and reveal the relationship of the theories that these principle theorists have developed to the environmental aspect of creativity in modern American society. Finally, the paper will present a summary with the conclusion to the Breadth component.

AMDS 8121: Current Research in Societal and Cultural Development

Depth

Depth Objectives

1. Analyze the current research in the chosen area of the effects of the cultural environment on creativity as it applies to contemporary American society produced within the last five years from scholarly, peer-reviewed journals.
2. Evaluate how the current research in the subject of the effects of the cultural environment on creativity as it applies to modern American society has been influenced by the principle theorists, Thomas S. Kuhn and Charles W. Mills identified in the Breadth component.
3. Compare and contrast the current research in the focus area of the environmental effects of creativity as it applies to modern American society.

Depth References

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Depth Demonstration

In a scholarly work consisting of approximately 30 pages, this component will critically analyze, compare, and contrast the contemporary research in the area of the environmental and cultural environmental effects on creativity within modern American society. The Depth component will also contain an annotated bibliography of at least 15 annotations of scholarly, peer-reviewed, articles that were produced within the last five years.

AMDS 8131: Professional Practice and Societal and Cultural Development

Application

Application Objectives

1. Synthesize the theories of the seminal theorists, Thomas S. Kuhn, George H. Mead, Charles W. Mills, and the contemporary research in the chosen area of the environmental factors aspect of creativity within contemporary American society.
2. Design, and produce a seminar that utilizes the theories of the area associated with creativity. The specific aspect of creativity covered will be the environmental factors that influence creativity.
3. Assess the seminar and devise commentary that would facilitate its delivery in a professional setting of scholarly-practice.

Application References

No further references will be used in addition to those already listed in the Breadth and Depth components.

Application Demonstration

This component will be composed of two parts, a seminar and a commentary on the seminar. The first part of this component will be composed of seminar material 10–15 pages in length in the form of a Powerpoint slide-pack appropriate for delivery as a lecture. The second part of this component will be a 10–15 page paper that assesses the seminar material and provides commentary that could be used to assist in actual delivery.

Core Knowledge Area Module Number 1 Breadth Essay:

Theories on the environmental factors of creativity in modern American society

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August 11, 2007

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BREADTH ESSAY

Theories on the Environmental Factors of Creativity in Modern American Society—Introduction

This KAM explores the effect the environment has on individual creativity. Specifically, it explores the environmental factors that affect creative thinking in modern American society. The exploration of creativity in modern American society will give insight into how creativity is fostered. It explores how culture, geography, education, politics, media, and social structures play a role in nurturing creativity. Mills (1959) described the social sciences as a confluence of biography, history, and social structures. The Breadth section of this KAM considers some of the important ways that environmental factors affect creativity in modern American society. This theme will weave together the components of this KAM as it critically examines seminal theorists, evaluates current research, and crafts an application.

Think about the birth of a creative idea for a moment. Consider the most basic and common-sense conceptualization of creativity. First, there is a person involved. This person has an idea. He or she uses some process to have that idea. Perhaps, the idea came with some sudden flash of insight or through methodical contemplation. Finally, the idea dealt with something in their environment, or elements in the environment had some influence on the creative person. Of the four main aspects of creativity (the creative person, the creative product, the creative process, and the creative environment), this essay focuses on the creative environment. The analysis seeks to examine and identify the environmental factors in American society that nurture creativity.

Many people associate creativity with a piece of art. The artist as a creative person is one who has dedicated his or her life to continually producing works of art to please the public. However, creativity, and the creative product are more than just artistic expression on a canvas. Creativity can be applied to everyday tasks, such as cooking, to more grandiose tasks, such as

creating a good statistical model for operations research. The output might be as simple as a new ingredient in an old recipe or an innovative, mathematical stochastic model. Creativity can be applied to problems large and small, tasks complex and simple, and goals near and far.

Mills (1959) described the richness of cultural diversity among societies; an international comparison of creative environmental factors would be fascinating. However, in order to narrow the scope of this analysis, focus is placed on modern American society.

Environmental Factors in Creativity

The Breadth section of this KAM analyzes what environmental factors in modern American society influence creativity. The way creativity manifests itself at the societal level and how it is fostered by society is explored. This is the creative environment component of creativity. Furthermore, the analysis explores creativity at the societal and cultural level as it relates to modern American society.

Furthermore, this analysis also considers the works of Thomas S. Kuhn, who introduced the concept of paradigm shifts, Charles W. Mills (1959), who invented the concept of social imagination, and George Herbert Mead who was a titan in social psychology. Charles Mill's (1959) theory on social imagination sculpted the mental statue gardens that comprise people's knowledge of social structures. Mills (1959) sounded the bugle horn, to call intellectuals to actively partake in society as scholarly-practitioners. George H. Mead (1934) crafted theories on the development of the mind and self.

The creative idea is produced by a person. That person goes through some process to get that idea. Finally the idea relates to, and was influenced by some part of their environment. These are the four basic components of creativity: the creative person, the creative product, the creative process, and the creative environment. This analysis focuses on the creative environment

aspect as it relates to modern American society.

The Breadth section of this KAM tackles the problem by first listing environmental factors. Then, the theories of Thomas Kuhn, George Mead, and Charles Mills in relationship to these environmental creativity factors are considered. Finally, this essay proceeds to discuss how each of these factors affects thinking and spurs creativity in modern American society.

Consider the most basic elements in a person's environment. A person exists in the context of an environment. Look around. The most obvious things are that he or she is part of a society, located in some geographical place, surrounded by material things, and has some relationship with people. Furthermore, when someone produces a creative idea, they are engaged in some task. People are creative towards some ends. The factors of society, people, places, things, and tasks are self evident.

Society, people, places, things, and work are the most obvious of environmental factors that influence a person's creativity. As the reader shall come to see, both in the Breadth component and the Depth component, less obvious factors have been identified by researchers and theorists. These other factors also play a role in contributing to a person's environment and affects their creativity. These factors are education (Mills, 1959), parenting (Mead, 1934; Mill, 1951), form of government (Kuhn, 1957; Mead, 1934), politics and civics (Kuhn, 1957; Mills, 1951), history (Kuhn, 1962; Mead, 1934), culture (Mills, 1959), language (Mills, 1959; Mead, 1934), beliefs and religion (Kuhn, 1962; Mead, 1934), and science (Mills, 1959; Kuhn, 1962).

Each of these environmental factors can impact creativity, how a person thinks, and how they approach problems. Furthermore, many of these factors also have technical names as well. Researchers peering into the windows of the mind will spot different items that are important in the mental machinery of creativity.

In the following sections, the Breadth section of this KAM analyzes each of the environmental factors of creativity within modern American Society using the works of T. Kuhn, G. Mead, and C. Mills.

Science

All of the theorists discuss the impact that science has had; however, the theories of Thomas Samuel Kuhn have come to sculpt the way people think about progress in science. His theories about how knowledge develops and how new scientific theories overturn old ones (Kuhn, 1962) have come to be the fundamental way that people think about how science evolves. Kuhn tugged the word *paradigm* out of the muddy backwaters of scientific terminology into the forefront of modern, civilized, discourse. Today, people use the words *paradigm shift* because of Kuhn. His works shape the way people think about knowledge today. His insights into producing new scientific theories will highlight environmental factors in creativity in important ways. Today, Kuhn is widely recognized as one of the fathers of the sociology of knowledge. By way of contrast, Mills (1959) primarily focused on empiricism, the gathering of data.

Kuhn brilliantly captured the heart of scientific endeavors when he wrote that they are, “a product of the human imagination. It is a conceptual scheme, a theory, deriving from observations but simultaneously transcending them.” (Kuhn, 1957, p. 36). The creation of new scientific theories fundamentally springs forth from the minds of humans. Compare this to Mills (1959) who wrote, “A conception is an idea with empirical content.” (Mills, 1959, p. 124). Along a similar vein, Mead (1932) noted that, “the goal of the physical scientist is reduction and that of the biologist is production.” (Mead, 1932, p. 35). Each theorist discussed how people observe the things that surround them in nature, from individual blades of grass at their feet to the pinpricks of light in the heavens. Using their imagination, intuition, and intellect, scientists produce a

hypothesis about how these things in nature came into being and how they interact.

The works of Thomas Kuhn prove how pervasive scientific theories are in the modern American mental landscape. This highlights the significance of the environmental factors of scientific knowledge and technology in creative thinking. When one produces a work of creativity, their beliefs about how the world works, and how to proceed with an idea are underscored by their understanding of the world. This, in turn, is affected by science and technology. What a person knows, or thinks they know, propels them into the unknown, serves as their launch pad, and impels them forward.

This view is echoed by a statement written by Mills: “research of any kind is advanced by ideas; it is only disciplined by fact.” (Mills, 1959, p.71). By this he meant that ideas are the basis of investigation, but investigation is tempered by evidence. Mills (1959) drove this point home by stating, that “the blindness of empirical data without theory and the emptiness of theory without data” (Mills, 1959, p. 66) is a pitfall to avoid during investigation. Mills (1959) claimed that empirical evidence and investigations should be guided by concepts, theories, and ideas. Mills (1959) further explained that a conception is an idea backed up by empirical evidence. To be objective, Mills (1959) argued, one has to be aware of the things around them, reflect on the problem at hand, and pay attention to the process of discovery. So, empirical facts play an important role in the birth of a new idea.

Nearly everything people do in modern American society is influenced by scientific understanding. People brush their teeth to prevent cavities, flush toilets to separate waste from living quarters, wash with soap to eliminate bacteriological agents, eat vitamins to prevent certain diseases, chase off insects to stave off diseases, use sanitizers to clear pathogens, clean wounds to prevent infections, and exercise regularly to maintain cardiovascular fitness. Kuhn

(1962) noted that scientific understanding of the world affects creativity because it influences how people interact with the world, and how they process new information about it. As the reader has seen, Mills (1959), and to a lesser degree, Mead (1932), reinforced this notion.

Things, Tools, Instruments, Technology

Americans are surrounded by material things. Many of them have ready access to the marvels of modern technology, such as a wrist watch, computer, cellular telephone, radio, digital cameras, digital versatile disc (DVD) players, access to the internet, television, global position satellites, and an automobile. Often, Americans take most of these modern conveniences for granted. The concept of property is a synthetic invention, as Mead (1934) pointed out. Mead (1934) stated that property rights facilitate and foster society. Even though the simplest of property, pen and paper, took a network of manufacturers and distributors to reach someone, their productivity improved as soon as they had these tools. A single American has at their fingertips, ready access to a vast wealth of information through the internet. Mills (1951) made the assertion that knowledge has become commoditized. The material things that someone has access to influences their thinking and foster creativity because it provides new opportunities for them. Mills (1951) discussed at length the impact that property has upon society and the individual.

Consider how things affect creativity. Kuhn (1957) demonstrated the importance of technology and the tools that are used in human endeavors. By contrast, Mead (1932) more abstractly considered how “the physical thing” (Mead, 1932, p. 119) is perceived by the mind. Mead (1934) described how a useless object is transformed into a purposeful tool by way of skill. In the hands of an astronomer, a telescope becomes something of value, Mead (1934) stated. Mead (1934) was the only theorist to have directly pointed out that people become more skilled

with complex objects over time, as in the case of a typewriter with a typist, or a violin in the hands of a musician. In this way, Mead (1934) wrote, a person builds up “compound responses” (Mead, 1934, p. 93), conditioned reflexes, and new skills. Mills (1951) supported this conjecture when he wrote about the six features of craftsmanship, which notably includes the craftsman learning from his work. Fundamentally, a person learning something new “unites stimuli which have not been united in the past” (Mead, 1934, p. 93). This is a basic aspect of a person being introduced to a new idea, new tool, or learning new skill. Exposure to new things invites creativity.

All manufactured things began with an idea. Mead (1934) described how the creation and use of an object for some purpose creates economic value. Mills (1951) provided a good example when he discussed “the biggest bazaar in the world” (Mills, 1951, p. 166) referring to New York City’s Manhattan retail industry. Mills (1951) detailed how the engine of capitalism works to transform an idea into manufactured material goods that is distributed to consumers and how that consequentially affects consumers.

Natural things present in the environment, also affect a person’s thinking. Mead (1934) explained that the “experiential world” (Mead, 1934, p.112) develops largely through the interaction of objects and things. He wrote, “Mentality resides in the ability of the organism to indicate that in the environment which answers to his responses.” (Mead, 1934, p. 132). By this he means that man uses intelligence to shape, control, alter, and command his environment. “Environmental stimuli” (Mead, 1934, p. 170) is the primary means by which humans engage their surroundings.

One of the most important aspects of a thing, Mead (1934) pointed out, is that the mind constructs concepts around them. What he means by this is that humans have developed an

application, a label, a nomenclature, and a taxonomy for the things that surround us. People produce an artificial, conceptual structure for things that they then overlay on top of their perceptual reality. For example, people use terms such as mammals and reptiles to represent classes of things that share some common properties. More abstractly, road signs, chess pieces, and printed documents have conceptual uses whose actual physical manifestation would not be obvious to another type of animal. Mead (1934) also noted that a person's attitudes towards objects can change over time, as in the case of clothing fashion. Continuing, Mead (1934) inferred how ideas can transform the conceptualization of something. For example, the powering of an automotive internal combustion engine can change the conceptualization of a non-fuel liquid into something people would now classify as liquid fuel. So, the result of an idea can change the conceptualization of an object; and concepts are used to categorize objects.

An important aspect of things, as an environmental factor in creativity, is the application of an idea. Mead (1934) pointed out that it is reasonable for a new idea to explore its greatest breadth of applications and then to narrow down to specific uses or hurdle individual difficulties. Kuhn (1957) also described how ideas are applied, and as a result of that application, sink or swim. The environment offers a demand; it creates an open market waiting to be fulfilled by a new idea. Usually, the application concerns natural things in the environment. For example, as Kuhn (1957) pointed out, the idea of a telescope fosters the application of astronomical study. Thus, the creative application of an object is important.

Material things in the form of tools are the bread and butter of a creative person. This was reinforced by Mead (1934) when he pointed out that ideas can be "responsible for the appearance of whole sets of objects that did not exist before" (Mead, 1934, p. 129). This is a critical notion that deserves more attention. Mead (1934) showed that completely new ways of interacting with

the world, new uses for things, and applications for previously useless things can occur when a new idea is introduced. For example, the internal combustion engine created a use for the previously useless black muck that people now call crude oil. The idea of the automobile gave birth to whole new industries and a host of satellite products to support that new industry.

With respect to *things*, Mills (1951) focused on one quality that America is well known for: capitalism as the engine of goods production. He discussed many aspects of capitalism and described their relationship to things. Mills (1951) wrote about the production of goods by workers, the distribution, merchandizing, marketing, sales, commerce, trade, and management of things. He discussed the primary mechanisms of this “cathedral of commodities” (Mills 1951, p. 168) that has come to characterize modern American society. In contrast to both Kuhn and Mead, Mills took an entirely different approach. Consumerism of products, Mills (1951) reflected, affects not just a person’s thinking; it shapes their personality, their lifestyle, what people desire, and what they think about. He noted that “personality often replaces skill as a requirement” (Mills, 1951, p. 186) of employment.

On a different note, Mead (1934) considered it worthwhile to note that the hand with an opposable thumb gives mankind and primates a unique advantage over most other animals. The human hand allows people to grasp, control, affect, shape, and alter their environment. Ultimately, skyscrapers are built from tools that were crafted from tools made from tools. In that chain of tools, was a tool that was made by hand. By contrast, Kuhn (1962) proffered many examples where tools allowed the scientist to formulate and test his theory. Tools facilitate investigation and catapult the mind in new directions.

Kuhn (1957) elucidated the important role that tools and instruments played in the history of astronomical ideas. The need for accurate dating tools, like calendars for agricultural purposes,

Kuhn (1957) noted, spurred the ancient Egyptians to keep meticulous astronomical data. Tools can get men to create new problems by asking questions they would not have otherwise asked. Copernicus (1497/1999) nurse-fed off of one of Man's most important tools – record keeping, Kuhn noted (1957). Kuhn (1957) stated that Copernicus (1497/1999) used astronomical tables which were taken with astronomical instruments. The tools of creativity provide data. Tools allow thinkers to see things that would otherwise be invisible to them. Kuhn (1957) illustrated how Galileo's telescope-driven discoveries produced evidence for Copernicus' ideas. Star maps, observatories, sextants, and calculus were other astronomical tools that played a vital role in the development of new ideas. Tools shed new light on old problems. Modern astronomy uses radio telescopes, orbiting telescopes, gamma ray satellites, interferometry, computers, and palatial optical telescopes to bolster the astronomical arsenal of discovery. Mental tools, such as algebra, calculus, and geometry allow us to theorize. Tools can inspire us to think in new ways. Tools can get people to look at a situation in a new way because they can look at things in ways that would have been impossible with just their naked eye. Finally, the stars themselves, while not tools, are material things that surround us. They form the stellar backdrop by which the scientists and astronomers play out their research, and the world is their stage. As Kuhn (1962) pointed out, Leonhard Euler, Joseph L. Lagrange, Pierre-Simon de Laplace, and Carl F. Gauss devised experiments and observed the heavens to try to verify or improve the theories of Isaac Newton (1687/1999).

Mead (1932) described how physical things are perceived in terms of their physical properties. Mead (1932) discussed the perception of physical characteristics such as weight, color, sound, taste, odor, dimension, shape, and inertia. Mead (1932) built up the case that the physical perception of objects certainly affects the way people interact with the world and

thought processes.

Task, Work, Accomplishments, Job, Vocation

Americans spend their waking hours continually engaged in some activity or other.

Creativity can be applied to any activity, any task, and any situation. Whatever someone is trying to accomplish, from something as simple as withdrawing cash from a bank account to working on a major project for work, becomes part of their mental landscape. The things people are trying to get done dictate where they will go, what objects they will surround themselves with, and whom they will meet.

One of the most important creativity environmental factors that pervade the works of Kuhn (1957, 1962) is task. The tasks people engage in are an environmental factor. The revolutionary scientists and mathematicians that dot the landscape of scientific history were often driven by some purpose to explain, disprove, prove, or solve a problem. In other words, their particular task, whether contrived or assigned, was not only an environmental factor that affected creativity but produced its own environment. This last point is not obvious until one absorbs Kuhn's works. Kuhn (1957, 1962) pointed out that A. Einstein, L. Euler, J. L. Lagrange, P. S. de Laplace, Aristotle, Ptolemy, C. F. Gauss, N. Copernicus, Galileo, I. Newton, J. C. Maxwell, A. de Lavoisier, J. Kepler, Heinrich Hertz, and Joseph Priestly, all famous thinkers who created their own environment because they engaged their chosen tasks. These vanguards of a new mental order generated their own environmental factors. They caused a new swirl of scientific members to orbit them. These thinkers caused a myriad of scientific devices, material things, and tools to be pointed, compass-like, in the northerly direction of their undertakings. Eventually, political forces, religious leaders, common beliefs, educational systems, and technological products all came under the sway of their work. From their building blocks, empires of the mind

were erected.

With this in mind, the main precept of this KAM is considered. What environmental factors influence creativity in modern American society? How do these factors play a role in influencing creativity? What insights are offered? And in this section in particular, how does work affect an individual? Each theorist presents a slightly different aspect on this issue. Kuhn (1957) demonstrated how the undertakings of an individual serve to shape not just his thought, but his very surroundings. Mills (1959), on the other hand, focused more on the societal aspect of work. Accordingly, Mills (1951) named four aspects of work: power, status, skill, and income. Mills (1959) described how, in modern American society, the citizens have developed into specialists resulting from the division of labor in a complex, contemporary society, which, in turn, affects the way they think about problems because their specialization steers their knowledge. Similarly, Mead (1934) also considered how work affects the individual. In particular, Mead (1934) analyzed how “functional differentiation” (Mead, 1934, p. 325), social situations, cooperation, organization, shared experiences, “common ends” (Mead, 1934, p. 323) and motives as it relates to work serve to develop a person’s mind and sense of self. All of the theorists reinforce the position that work occupies the mind, and provides a nesting ground for new ideas to hatch.

Language

Charles W. Mills (1951; 1959) strove to make sense of the torrent of changes, and the defining attributes that characterize modern American society. One of the things that Mills considered is language. Language is a powerful factor that shapes a person’s thinking. The words and terminology that people choose to use characterize a society and a time. People toss around terms that embody complex concepts such as post-modernism, microchip, quantum tunneling,

boson, auto-correlation, recombinant DNA, and communism. Mills (1959) pointed out that terms people use affect their imagination. Mills (1959) drew out the importance of the role that semantics and syntax plays in their thinking. Syntax is the grammatical structure of language; and semantics is the meaning in language. Mills (1959) noted that semantics and syntax affect the way people define problems, inquire about solutions, organize data, resolve disagreements, and think about concepts. Mills (1959) called attention to the terms capitalism, middle class, bureaucracy, power elite and totalitarian democracy as complex terms that shape thinking. Mills (1959) echoed the fact that how people come to define these complex terms comes to affect its conceptualization. So, language is an important environmental factor that affects creativity in modern American society because it directly impacts how people formulate problems, conceptualize ideas, and structure information.

In contrast to Mills, Mead considered language from a different, more individual viewpoint. Mead (1934) delved deeply into the subject of language and its relationship with mental activity and mental development. Mead (1934) pointed out that “conscious (significant) gestures, unconscious (non-significant) gestures” (Mead, 1934, p. 81), symbols, signs, body language, posture, stance, eye contact, facial expressions all convey information and ideas; they are a window into the mind. Mead (1934) defined a symbol to be something where the response to it is already predetermined. Language has a “parallelism” (Mead, 1934, p. 18) with the human mind, emotions, consciousness and “what takes place in the central nervous system” (Mead, 1934, p. 19).

Insightfully, Mead (1934) defined an idea as an expression of meaning. He stated that people use language to express thoughts, collaborate to generate new concepts, and convey ideas. Mead (1934) illustrated the creative aspect of language by considering a poet, and actor; who use

language in an aesthetic sense, to inspire or elicit emotion.

Language is the primary mechanism by which cooperative human activities are coordinated by, Mead (1934) noted. Furthermore, Mead (1934) pointed out that language becomes significant when it causes other things in a person's environment to respond. What sets man apart from animal is the "reflective individual" (Mead, 1934, p. 73). By that he meant that humans are capable of introspection, and through that introspection man can forge agreements, negotiate, take responsibility, make promises, be accountable, and generate "meaningful conduct" (Mead, 1934, p.73). Mead (1934) developed a case that language affects how people interact with others. Language has the facility to command and coordinate and the agility to inspire and influence.

Mead (1934) noted how signs, symbols and gestures of communication transcend spoken language, as in the case of an exit sign. Mead (1934) illustrated that a person who doesn't speak the native language of the land, as in a traveler, can still obtain meaning from the sign and takes appropriate action. Mills missed many of these finer points of language and the role it plays in a person's thinking. Mead (1934) indicated that this orderly set of conscious responses is the essential part of language. That is, when communication has occurred, meaning is conveyed, and often action results as a consequence.

An important aspect of language that only Mead (1934) pointed out is dialect. He wrote, "If you go into a locality where there is a peculiar dialect and remain there for a length of time you find yourself speaking the same dialect" (Mead, 1934, p.59). The adoption of a dialect in a person's spoken speech patterns wanders in unbidden, like a stray kitten. Mead (1934) indicated that this phenomenon occurs even if the individual mentally wills against the production of a dialect in their speech. This is a shining example of how language in a person's environment

powerfully affects their thinking.

It is insightful to compare Mills (1959) and Mead's (1932) view of language to Kuhn's (1962) view. For Mills, language shapes a person's thinking and generates ideas. Kuhn, on the other hand, emphasized how language, in particular scientific language, is used as a vehicle to socialize ideas. Mead (1932) looked at linguistic communication from a psychological basis, and the development of mental apparatus. Mead (1932) described mechanisms of how meaning is conveyed and developed in the mind. Mills (1959) dissected the use of language as opposed to Kuhn (1962) who highlighted historical examples where language is used as a tool. For all the theorists, Mead, Mills, and Kuhn, language serves to shape thinking, to help visualize a situation, and understand complex ideas. However, Mills (1959) pointed out how the use and misuse of language creates social turbulence in theoretical discourse. Mills (1959, p. 34) astutely summarized that "theory is drunk on syntax, blind to semantics." Mills (1959) also pointed out that theory requires a precise use of language, especially when describing universals, making generalities, and describing associations. So, language is the primary vehicle by which someone interacts with other people. As the theorists pointed out, the language in the environment sculpts a person's thinking, and can affect how they produce ideas. So many aspects of things, such as application, observation, production, and utilization influence creativity.

People, Peers, Human Networks

Everyone has contact with people. Most people have family and relatives that they share their lives with. They also have a cadre of people they are proud to call their friends. They collaborate and share ideas with co-workers. Then there are hundreds of people whom a person brushes against that make modern living possible, such as the grocer, banker, mailman, barber, pilot, bus driver, fireman, sanitation worker, salesperson, mechanic, doctor, teacher, chef,

businessman, retailer, politician, and policeman. Most of these people probably blend into the backdrop of a busy life. People share ideas with other people. They bounce ideas off of people. People create problems for others to solve. People reward people for solving problems. People generate ideas that others build upon. People collaborate to show the validity of ideas.

To consider the environmental factor of people, this KAM considers a specific example, and how in that example, the environmental factor of people networks played a role in creativity. Kuhn (1957) considered how, in planetary astronomy, the views of Copernicus (1497/1999) displaced the Aristotelian and Ptolemaic view. How did the environmental factors play a role during this displacement? Why were these factors important? What environmental factors in creativity were more important than others in the creative process of making a new, scientifically based, model of planetary motion.

Kuhn (1957) noted that the astronomical works of Aristotle and Ptolemy, which touted an earth-centered universe, held sway over the common person's conception of the universe for more than a millennia, until after the death of Nicolaus Copernicus. Copernicus (1497/1999) championed a sun-centered, or heliocentric, paradigm first described in his book *De revolutionibus orbium coelestium*. Kuhn (1957) carefully charted the course of the new Copernican theory, and how it made landfall onto the shores of modern minds. Kuhn (1957) described how Anaximander of Miletus' fiery-rim wheel theory of celestial bodies, led ancient Greek thinkers to come up with the two sphere universe. In this two-sphere universe, the Earth is represented by one central, stationary sphere, and all the other stars rotated on the surface of a second, outer, sphere. This, Kuhn (1957) described, led to Plato and Eudoxus' theory of homocentric spheres to explain planetary motion, which in turn, led to Aristotle's nested glass spheres of planetary motion, giving rise to Ptolemy's epicycles and eccentrics. Finally, to

reconcile paradoxes, Copernicus (1497/1999) invented a new theory. This string of developments highlights the role that friends, associates, peers, co-workers, teachers, and other significant people in a person's life play in stimulating creativity. Their discoveries, their theories, their works, their ideas, their observations, their contemplation, their computations, and their problems often inspire others to carry on their work, which leads to new ideas.

In contrast, Mead (1934) lent some insight into the relationship between idea generation and social interaction. Mead (1934) described how the process of idea generation can be a social process. For example, a child, Mead (1934) noted, comes to learn of the function of a chair because of his interaction with other people in his or her environment. Of course, in modern American society, people have a wide array of specialized objects whose function may not be readily obvious without someone to explain its operation.

Mills (1959) largely echoed Mead's viewpoint when he described how human relationships affect their values, viewpoints, and actions. Mills (1959) explained how the relationships, social structures, organizations, and bureaucracies that people are involved with affect their values, thinking, judgment, and activities that they choose to engage in.

Modern industry, education, science, and politics form a human web of interconnected peers. The work people do is peer-reviewed, and scrutinized by colleagues. Rarely does a lonely genius sitting in an ivory tower churn out a stream of new ideas. In modern American society, people tend to work in groups. Modern Americans share, bolster, propel, support, urge, persuade, and reinforce associates in the production of new ideas and innovations.

Culture and Institutions of Society

This KAM is concerned with modern American society. A society is a system that allows large numbers of people to live and function together. Mead (1934) noted that the best societies

provide the social structure necessary for existence and simultaneously the latitude for individuals to express themselves. Modern American society provides for its citizenry while delivering freedom. Modern American society has unique traits that influence creativity. Mills (1959) drew attention to some of these uniquely defining aspects of modern American society. Mills (1959) noted that Americans have a laissez faire economy, religious freedom, a free population, cultural diversity, marital choice, individualistic spirit, an integrated political democracy, and the character of a liberal society. Thus, there are many sub-factors that comprise society as a creativity environmental factor. In addition to those things already listed, Americans are exposed to, or contribute to American culture, the legal system, economics, and politics.

Mead (1934) astutely wrote that the people of a society engage in a conversation with that society, often altering the community as a result. People feed back into society; they have a “formative effect on upon the society to which they belong” (Mead, 1934, p. 217). Continuing, Mead (1934) stated that intelligent changes in society are brought about by presenting personal views developed through thinking. Americans, by and large, share a working common language (English). Mead (1934) pointed out that, being part of a group, society, or organization, the individual takes on the social attitudes, the character, values, and internalizes the social organizations of that society, group, or organization.

Culture plays an important role in creative thinking. There are, of course, many different aspects of culture, such as rituals, tradition, rites of passage, ceremonies, holidays, celebrations, social structures, taboos, beliefs, values, and sacred items. Mills (1959) noted that “legitimations, moral symbols, sacred emblems, legal formulae, and the symbol sphere” (Mills, 1959, p. 36) are part and parcel of social institutions. Mills (1959) went on to explain that the institutions in power throw up symbols to maintain that power, the symbols provide a social fabric, webbing

that the individuals in a society stick to. Mills (1959) noted how institutions come to dominate and impress their values and symbols upon their adherents. What people value, and what they think about affects their thinking. The point Mills (1959) was trying to make is that the trappings of power produce symbols of power. These symbols affect how people interact with each other and think about the problems of their day.

From a different angle of attack, Kuhn (1962) considered in great detail how the institutions of cultures affect ideas. Not to be left behind, Mills (1959) also mentioned, in passing, how institutions holds some sway over the production of ideas. In a lonely obscure passage, Mead (1934) also echoed this sentiment by writing that ideas are a response to a social demand placed on the individual. Kuhn (1957) pointed out how legal, religious, political, and educational structures in society as being environmental factors that play a role in the birth of a new idea. These structures can serve as a mid-wife or they can try to abort the new idea. They can elevate the social status of the inventor, such as Newton and Einstein, to great fame. But more often than not, legal, religious, political, and educational structures serve as a breakwater, allowing only the best ideas to clamor over them. Kuhn (1962) mentioned that there will often be two rival paradigms competing for acceptance. Mead (1934) also noted that the prevalent views of society form a mental baseline that people accept as the conventional view; and conceptions that differ from this established viewpoint are seen as unorthodox, creative, or artistic. They influence creativity by forcing the ideas to adapt, to bring greater value than present solutions, to explain things that are presently inexplicable, or to invent a clever way to seep into society. With some reflection, this system will seem reasonable. Why? If every charlatan idea were allowed to have its way, people would not know what to believe. Should one drink a glass of wine a day or stay away from spirits? Should a person gulp down a daily dose of aspirin to thin their blood, or shun

taking medicine for its own sake? Does the anti-oxidant effect of green tea outweigh the negative effects of its caffeine? Bad science leads to confusion. That said, Mead (1934) described the opposing viewpoint that primitive human societies hamper original, unique and creative thinking compared to civilized societies. Civilized societies, Mead (1934) noted, in a quest for greater understanding, will usually foster original, unique, and creative thinking.

Compare Kant's view to the viewpoint of Mills (1959) on how institutions affect idea production. Mills (1959) looked at the problem from the standpoint of a researcher. An institutionalized system of producing ideas is research. Mills (1959) spotted how an institution, such as a research lab or a university, can affect the production of ideas. Most notably, Mills (1959) pointed out, the administration of those institutions may foster particular fields of study. Furthermore, Mills (1959) pointed out that the funding that is available will influence what research projects are undertaken. Research, Mills (1959) stated, is often under the command of a bureaucratic agent whether it is the military, corporate, governmental, or some other major institutions. New institutions "of enormous power have arisen" (Mills, 1959, p. 81) and they coexist with older institutions. Together, Mills (1959) noted, they influence social power, history, science, and bureaucratic operations.

Kuhn (1957, 1962) described how new ideas are shaped, sculpted, molded, smothered, and oppressed by existing educational, political, religious, and scientific institutions. The existing theories of the day have inertia and a vested interest by the current crop of people who have been involved in its conception, gestation, nurturing, and development. Specifically, Kuhn (1962) noted that the theories of Aristotle, Ptolemy, James C. Maxwell, Isaac Newton, Antoine-Laurent de Lavoisier, Nicolaus Copernicus (1497/1999), and Albert Einstein (1915/1997) were so revolutionary that it required the scientific community to completely toss out their time-

honored notions. Kuhn (1962) explained that scientists had to do this because the new notions were incompatible with the old ones. Existing institutions affect the creative idea because often these institutions try to squelch new ideas, preferring the status quo rather than the mental turbulence of innovation. So, in order for the new idea to gain a foothold in the establishment, it must present something valuable, something that could not be achieved by the existing solutions. After the new theory revolutionizes people's world view, Kuhn (1962) noted, the same institutions that squelched new ideas become champions of it. Kuhn (1962) noted that Newtonian (1687/1999) mechanics to explain celestial movement, Lavoisier's oxygen theory of combustion, Copernicus' (1497/1999) heliocentric model of the universe, Einstein's (1915/1997) general theory of relativity, Aristotle's conceptualized motion, and Maxwell's laws of electromagnetic fields were all revolutionary when they were introduced. Thus, Kuhn highlighted how many environmental factors play a role in the shaping of a new idea. Individual historical developments aggregate, resulting in the creation of an establishment.

Accomplishments from previous generations of thinkers provide illumination when paving new ground. Legal, educational, religious, political institutions, and belief structures act as a jury. Mead (1934) echoed these sentiments, as he notes that an individual will engage in the social enterprises, activities, and institutions of the society that the individual belongs to. These institutions serve as a filter, allowing only solid, defensible, and logical theories and ideas to pass through into common society. More powerfully, Mead (1934) noted that individuals will sacrifice the things that are most important to them, including their lives, for an idea, ideology, value, or society that they belong or ascribe to. Kuhn (1962) used the example of building a puzzle. In order to complete the puzzle, the puzzle builder must follow certain rules. He or she must find interlocking pieces, leave no open holes, use the pieces present without modifying

them, and build a particular picture from the pieces. Likewise, Kuhn (1962) noted, the inventor of a new idea must also fit his idea into the established body of existing knowledge, and existing institutions. These existing institutions create conditions that must be satisfied, rules that must be followed, and admissions tests that must be passed.

Education

The American school system forms an important part of American society. Mills (1951) noted that modern Americans consider universal education as a fundamental aspect of democracy. Continuing, Mills (1951) described how American schools play an important role in establishing an educated work force which is necessary in an increasingly competitive world. Mills (1951) noted that American schools provide a liberal and contemporary education for the majority of its citizenry. Mills (1951) buttressed the claim with facts showing how important education has become in American society. Americans have ready access to libraries, universities, and the secondary products of education. What people are taught shapes what they know. That, in turn, influences how they think and creatively think to solve problems. Mills (1951) stated that education fosters “social equality and political freedom” (Mills, 1951, p. 266).

Kuhn (1962) indicated that people learn their mental tools of the trade through “a historically and pedagogically prior unit that displays them with and through their application.” (Kuhn, 1962, 46). He wrote about this in the context of education playing a significant role in shaping a person’s thinking. Education, and in particular scientific education, plays an important role in their understanding of how the world works, which, in turn, plays a significant role in how they produce innovative ideas.

Mills (1959) went further than Kuhn in this respect, when he described how modern textbooks merely find facts to foster conventional notions. New facts are accumulated and then

interwoven into new textbooks which are used to bolster a particular conceptual viewpoint, Mills (1959) noted. Mead (1934), on the other hand, focused on the importance that education plays in integrating an individual into a community. Thus all of the theorists agree that education is an important social environmental factor in creativity within modern American society because it sculpts a person's knowledge.

History

Historical legacy plays an important role in thinking. Modern American society has come to inherit the thought processes of its forefathers. Kuhn (1957) wrote that generations of people will mentally inherit the works of pioneering scientists such as Copernicus (1497/1999) and Einstein (1915/1997). Kuhn continued that people in modern society are their "intellectual heirs" (Kuhn, 1957, p. 4), and that their thought processes have been reshaped by these scientists. Thus, Kuhn (1957) alluded to an important environmental factor: history.

The works of those that have come before shapes the way a person looks at the world. History reaches out from the past and grabs their mental apparatus and holds it tightly. All of a person's intellectual products are influenced by the world view that they currently hold. Often, those views have come to be shaped by a string of historical developments. Mills (1959) astutely posed some questions that upon reflection show how history evinces changing processes, institutions, thoughts, understanding, and social orders. In contrast to Kuhn, Mills (1959) deftly dodged the blind spots of history, emphasizing how historical context can be usefully employed on the highway of progress. Mead (1934), on the other hand, took a more pragmatic approach to history. He patiently explains how historians provide the context to understand the past. The value of the work of historians, and indeed history, Mead (1934) wisely adduced, is that "changes, forces, and interests which nobody at the time was conscious of" (Mead, 1934, p. 256)

can be culled out.

Mead (1934) ferreted out another interesting aspect of the environment, and the relationship that rational humans have to the environment; that relationship is the ability to have some capability to predict the future based on the past. For example, if a person hit their right thumb with a claw hammer they could predict that their thumb would register a shooting pain. Mead (1934) pointed out that these conditioned reflexes to stimuli are important in a person's interaction with the world. So, in contrast to Kuhn, Mead contemplated the influence that an individual's history has on an individual rather than mankind's history. Mead (1934, p. 116) stated "The human's past is constantly present in the facility with which he act." This is an insightful statement alluding to the fact that people draw upon their personal experiences to navigate through the world and produce ideas. Mead (1934) also espied the fact that people tend to date events based on their point of view or personal experiences. Global history is related to individual history, memories, and experiences. Mead (1959) raised a call to arms, by inciting people to continually scrutinize their personal experiences during intellectual work. As the theorists have indirectly pointed out, understanding of history, affects the way people think about the past, present and future.

The legacy of previous people who have tried to solve the problem creates a set of institutionalized notions. Kuhn (1962) noted that history influences the creative process because the new idea must conform to a set of rules in order to be accepted. Thus, both history and present beliefs can also spur on creativity by providing the necessary background upon which new ideas, new synthesis, and new constructs can be composed. Some inventors rise higher than those who have come before them because they build upon the lofty works of others. Science is "a highly cumulative enterprise" (Kuhn, 1962, p. 52). Innovators do not need to reinvent the

wheel. Rather, they can put a new frame on the vehicle of innovation and go places that no one else has gone before. Kuhn (1962) described how ideas transform a person's world view, changing what people pay attention to and how to interpret data. He noted, "What were ducks in the scientist's world before the revolution are rabbits afterwards." (Kuhn, 1962, p. 111). Mead (1934) backed up this viewpoint by stating that history provides contextual perspective, and wisdom based on hindsight. History proves to be an environmental factor because it serves as a mental foundation that ideas build upon.

Form of government, Governmental Policy

There are many types of government that exist. Some forms of government are: totalitarian, communist, dictatorial, authoritarian, democracy, republic, and socialism. Mills (1959) noted that the American form of democracy cultivates individuality. He also pointed out that there tend to be phases in democracy that evolve through time. Similarly, Mead (1934) also emphasized the role that self governance and individuality plays in the American form of government. The impact that the type of government under which an individual lives under and how that affects their creative thinking.

Kuhn (1957) explained that institutional bodies can serve to stifle the flow of ideas and new concepts. Kuhn tossed out a gloomy view, but Mead (1934) presented a cheery one. They are very nearly diametric views. Mead (1934) described how the form of government plays a role in community cohesion, social process, ideological membership, and human organization. Of course, all of these play their part in how a person views the world. Mead (1934) illustrated how this affects the symbols that people use, the communication people employ, the political expression people demonstrate, the attitudes people hold, the conception of ideas, how people express themselves, notions people hold dear, and interactions people have. So, the form of

government a person lives under affects many aspects of their lives, which in turn, affects how they produce new ideas.

Politics, Civics

Politics can influence a person's creativity because the consequences of political action indirectly or directly affect their environment. Mills (1951) described how politics affects unions, commerce, tariffs, employment, social order, consumerism, taxes, social policy, attitudes, property, ideology, social contracts, property law, institutions, federal bureaucracies, public discourse, centers of power, and propaganda. Mills (1951) made the point that politics is less about political issues for their own sake, and more about economic interests and community affairs. Mills (1951) focused on more pragmatic issues than does Kuhn or Mead when it came to politics. He pointed out that through rhetoric and ideology, politics affects a person's thinking because of morals, issues that they think about, national character. Kuhn (1962) described how political institutions affect the general acceptance of new ideas, whereas Mills (1951) spelled out the mechanisms of the political engine itself and its relationship to society and thereby the individual. Mills (1959) stated that political decisions are driven by local interests and that people consider problems from their viewpoint and vested interests. Mead (1934), ever the psychologist, had a different spin on politics. For him politics is seen as an intrigue, rivalry, a social process, a cooperative venture, a behavioral system, and laden with symbols. Mead (1934) made it a point to state that political parties are a psychological mechanism that draws in involvement from the polity through rivalry. Mead (1934) also pointed out the role that politics plays in the development of social skills, communication, cooperation, behavior, social integration, and "social participation" (Mead, 1934, p. 326). He defined politics as "the relationship of the individual to the state (Mead, 1934, p. 36). More powerfully, Mead (1934)

described how the individual's response to situations, their attitudes, values, and activities they engage in are influenced by the political organization they adhere to because political parties, and clubs are fundamental, functional social units. Each of the theorists focused on a completely different facet of politics.

Mills (1959) noted that the progressive, liberal, political reforms beginning in 1865 started a watershed in political thinking. Mills (1959) stated that liberalism and socialism were two key products of the enlightenment that have influenced modern society. American sociologists have assumed a "democratic theory of knowledge" (Mills, 1959, p. 85) meaning that all facts have equivalent value. This results in "pluralistic causation" (Mills, 1959, p. 85), which is a view that the root cause of problems can be broken down into multiple, bite-sized pieces. Which in turn fosters a "liberal practicality" (Mills, 1959, p. 85) whereby the politicians try to craft tiny silver bullets to address social woes. This pervasive effect and the notion that "all facts are created equal" (Mills, 1959, p. 85) affects the way Americans think about issues. A notion is powerful when it makes someone question the way they think. A few obvious questions pounce upon the mind: what ideas are more powerful than others? Are some social woes not addressable by policy? Do all facts have equal value? Continuing further, Mills (1959) perceptively noted that detecting practical problems goes hand in hand with evaluation.

Kuhn (1962) emphasized the judgmental factor of politics, Mills (1951) explored the social dimension of politics, and Mead (1934) analyzed the psychological and behavioral impact of politics. Politics plays an important role in creative thinking as an environmental factor because, as the theorists noted, the action of politics affects a plethora of things in a person's social environment.

Beliefs, Religion

How do beliefs affect someone's thinking? How does what one thinks affect how they turn knowledge into practice? How do beliefs play a role in the generation of new ideas? As always, theorists have different perspectives on the question. Kuhn (1962) described how the inertia of existing beliefs puts new ideas that threaten the current belief structure under heavy scrutiny. Mills (1959) continued the trend of considering things from the perspective of society. He attests to the fact that a person's values affect their judgment. Mills (1959) also mentioned how assumptions, stereotypes, and a citizen's notion of what makes for common sense are peculiar to a society. Mead (1934), on the other hand, took a mental surgeon's knife and dissected the problem. Mead (1934) approached the situation from the standpoint of neurobiology and psychology. Mead (1934) inquired into how experiences form, ideas get produced, imagery gets employed, and self-expression develops.

Kuhn (1957; 1962) pointed out that a person's current belief systems are a factor, and that they influence the fledgling idea by forcing it to produce something of value that the present belief structure is unable to answer. If a new scientific idea, ultimately a product of a person's imagination, is incapable of providing this value, various environmental factors will shuffle it back to the drawing board. Kuhn (1957, 1962) employed numerous examples where history played a role as a creative environmental factor.

Parenting, Childhood

Parents have an enormous influence in a child's development. Indeed, Mead (1934) described how parents influence their children through education, recreation, care, stimulus, social environment, and "sympathetic response" (Mead, 1934, p. 364). Because they impart their values, views, and knowledge upon their children, it shapes their thinking and creative capabilities. Mead (1934, 1932) spent a great deal of effort on describing the development of the

individual in psychological terms. Mead (1934) also discussed the parent-child relationship in a societal sense by framing the interaction in terms of cooperation, and sympathy between two individuals. Mills (1951) considered a more prosaic view of parenting by considering the family unit not from a psychological behaviorist standpoint but rather from an economic one. Kuhn did not seize the opportunity to delve into the parental aspects of idea generation. Instead, Kuhn chose only to consider the mature, contributing individual. As the viewpoints of Mills and Mead are mutually exclusive on this topic, the only valid comparison that can be done is to state that each one misses things that the other one sees.

Perhaps one of the most interesting things about the parent-child relationship is the formative role that the parent plays in a child's development. This seems obvious, but Mead (1934) described how parenting, imaginary friends, and child's play affect the mind because children are learning, developing, and building up a set of responses that will affect them throughout their lives. As they mature, the games that children play, Mead (1934) noted, become increasingly complex, more structured, use social roles, and have layers of complexity because often the games are social in nature requiring teams and complex cooperative organized processes. Mead (1934) stated that this development affects a person's relationships, socialization, attitudes, experiences, and individual character. Games, such as chess, can exercise the mental prowess of the mind. Cooperative games require organization and attitudes that promote and prepare the individuals to become an "organic member of society" (Mead, 1934, p. 159). Furthermore, Mead (1934) made the powerful argument that the family is one of the most important building blocks of a structured civilization. The family is a "unit of human social organization" (Mead, 1934, p. 229). By way of extension, Mead (1934) noted that clans, tribes, organizations, parties, and interest groups spring forth from the family structure. All of these

things shape and determine what people value, who they are, what they think about, and what problems they care to solve.

Place, Geography

The place someone is at is part of their environment. If one is taking a country-side walk next to a babbling brook, that is a very different environment than being in a skyscraper office building on the 24th floor. This example highlights an important schism that Mills (1951) pointed out about the differences between rural and urban with regard to social structures, attitudes, businesses, opportunities, and human interaction.

Mills and Kuhn discussed various places where great ideas and great civilizations have been forged. Kuhn (1957) used powerful locations that fostered free thinking. Mills (1959) considered the diversity of human cultures from a social science standpoint. Mills (1959) noted that social structures grew out of the institutions and scaffolding necessary to maintain a society. Mills (1959) alluded to the fact that each place has unique strengths, merits, and fosters a particular sense of character. Where a person is influences the people, things and ideas that they are exposed to. Each place has a history. Some places have a human pedigree that sprawls back thousands of years.

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Core Knowledge Area Module Number 1 Depth Essay:

Current research on the environmental factors of creativity in modern American society

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Depth Annotated Bibliography

Citation 1: Barnes, T.J. (2004). Placing ideas: Genius loci, heterotopia and geography's quantitative revolution. *Progress in Human Geography*, 28(5), 565–595. Retrieved May 11, 2007, from Academic Search Premier Database.

Critical Summary

Barnes' related the impact that geography has on intellectual creativity. Barnes identified three important aspects of intellectual works as it relates to the sociology of scientific knowledge. They are nature and persistence of intellectual breaks and cultures; the embodiedness and material embeddedness of the intellectual process; and the centrality of networks and alliances. Barnes then proceeded to analyze how geography plays a role in each of these aspects of intellectual production. He correlated creativity to geographical location. He went on to show that intellectual inquiry is inspired from a particular physical locale. He indicated that things are related to one another, with a pull inversely proportional to the distance.

Heterotopias induce greater thinking, open mindedness, and spur creativity. Barnes also discussed locations that fostered human networks, alliances, and communication.

Critical Analysis

Barnes did a good job of analyzing the connection between places with creativity. Barnes discussion of the rationalist view of the production of ideas grounded in social practice, craftsmanship was superfluous. However, overall his paper is well researched and thought out. Barnes' discussion of heterotopias as geographical epicenters of intellectual change contributes an important new viewpoint that bolsters the connection between creativity and geography. Because the spine of Barnes' argument is that place is not merely a backdrop but nurtures intellectual innovation it fits like a glove into the research for this essay.

Citation 2: Burt, Ronald S. (2004). Structural holes and good ideas. *American Journal of Sociology*, 110(2), 349–399. Retrieved May 11, 2007, from Academic Search Premier Database.

Critical Summary

Burt conjectured that ideas are more likely to occur by those people who are able to bridge the social network gaps. This action of bridging is called brokerage, and the people who are able to bridge the gaps, Burt coined as brokers. Brokers are able to facilitate idea sharing between isolated groups share. Burt called the social network gaps between islands of networked groups, holes.

Burt performed a study of workers in a business organization to provide the backbone of his research. He created a *sociogram* depicting closed networked groups that have greater social density than the interstices between groups. Doubtlessly, one of the reasons for this phenomenon is that organizations use groups assigned to work together. Indeed, Burt mentioned this as a contributing factor. Finally, people are mindful of the inter group activities rather than intra-group work. Through this mechanism Burt assigned values to ideas and found patterns in group dynamics. Social brokers harvest the creativity rewards. The broker also sows new seeds in bridged groups.

Critical Analysis

One key strength of Burt's paper is that he considered many aspects of processing ideas including idea generation, idea acceptance, idea correlation, idea judgment, idea dismissal, idea expression, communicating ideas, unexpressed ideas. These are considered in the light of social networks, across social holes, and brokerage between social groups. Another strength of Burt's work was his assessment of good ideas, by asking people in the study to consider the value of an idea, if the idea were well executed. He performed a thorough analysis of the data pertinent to

networking, and showed that ideas flowed smoothly between isolated groups when a broker provided the bridging effect between isolated groups. Burt's work on social holes lent important insight into the relationship between social networks and creativity. The concept of an idea broker bridging these social holes is an important idea pertinent to this essay.

Citation 3: Cautilli, J. (2004). Toward a behavioral theory of "creativity" a preliminary essay. *Behavior Analyst Today*, 5(1), 126–140. Retrieved June 8, 2007, from the Academic Search Premier database.

Critical Summary

The primary focus of Cautilli's article was to emphasize how behavior affects creativity. This indicates that language can be used to create mental imagery, by way of spoken language, written description. Feelings can also be induced by this mechanism. Cautilli mentioned a number of other mechanisms that stimulate creativity including learning through analogies, and the building of stimulus classes. The use of novel analogies has the capability to drive and stimulate creativity because it makes you think in new ways. Another important mechanism that Cautilli fell upon is the use of selection in imagination, creativity, and idea generation. There are elements that people focus in on, Cautilli noted, that shape artistic and other works of imagination. Fashion is an example of selection, as certain styles become fashionable people focus in on a certain kind of look while ignoring others. Cautilli claimed that the same thing happens in art, writing, sculpture, and other works of creativity.

Critical Analysis

Cautilli discussed a number of other things that affect creativity that are very closely related to the focus of this paper. He considered history and how the effects of history affect creativity. He introduced the terms *proactive interference*, and *retroactive interference*. In proactive interference previous historical events and prior learning work to hinder new creative acts, or new learning. In retroactive interference, current learning works to hinder previously established things. Both of these concepts make important contributions to the research in this essay. He also indicates that stimulation of equivalence relations is invoked through language. Language is another environmental factor of creativity. Cautilli's abstract was very confusing

and seemed unrelated to the rest of his paper. The article itself required more structure to flow more smoothly from idea to idea.

Citation 4: Dalton, B. (2004). Creativity, habit, and the social products of creative action: revising Joas, incorporating Bourdieu. *Sociological Theory*, 22(4), 603–622. Retrieved June 4, 2007, from the Academic Search Premier database.

Critical Summary

The point of Dalton's work was that creativity stems from a cultivation of human action applied towards some purpose. The individual harvests a habit through repetitive action, Dalton noted. Because the individual exists within some social or physical environment, he is presented with challenges to overcome either through his work, by choice, or necessity. Dalton continued that when the person is faced with overcoming the practical matters and challenges they will engage their creative capabilities.

Dalton took the point of view of a social theorist, and considers social factors that might influence the development of habit within an individual. He then considered how these habits would stimulate creativity. Social networks, social organizations and family influence how habits develop Dalton conjectured.

The specific type of individual that Dalton considered was the artist, who must mechanize creativity and turn creativity into a sort of production line effort. People expect an artist to be a fountain of creativity, and indeed to habituate the act of creativity itself. However, even under such circumstances, the artist works within some "framework of common expectations" by which he or she can still generate novelty.

Critical Analysis

One strength of Dalton's work is that he considered some shortcomings to routinized creativity. For example, when creativity itself becomes routine, a paradox occurs. Another strength of his work is that he paid homage to pragmatist philosophers, including George Herbert Mead who also described how action plays a vital role in the development of the individual.

Dalton made a strong case for the notion that as a person becomes accustomed to their environment and routine, they develop strategies to cope with these routines, which become habit. Dalton's work is relevant to this essay because of the connection he found between task and creativity through the development of habit. Dalton did a good job at synthesizing concepts into a unified structure. Dalton's shortcoming is that he never entertains an opposing viewpoint in order to strengthen his own argument.

Citation 5: Edwards, B. (2003). Learning and creativity. *Education Review*, 16(2), 91–96. Retrieved June 8, 2007, from the Academic Search Premier database.

Critical Summary

The crux of Edward's work revolved around the notion that creativity and learning are tightly integrated activities. Educational institutions, Edwards touted, can be designed to nurture creativity, engender curiosity, and develop a desire for learning that can span an individual's lifetime. By having educator share common practices, the most effective learning environments can be replicated in educational institutions, and a culture in which creativity can flourish can be developed.

Edwards wrote that the process of learning requires clarity of teaching, evaluation of information, proper assessment, good judgment, persistent action, inspired curiosity, focused purpose, and creative drive. Every individual has unique talents and strengths; and an inspired learning environment can foster creativity and encourage an individual to do their best.

Critical Analysis

The strength of Edwards's research is the powerful notions that he conveys. For example, that creativity can be taught. An atmosphere of sharing, trust, candor, and accountability promotes creativity and sense of purpose. Another inspiring thing in his paper is that Edwards sounds a rally cry for educators to share best practices and mutually develop their art. The strength of the paper is that he advocated educational latitude for teachers to transcend a pre-destined teaching product. Edwards claimed that education does not have to be a dull affair devoid of life and spirit. He claimed education can be designed to foster intellectual freedom, trust, openness, accountability and creativity. This is a powerful example of the link between education and creativity. As such, it is an indispensable article for this essay.

Citation 6: Giaccardi, E. (2006). Collective storytelling and social creativity in the virtual museum: A case study. *Design Issues*, 22(3), 29–41. Retrieved June 8, 2007 from the Academic Search Premier database.

Critical Summary

Giaccardi made the case that a virtual environment could serve as the basis for social interaction, museums, collaborative projects, personalized information, and a source of social creativity. Computational power, network connectivity, and multimedia capabilities of modern computers have become powerful enough to serve a community warehouse of historical knowledge. Physical artifacts, Giaccardi argued, can be replaced by images representing the actual artifact. Collections of artifacts in the form of virtual museums, for instance, could then preserve and stimulate the collective memory of the community.

Critical Analysis

The forte of Giaccardi's work is that he carefully considered the changing nature of physical objects when the trend toward ever increasing non-physical interaction exists. Networks of computers and the ability of a computer to represent visual information served as the crux of Giaccardi's assertions. However, he failed to acknowledge the non-technological power of human social networks. In an era of information technologies, and high technology appliances, the nature of society is altered. Another strength is that Giaccardi insightfully highlighted three major trends that would result from this phenomenon which are relevant to this analysis. The first was the duplication and creation of a digital representation of physical objects, a virtual extension of reality. The second is that information can be tailored to the needs of the individual. Learning about something can become a personalized experience by combining, recombining and the permutation of knowledge blocks. Lastly, the internet has given individuals the

opportunity to share content and establish vast social networks the likes of which have never been seen in history. The internet has led to a democracy of knowledge. Giaccardi's work contributes to this essay because he considers the impact of modern technology, in the category of things, on creativity.

Citation 7: Healy, K. (2002). What's new for culture in the new economy? *Journal of Arts Management, Law & Society*, 32(2), 86–104. Retrieved June 8, 2007 from the Academic Search Premier database.

Critical Summary

Healy promoted the notion that the global market place is driven by the products of creativity. A global market place creates a system that allows companies from different countries to collaborate and distribute products seamlessly. The attendant political, educational, industrial, community, economic, social, governmental, international, and legal institutions need to adapt to foster individual creativity that is necessitated by the new global marketplace. An important aspect of the modern American economy is that information, networking, multimedia, and advanced communication technologies take center stage.

Healy noted that the new global marketplace requires flexible companies delivering novel, innovative, niche products and unique services. Such products and services are produced from a creative workforce capable of generating innovations, novelty, and intellectual capital. The character of the labor market required for the new global economy is very different than the one required for industrial production of manufactured goods. Healy delivered the notion that in developed western nations the revenue generated from the products of creativity was much greater than the collective revenue from manufactured goods. The mantle of producing manufactured goods has largely passed onto low cost centers.

Critical Analysis

The strength of this article lies within the insight into the modern social, political, and economic system. In a global economy, Healy posited, creative workers, innovation, intellectual capital, and intellectual property have become increasingly important for modern American corporations in order to stay competitive. The most valuable resource that companies have now,

Healy noted, is their knowledge workers, the specialized people who are the engine of new ideas that keep a company competitive. That prophetic notion underscores the importance of the Depth essay. It gives the essay a *raison d'etre*. The shortcoming of the article is that Healy does not discuss the downside to the new economy. At times, Healy is off in the weeds floundering on tangential subjects. Overall, Healy had a written bite that was matched by his ferocious penned bark.

Citation 8: Jackson, R. (2006). The Camphill movement. *Encounter*, 19(3), 45–48. Retrieved June 4, 2007, from the Academic Search Premier database.

Critical Summary

Jackson described an all together unique, creative, and novel form of educational system. The system is called the Camphill movement which has its roots in World War II, Jackson noted. It was founded by Dr. Karl Konig, an Austrian pediatrician, in 1940. Dr. Konig described and established a learning community that fosters creativity, spirituality, spontaneity, originality, and imagination. The communities are geared towards children with special needs. However, many of the principles that were touted by Dr. Konig are broadly applicable to all educators.

The Camphill movement has 100 communities in 20 different countries. One characterizing aspect of the learning community is that it fosters not just informational, scientific, and knowledge learning but the whole student including their mind, feelings, creativity, relationships, body, and spirit. Jackson described a modern by product of the Camphill movement in the form of a curative education program established by the Scottish Services Council in 2003. This program, Jackson explained, is a holistic approach to special education that integrates basic education, and creative crafts with therapeutic activities. He stated that learning should also come from joining a community, contributing to a greater purpose, and learning together with other individuals. Education should be more holistic, involving the entire individual's life. Jackson stated that holistic learning should include the encouragement of creative, spiritual, emotional, and aesthetic qualities – not just scientific and technical pursuits.

Critical Analysis

The principle contribution of Jackson is the viewpoint that education should not just be the acquisition, regurgitation, and application of a set of techniques, skills and knowledge. That

is the bedrock foundation and strength of the article. However, the article failed to explore any other viewpoints on the matter. Many other forms of pedagogy could be equally effective. While Jackson started off with the anecdotal history of Dr. Konig, more extensive background should be covered. The article lacked some credible viewpoints from seminal theorists. Nonetheless, the article contributed to the Depth essay because of the novel viewpoints that it explored. The link between education and creativity can be developed, established, designed, nurtured and groomed.

Citation 9: Jenlink, P.M. (2004) Education, social creativity, and the evolution of society. *World Futures: The Journal of General Evolution*, 60(3), 225–240. Retrieved June 4, 2007, from Academic Search Premier Database.

Critical Summary

Jenlink drew a close relationship between education and creativity. The educational system is the primary motive force for establishing a stable society. Jenlink proposed that education is the primary mechanism by which an individual is able to become an active, contributing, functional member of society. Education can be used as a vehicle to change society for the better, to wrong social woes, and set right social maladies, Jenlink proposed. Education can be used to address social issues and provide hope for a better future.

Educated hope can be a means by which students are transformed through the educational process and become avatars of social change. Pedagogy, Jenlink preached, can be used to develop *imaginative possibilities* to respond to social injustices, problems, and issues through the application of creativity.

An individual in modern American society is pulled in many different directions. Jenlink noted that a person should be cultured yet nature-loving. One should be scientifically savvy yet be spiritual. People should savor their individuality, yet think globally. An individual should strive to be all that they can be in both work and leisure. A person should treasure the ordinary, yet seek the extraordinary. One should establish complexity, yet embrace simplicity. Jenlink wrote that social creativity requires someone to look for opportunity within diversity by seeking value in different perspectives. He noted education is the primary means to evolve a society.

Critical Analysis

The beauty of Jenlink's article was the hopeful notions that he places on creative pedagogy. One forte of his article was ensconced in the depth of research, background, and

preparation evident throughout. The theoretical basis of his work was sound. Jenlink entertained some interesting notions that are solidly reinforced by other research. However, there are times where it lacked some cohesion. A more visceral central theme and tighter focus would have grabbed the reader by the mind. Jenlink's enthusiasm for the work that he developed is apparent and contagious. Jenlink's notions on education and society are useful in a study of environmental factors related to creativity.

Citation 10: Miettinen, R. (2006). The sources of novelty: A cultural and systemic view of distributed creativity. *Creativity & Innovation Management*, 15(2), 173–181. Retrieved June 4, 2007, from the Business Source Premier database.

Critical Summary

He stated that governmental institutions and private institutions have paid greater attention to the power of creativity in the modern information age which requires innovation and imagination to thrive. Miettinen asserted that the movement from individual creativity based on genetic endowments has shifted to collaborative, group creativity based on social networks. After a protracted frolic through the history of creativity management, Miettinen alighted on the notion of distributed, collaborative creativity.

The information age has been a boon to man, machine, society, and economies around the world. Miettinen astutely observed that modern telecommunication systems allow for the international collaboration of disparate parties on a single project. Furthermore, Miettinen described the power of distributed creative efforts by proffering the example of open source software projects using the internet as a means to connect contributing project members. The user community takes a hand in the creative evolution of the project. Miettinen gave the paragon example of Linux as an open source collaborative distributed creativity project. The ubiquitous communication networks that have been established have the power to radically alter the nature of work and the basic characteristics of social networks. *Network societies* and internet-mediated communities are new social structures that emerge from the information revolution.

Critical Analysis

Miettinen wrestled too long with some of the political policies that have evolved as a backdrop to his article before a discussion of the principle point of his article. However, his description of the modern state of affairs and its relationship to the stimulation of creative

enterprises was sound. Miettinen had a penchant for writing that put his work in context. It is evident that he had done his homework. The strength of Miettinen was the sound theoretical basis from other seminal theorists that he provided for his research. His work is relevant to this essay because it brings a fresh perspective to the link between society, social networks and creativity. The insightful discourse on collaborative projects should be have been explored in more detail. Nonetheless, Miettinen made some important observations relevant to this essay. For example, he observed that a unique characteristic of open source software project collaboration is that the users become the inventors.

Citation 11: Peltz, R. (2005). The manic society. *Psychoanalytic Dialogues*, 15(3), 347–366. Retrieved June 5, 2007, from the Academic Search Premier database.

Critical Summary

Peltz described the *manic society* and the attendant *manic defenses* that come along with it. The manic society represents a social phenomenon whereby the citizens are engaged in a bustle of activity. They are swept up in a flurry of commitments in an effort to acquire material things that they don't need. The government, Peltz explained, has become part and parcel of this phenomenon. Peltz warned that political agendas are too often subsumed within economic ones.

The consequences of the manic society are considered to be the loss of worthwhile activities. As the political fabric gets woven into the economic tapestry, it gets swept under the floor rug. The principle tenets of a democratic government, Peltz lamented, are corrupted. Governmental services that should be provided to the citizenry, such as medical care, social safety nets, and educational opportunities are more difficult to provide. When a lack of social provisioning is present, a growing body of discontented citizens will result, Peltz suggested.

Peltz held the position that the desires of citizens are often at odds with the greater good of the general populous in society. For example, if you wish to take land from your neighbor the rules and regulations of society will prevent that action. Some of our desires must be checked in order that society may operate smoothly. What happens when the goals of a free market economy are at odds with the democratic goal to provide basic social services? Peltz wrote about the need for greater distance between economic institutions and political ones. Meanwhile, Americans have become frenetic. The line between work and play is blurred.

Critical Analysis

Peltz was strong in the use of anecdotes to round out a carefully prepared argument. Peltz

was weak in offering solutions. The failure of Peltz was that the counter argument is not given enough attention. In an article where the main precepts have dark undertones, lack of a counter balance gives the article a gloomy disposition. Peltz was limited in considering solutions that might have addressed the principle problem that is posed. Peltz could have extended the discussion on political symbols, structure, unity, and governance. This work will be incorporated into the essay under the category of things and politics. Because the main precepts of the Depth essay are upbeat and positive, Peltz's thesis serves as important counterweights. Peltz provided a *yin* to the essay's *yang*.

Citation 12: Seitz, J.A. (2003a). A communitarian approach to creativity. *Mind, Culture & Activity*, 10(3), 245–249. Retrieved June 8, 2007, from the Academic Search Premier database.

Critical Summary

Seitz began by discussing the notion of individual creativity and where it comes from. He highlighted that one common viewpoint is that creativity arises from the individual. This is the view that creativity springs forth from a genius. Genetic endowments, native imagination, and natural talent trump other factors with regards to creativity. However, Seitz argued that such a view of creativity is outdated.

The social networks, cultural practices, social roles, political institutions are major influential factors in a person's development. The individual resides within a "social, political, and *cultural matrix* which sculpts how a person thinks, what preferences they hold, and influences their creative pursuits. Seitz noted that the community that an individual belongs to affects that person's beliefs, values, activities, creativity, experiences, and training. Creativity is stimulated by the interaction of other individuals within a social network. Childhood experiences play an important role in personal development. Seitz utilized the terms *micro-environment*, *macro-environment*, *gemeinschaft*, and *gesellschaft* to describe the individual environment, global environment, inner circle and work relationships that people have. He noted that these ties spur creative production through imaginative connections.

Critical Analysis

Seitz was strong in his ability to concisely convey concepts in a cogent manner. Seitz was weak because he needed to more fully explore the ramifications of his assertions. Seitz was limited by the lack of empirical data to back up his assertions. Seitz should have extended his probe into the finer nuances and subtleties of the social nature of creativity. Seitz argues that

creativity is influenced by a number of environmental factors which include childhood, history, individual relationships, creative surroundings, culture, contextual factors, and community.

These environmental factors and indeed the point of Seitz's publication are the very same thesis as this KAM. Thus, his research fits perfectly within an analysis of the environmental factors of creativity.

Citation 13: Seitz, J.A. (2003b) The Political economy of creativity. *Creativity Research Journal*, 15(4), 385–392. Retrieved June 8, 2007, from the Academic Search Premier database.

Critical Summary

Seitz built upon his previous research. He reused the terms micro-environment, macro-environment, *gemeinschaft*, and *gesellschaft* to describe the importance of social networks. His fundamental premise remained that creativity is the confluence of many environmental factors not just innate creativity arising from genetic endowment. The antiquated *genius view* of creativity holds the notion that creative individuals have extraordinary thought processes that provide the insight necessary to churn out creative works. More accurately, Seitz claimed, is that social, political, economic, and contextual factors influence a person's creativity.

Society puts in place a number of obstacles that can serve to dampen creativity. Some examples include censorship, corporate influence, copyright restrictions, artistic precedent, critical review, review panels, professional selection, endowments, artistic choice, popular movements, and cultural fads. All of these things can serve to filter out creative works that demonstrate originality and imagination. Seitz claimed that *symbol systems*, political institutions, and social networks account for the success or failure of a creative endeavor.

The success of modern technological innovation resides in the powerful social capital enabled by high technology. Social capital represents human networks, empowered collaboration, information access, knowledge resources, and closely knit social relationships.

Critical Analysis

One of Seitz's strengths was that he does a thorough investigation of the background of his problem. His work was quite obviously well researched. Seitz's treatment of the connection between liberalism and creativity was well thought out and is to be admired. Another strength

that Seitz exhibited was his ability to boil complex ideas down to their essential ingredients. The principal weakness of Seitz was his choice of examples. His illustrative examples did not so much enlighten as crayon over the novel ideas he was putting forth. Seitz would have strengthened his arguments by elaborating more on the specific mechanisms that he outlines are influential social variables of creativity. Seitz made important claims about the characteristics of creative works that mesh well with the research performed in this essay. As such, his research provides a bedrock of notions to draw from.

Citation 14: Solis-Gadea, H. (2005). The new sociological imagination: facing the challenges of a new millennium. *International Journal of Politics, Culture & Society*, 18(3/4), 113–122. Retrieved May 11, 2007, from Academic Search Premier Database.

Critical Summary

Solis-Gadea rallied theorists and researchers around the changing circumstances of the new millennia. Sociology in a post-9/11 America demands new insights and understanding into the relationships between individual and society. Solis-Gadea's work focused on updating *sociological imagination* to suit modern times. Sociological imagination is steeped in history, purpose, and creativity to explain the complex emerging realities brought about by modernity. The new sociological imagination must use theory, history, empirical facts, logical formalization, systematic analysis, creativity, local knowledge, moral judgment, and inspiration if it is to remain a useful conceptual tool. The sociological imagination must interrelate facts, morality, history, ethics, and personal concerns.

Some of the changing dynamics in the world include the information revolution, the *liquid world*, ubiquitous networks, collective intelligence, dissolving territoriality, cosmopolitan political community, and global collaboration. New technologies, crises, and social structures dominate modern America. To adapt to the changing times, a new sociological imagination must become more accessible, more creative, and more flexible.

Critical Analysis

The strength of his work was in his ability to identify the necessary steps to keep the sociological imagination a viable theory. The weakness of Solis-Gadea's work was that he does not very clearly spell out his assumptions. He was limited in his comparisons to other seminal theories of sociology. His work is useful in this essay because sociological imagination was one of the seminal theories that the Depth component built upon.

Citation 15: Tepper, S.J. (2006). Taking the measure of the creative campus. *Peer Review*, 8(2), 4–7. Retrieved June 4, 2007, from the Academic Search Premier database.

Critical Summary

Tepper posed some fundamental questions about what inspires creativity. Examining the campus setting, Tepper drew out some of the important factors that stimulate imagination, spontaneity, creativity, curiosity, inventiveness, originality, and ingenuity. Some of the important factors that Tepper discussed were cross-cultural exchange, collaborative work, inter-discipline activity, risk taking, integrated creative arts, and a *failure friendly* environment. All too often social ogres disrupt budding social networks before they can thrive.

One important characteristic of the creative setting is a good social network. The social network will usually include a creative broker that connects groups of people that would not have otherwise been connected. Social networks can promote creativity. Once the proper, nurturing, and effective social setting is put into place, a dynamic creative environment will thrive.

In the corporate world, creativity can be fostered among employees. Tepper claimed that creativity can be fostered by promoting, funding, and rewarding risk taking, creativity, innovation, ideas, and competition. A healthy, open, playful, and encouraging environment are vital ingredients to creativity soup. Tepper explained that creative expression blossoms when social capital, trust, and tolerance are established within a community. The qualities encourage new ideas and fresh perspectives. This, in turn, will stimulate interaction among individuals who will produce new ideas.

Critical Analysis

One of Tepper's strengths was his lively prose. He seamlessly mingled anecdotes with

heady notions. An effective strategy that Tepper employed was the use of posing probing questions. This should be the strength of any prospective researcher, practitioner, or writer. Another strength of Tepper's writing was that he produced some effective, useful, pragmatic, creative, and intelligent solutions to the problems that he posed. The weakness of Tepper's writing was a lack of theoretical underpinnings. Another shortcoming was the lack of a rigorous, logical development in his research. Tepper was limited by the number of instances of creative educational environments he examined. Tepper should have expanded more on the actual university examples that he provided. He whetted the appetite of the reader and then left them hanging. Tepper's research is useful for this essay because his notions on blending creativity with education are novel. Furthermore, his research revealed important connections between education and creativity.

DEPTH ESSAY

Current Research in Environmental Factors in Creativity

Creativity involves a person who undergoes some process to produce some idea within some environment. So, there are four main aspects of creativity the creative person, the creative product, the creative process, and the creative environment. Think of the last idea you had. Where did it come from? Where were you? Who were you with when you had the idea? What things in your environment influenced you to have your idea? How did you have the idea? Did the idea come in a flash of insight? If so, what spurred you to have that flash of insight? What problem were you working on? Was the idea the product of concentrated, deliberate thinking? Why did you have the idea? To what degree did the idea influence your surroundings? To what degree did your surroundings influence you to have the idea? What circumstances fostered the creative act?

The Breadth component concluded that people, places, things, tasks, beliefs, history, education, parenting, science, governmental forms, politics, culture, and language are environmental creativity factors. This KAM builds on and reinforces that conclusion by exploring the current research in environmental creativity factors within modern American society. This essay teases out new terminology, theories, insights, and evidence from the contemporary research to develop new perspectives on the link between the identified environmental factors and creativity.

People, Peers, Human Networks

In an impossible and witty parley across the decades, Burt (2004) seemed to corroborate with the seminal theorist Charles Mills (1951). Burt (2004) expanded on Mills (1951) work on social networks and, in particular, the role that social networks play on creativity. Mills (1951)

wrote of “temporary focus of heterogeneous circles of causal acquaintances, rather than a fixed center of a few well-known groups” (Mills, 1951, p. 252). Continuing, Mills (1951) wrote of the isolation and seclusion that modern Americans experience even as we are surrounded by throngs of people. This ties in nicely with the research that Burt (2004) performed on social networks. Burt (2004) patiently explained, as he reminisced about his experiences in the field, that social networks are not uniform in nature. Rather, Burt (2004) penned, people, when they gather in large social organizations, form groups that are focused on getting a specific task accomplished. These groups tend to become isolated from other groups, even though they share information well amongst themselves; they tend not to share ideas between groups. This occurs for no other reason than those external groups are not working on the same projects as so do not have as much to do with the day to day activities of the group. However, Burt (2004) touted, there are usually individuals within a group that are brokers, serving to bridge the “*structural holes*” (Burt, 2004, p.349) between these groups. Burt (2004) defined a structural hole as the interstices in the *sociogram*. A sociogram is formed by mapping out social relationships. This occurs because people tend to work in groups which tend to focus on some specific function. By spanning the chasm between groups, ideas and creativity are stimulated because these disparate groups come to know of each other’s work and cross-functional ideas, or multi-disciplinary concepts seep into the other organization. Burt (2004) studied a large number of individuals which showed that these brokers were well poised to reap the creativity rewards of being the intermediary, including increased “social capital, information arbitrage, vision advantage” (Burt, 2004, p. 351), and competitive advantage. Burt (2004) carefully surveyed the participants to see where ideas were valued, fostered, dismissed, discussed, expressed, and hidden.

A good way to picture Burt’s concept of structural holes is to think about the airline

industry. Consider how the network of airports in the world is connected. Smaller, local airports use commuter jets to travel to a large metropolitan area, such as New York, Chicago, Washington DC, and Los Angeles. These large metropolitan areas are hubs with a heavy concentration of incoming and outbound flights. If a line were drawn to represent each airplane flight, one would see a thick mass of lines coming into and out of hub cities. Now, imagine much fewer lines connecting the major metropolitan areas, or hubs, together. Continuing with the analogy, large international cities such as London, Tokyo, Beijing, and Mexico City would be connected. Then, a few lines would be etched to connect the hubs in the United States with the hub cities in the other countries. The “spaces” in between these hubs are akin to Burt’s social network structural holes. And the flights that connect hubs are the brokers that deal in idea arbitrage.

Like a bridge between two islands, the broker in Burt’s (2004) model uses brokers to serve as a conduit of ideas, allowing ideas, information, knowledge, and concepts to flow between otherwise isolated groups. These concepts make intuitive sense if one considers that people within a group will usually be exposed to the same information, and undergo similar experiences. Social networks of people can be a great source of inspiration and creative flowering, especially when a broker is present to help facilitate the flow of ideas. Finally, Burt (2004) established a hierarchy of brokerage levels that starts with raising awareness, and transferring practices. Eventually, as the alliances, partnership, trust, connections, and “social capital” (Burt, 2004, p.377) increase, the highest levels of brokerage can be reached which includes the influencing of operational thinking, and finally group synthesis.

Dalton (2004) backed up Burt’s notions, when he wrote, “action and actors are inherently integrated within social groups” (Dalton, 2004, p.605). Dalton did not discuss the topological

nature of social networks, but did consider how interaction within social groups stimulates creativity. He considered the role that “mediating structures” (Dalton, 2004, p. 606) such as family, social organizations, focus groups, collaborative enterprises, and social networks play in the individual’s life. Peltz (2005) corroborated this notion by insightfully stating that humans are “inherently social beings, inextricably related to each other through culture and society.” (Peltz, 2005, p. 354). In short, interacting with peers allows an individual to engage in creative thinking especially when stimulated by purposeful action. Finally, Tepper (2006) supported Burt’s (2004) concept by discussing creativity brokers who facilitate collaboration between disconnected groups. He termed these “creativity connectors” (Tepper, 2006, p. 5).

For every idea there is an equal and opposite idea. Miettinen (2006) focused on the diametrically opposed concept. Where Burt (2004) focused on structural holes in a social network, Miettinen (2006) described the exploitation of expansive networks in collaborative projects. The power of human networks to collaborate on a project is fantastically magnified through modern telecommunication systems. Miettinen (2006) described the open development model, a collaborative effort where work and creativity is distributed through the internet. Networks of people collaborate on a project through a telecommunications network. The source code for the project is made free and open so that anyone can potentially contribute, Miettinen (2006) continued.

Miettinen (2006) highlighted that different people bring a fresh perspective on the problem, and look at the situation from a different vantage point which, in turn, assists the development and testing effort of collaborative open source projects. Collaborative projects utilizing modern telecommunication networks allow scattered individuals to partake in meaningful and grandiose projects that they would not have otherwise had the opportunity to

engage in. The emergence of “network societies and internet-mediated communities” (Miettinen, 2006, p. 179) is changing the fabric of modern American society. Distance learning, virtual communities, virtual reality applications, telecommuting, and teleconferencing pave the way for social collaboration at a distance. Americans with on-line access can be everywhere (physically) and yet all in one place (virtually). Miettinen (2006) lectured that revolutionary scientific ideas would not be possible without the proper social networks to inspire, promote, and disseminate the new ideas. This last point was also heralded by Kuhn (1962).

Seitz (2003b) acknowledged the power of high technology, and modern telecommunications infrastructure to power creativity. He used the example of Silicon Valley as an engine of innovation. Seitz (2003b) noted that easy collaboration, minimal bureaucracy, social networks in close proximity, and a risk tolerant culture are the secret to Silicon Valley’s success as a source of endless creative technological wizardry. Echoing this notion, Tepper (2006), explained that business organizations foster creativity by “rewarding creativity, funding new ideas, encouraging risk taking, building trust, increasing tolerance, and promoting personal expression.” (Tepper, 2006, p. 6)

Seitz (2003a) mentioned two types of social communities to which an individual belongs. The first is called *gemeinschaft*, and the second *gesselschaft*. The first refers to a community that is drawn together by kinship, family ties, values, common beliefs, habitat, attitudes, religion, and shared experiences. The second finds a basis in occupational settings, work groups, professional relationships, and business associates. The terms inner circle, family, or compatriots might be used interchangeably with *gemeinschaft*. The terms like work colleagues, or co-workers begins to approach the meaning of *gesselschaft*. Seitz (2003a) pointed out that the social bonds that an individual has are powerful factors in influencing individual creativity. Often, members within a

person's social network will have shared common experiences, values, beliefs, knowledge, cultural practices, training, and attitudes. Seitz (2003a) concluded that communities provide the basis for creative activity. "Creative activity emerges from communities of association whose lingua franca is political and social capital" (Seitz, 2003a, p. 248). Seitz (2003a) claimed that social ties, training, experiences, shared beliefs, and relationships gives rise to the unique character of an individual's preferences, choices, and creative tastes. Mills (1959) and Mead (1934) arrived at similar conclusions, noting the importance of social networks in the development of an individual's viewpoint, beliefs, creativity, judgment, and thinking. In modern American society, it is clear that one person is surrounded by individuals. The research indicates that an individual's social network powerfully influences that person's creativity and thought processes.

Place, Geography

One dimension of the environment is physical geography. Does the place where an idea is hatched influence the gestation period, the birthing process? When a study is performed to harvest insight that will serve as the foundation for a solution, to what degree does the place where that survey is done and the people with whom that survey is done on influence the creative product? Barnes (2004) argued that the physical geography of the creative person is one of the most important environmental factors that influence creativity. He drew a difference between rationalism and the sociology of scientific knowledge. In rationalism, Barnes (2004) noted, the context, environment, place, person, circumstance, and culture do not affect the product. However, Barnes (2004) surveyed the last 40 years of "intellectual production" and comes to the conclusion that the creative person and geography are vital in the creative process.

Barnes (2004) introduced the concept of the *Heterotopia*, which is a geographical

location that embraces and fosters dynamic ideas. These places are a fountain of ideas, the powder-keg spark of revolutions, and the center of a hurricane of new perspectives. Barnes (2004) wrote that *Heterotopic* places “reorder in radically different ways pointing to new possibilities”, and that the character and qualities of “heterotopias make them potent places of intellectual change.” Consider the place where you feel most at home. What makes the geographical location, the surroundings so comfortable? Do you do your best work in this place? What elements in your environment foster productivity? Barnes (2004) argued that Heterotopic places sport functional elements which serve to nurture change. Change is a necessary ingredient of innovation.

Healy (2002) reinforced the case made by Barnes (2004). Healy (2002) cultivated the notion that geography and spatial organization play an important role in fostering a “creative class” (Healy, 2002, p. 95). The social structure associated with a particular location has the potential to attract creative people. A city that is capable of providing unique opportunities, eclectic products, diverse cultures, interesting locales, and tolerant attitudes will not only foster creativity but also beckon creative individuals. This notion is also in line with Mill’s (1959) tenets that each place has unique merits that foster a unique sense of character. Geographical location, physical spaces, and spatial organization become established and then associated with a particular place. The place itself then takes on some unique characteristics that foster creativity. Solis-Gadea (2005) indicated that space has become a fundamental aspect of experience. This is true if for no other reason than it provides a breeding ground for all of the other environmental factors of creativity to take root and blossom.

Things, Tools, Instruments, Technology

Things in a person’s environment are an environmental factor that influences creativity.

In a stroke of genius, Cautilli (2004) pounced upon “environmental uncertainty” (Cautilli, 2004, p. 129) as a factor that nudges a person’s curiosity, which in turn causes the person to explore. Exploring and coping with new external stimuli charges up the creative potential of a person. With prophetic words, (Cautilli, 2004, p. 129) exclaimed, “novel uncertain stimuli set the occasion for exploratory behavior”. People who explore their environments are exposed to new stimuli, meet new people, come across novel experiences, enhance their perspective, and encounter new ways to solve old problems. When an individual is exposed to more diverse things, Cautilli (2004) chanted, they are able to produce more divergent thinking in the form of creativity.

Both Cautilli (2004) and Dalton (2004) spearheaded the notion that habit is an important factor in individual creativity. In particular, they referred to the habits which arise from creative responses in dealing with the environment. Cautilli (2004), espoused the notion that things in the environment create situations to either be overcome, or for the person to interact with, thereby stimulating or necessitating creativity which eventually leads to forming habits from codifying effective solutions. “Antecedents” (Cautilli, 2004, p. 130), or environmental stimuli, lead to creative responses and habituation. The individual Cautilli (2004) stated, will tend to select particular things in their environment and focus on them. This selection engenders certain preferences as a result of stimuli through the environment. For example, a painter might focus on a particular object in a painting he is working on. That artist might recompose the painting numerous times using that object as the epicenter of his creative work. In a similar way, a writer might rewrite chapters of his or her book, a music composer might restructure musical scores, and a fashion designer might recompose a dress around a particular element. Concepts are the result of filtered behaviors resulting from stimuli, Cautilli (2004) mentioned.

Dalton (2004), like Cautilli (2004), had a similar but slightly different perspective on the habit link to creativity. Of course, the topic of habit rightly belongs in a study of the creative process rather than the creative environment. So, this analysis focuses on the environmental stimuli which form the basis for the habit creation. Both Dalton and Cautilli were concerned about the effects of habit upon creativity. This analysis makes the point that things in a person's environment influence creativity by teasing out the places where the researchers mention how the environment produces the habit. Dalton (2004) stated, "Creativity can be redefined as the necessary adaptations of habitual practices to specific contexts of action." (Dalton, 2004, p. 603). Thus, Dalton followed closely on the coat tails of Cautilli. They both made the important point that things in the environment of the individual provide stimulus for the person to interact with. When a person adapts to their environment they engage their creative abilities. Both Dalton (2004) and Cautilli (2004) trumpeted that through repeated action, the individual gets into the habit of applying creativity to deal with their environment. The sociological term for this is "*habitus*" (Dalton, 2004, p. 604). Dalton (2004) drove the point home by directly stating that action occurs within a "social and physical environment" (Dalton, 2004, p. 620) which promotes creativity. The conclusion that we can draw from these assertions, studies, and philosophizing is that things in the environment are elements that are vital to a healthy creativity. A person locked up, isolated, hermetically sealed, and in Spartan quarters has fewer creative outlets than an individual in the opposite circumstances. This might seem obvious to many people, and present research in the area of creativity lends some credence to this notion.

Up to now, modern technology has not been considered much with respect to things as an environmental factor in creativity. However, Giaccardi (2006) supplied the notion that advanced technology can serve to stimulate creativity. Modern American society allows its citizenry to

easily gain access to advanced computer products, high bandwidth internet access, technological conveniences, treasure troves of electronic information, and state of the art multimedia gadgets. Americans are surrounded by high technological wizardry. Giaccardi (2006) persuaded that advanced technology can be used to “give rise to new forms of creativity” (Giaccardi, 2006, p. 29). “Extensions of reality” (Giaccardi, 2006, p. 31), digital representations of actual artifacts, virtual representations of worlds of wonder, personalized attention, and instant interconnection of social networks fuel modern American society. Giaccardi (2006) sketched a view of “virtual museums, meta-places, mobile encyclopedias, virtual communities, and websites” (Giaccardi, 2006, p. 31) that are able to stimulate creativity. The ability for an individual to instantly reach a wide audience sparks the imagination and fires up new horizons of opportunity. Giaccardi (2006) indicated that the marvels of modern technology will provide intellectual “richness and a source of social creativity.” (Giaccardi, 2006, p. 36) Modern inventions such as the telephone, cellular telephone, radio, e-mail, and instant messenger, greatly facilitate communication allowing ideas to be more freely shared. This promotes collaboration. Giaccardi (2006) also made the point that modern technology allows people to visualize the world and gain access to virtual representations of things that would otherwise be scattered all over the world. For example, a virtual collection of Leonardo da Vinci’s paintings and inventions in a website would allow a researcher to observe the great works of the quintessential Renaissance man. Giaccardi (2006) estimated that exposure to such virtual collections residing in computers would stimulate individual creativity because people would be exposed to a diversity of objects that they would not otherwise have access to.

In stark contrast to Giaccardi (2006), Healy (2002) raised concerns about the wholesale embrace of new information technologies. “The truth about technology’s effects on society is,

alas, very messy” (Healy, 2002, p. 87). Social structures do not change nearly as quickly as technological advances do. However, Healy (2002) like Giaccardi (2006) acknowledged the bottom line message that the modern information technologies have revolutionized industry in modern America. Intellectual capital, creative solutions, intellectual property, knowledge work, and innovation will come to dominate over older material based industries, Healy (2002) announced.

The computer and internet as a *thing* environmental factor in creativity drives a global market place that savors creative solutions, innovative products, and intellectual capital. This new economy also relies on workers capable of interacting and producing with high technology. Healy (2002) reasoned that the intellectual work demanded by the new global marketplace will value creative work, and necessitate innovation to remain competitive. Unlike Giaccardi (2006), Healy (2002) explored the broader consequences of high technology. The social impact of high technology should not be underestimated. Healy (2002) proclaimed loudly from the roof tops that the information age will be sustained by innovative products, creativity workers, an interconnected global marketplace, good intellectual property rights, specialized knowledge workers, “symbolic analysts” (Healy, 2002, p. 90), intellectual capital, supporting political policy, flexible corporate structures, and expansive property rights.

The message is clear. Not only are high technology things an important environmental factor that fosters creativity; but, the new information age, seeped in a global marketplace, demands creativity in order to function properly. Consumers have come to expect progress and innovation. As a result, only the most responsive products, services, industries, and companies will succeed. This requires the modern American worker who is responsible for delivering those creative products to constantly be on the lookout for the next new thing. Creativity workers keep

their eyes and ears straining against the mental darkness seeking novelty in unexpected corners. “The economic well-being of Americans depends on individual skills rather than the profitability of corporations” (Healy, 2002, p. 90). Intellectual capital and the creative products of the services industries bring in more revenue in America than manufactured goods, like clothes and cars, Healy (2002) stated.

Mead (1934) and Kuhn (1957) both highlighted the important role that things, instruments, and tools played in the innovation process. As such, things serve a vitalizing role as an environmental factor in creativity. Miettinen (2006) expanded on this notion. Creativity, ingenuity, and invention are motivated from unsolved industrial, technological, and social problems, Miettinen (2006) noted. Furthermore, Miettinen (2006) chimed technological components can be combined in novel ways to produce new inventions. An example of this is a hybrid gas-electric automobile which combines a standard internal combustion engine with an electric engine to achieve phenomenal gas mileage.

Healy (2002) highlighted a possible definition of creative industries based on intellectual property. Patents, copyrights, trademarks and designs are the four main types of intellectual property Healy (2002) noted. Of course, intellectual property law, rules and regulations complicates the interaction of the creative worker and the creative product. Certainly intellectual protection of creative products can foster innovation. If you have no rights to your creative work there is less incentive to make creative things outside of the market demand for it. Additionally, anybody could freely copy your work and overpower the inventor with corporate muscle. Healy (2002) mentioned that certain qualities are valued by the creative class including “creativity, individuality, difference, and merit” (Healy, 2002, p. 95).

An analysis of things as an environmental factor in modern American society would be

remiss without mentioning the manufactured products of corporate capitalism. Indeed, Mills (1951) was preoccupied with the social consequences of post industrial America. Peltz (2005) outlined a similar set of consequences. He stated that consumerism, marketing programs, and materialism affect Americans psychologically. People buy things to display social status, to “fill the void” (Peltz, 2005, p. 358), and to seek uniqueness in an increasingly replicated world. The global free market economies are a vehicle for innovative products, and far-away manufactured goods. Things stimulate creativity because they afford new opportunities and dimensions of interacting with the physical world.

Task, Work, Accomplishments, Job, Vocation

The spine of Dalton’s (2004) work dealt with linking tasks and actions undertaken by the individual with creativity. By way of comparison, Cautilli (2004) did not emphasize habit as such. However, he did consider the cumulative effects of actions over time in the greater context of behavior analysis. Dalton (2004) touted those tasks undertaken by the individual lead to activities that become routine. In other words, these routine develop into habits. Dalton (2004), mentioned that habit is intertwined with action and thus thought and action meld into a greater harmony. In essence, people are what they do. People become what they do through habit, ritual, and routine. People engage in activities based on what they think. Dalton (2004) termed this effect “*routinized* creativity” (Dalton, 2004, p. 607). Through the interaction with your environment and the tasks that you choose to undertake, Dalton (2004) claimed, a person will have to use creativity to solve problems. Furthermore, Dalton (2004) continued, when a person solves problems they engage their creativity, and the problems they routinely solve become habits which utilize the solutions that were creatively solved. In another brilliant stroke, Dalton (2004) also stated that environment events require “contingent techniques and perfection of

routine” (Dalton, 2004, p. 604), which develop “habitual schemas” (Dalton, 2004, p. 604) in order to overcome the “practical difficulties of action” (Dalton, 2004, p. 605). Dalton (2004) paid homage to George H. Mead as a seminal social theorist and philosopher concerning American pragmatism, situational action, and collective action theory. Indeed G.H. Mead (1934) wrote about behaviorism, ideas as a social process, unified action through cooperative organization.

Dalton (2004) also considered the opposite of routine, the improvisational, spontaneous, and impulsive action. When routine comes to dominate an individual’s life, that person will eventually seek escape. In the bigger picture of a person’s entire life, this commands the commonplace name of a mid-life crisis. But boredom, escape, play, entertainment, fantasy, and daydreaming all come knocking at the door when routine settles over a person’s life like a winter layer of snow covering the front lawn. Similarly, Cautilli (2004) mentioned how spontaneity and playfulness play a vital role in rejuvenating individual creativity. Interrupting, varying, changing, destroying, creating new routines provokes innovative activity. Impulsive action can serve to launch an individual into new unexplored frontiers. It allows the individual to break “social expectations, and disrupt habitual action” (Dalton, 2004, p. 608).

Hopping onto the back of the bandwagon with Dalton (2004) and Cautilli (2004), Miettinen (2006) proclaimed that contemporary viewpoints on creativity has been conceptualized within the sum total of a person’s life work. In other words, creativity stems from the undertakings of an individual. Miettinen (2006) mentioned that, decades ago, psychologists conceptualized creativity merely as a genetic endowment, an innate gift.

By contrast to Dalton (2004), Jenlink (2004) did not so much consider habit and routine as the essential motivator of creativity, but mentioned a broader agent of task. Jenlink (2004) contemplated the whole of humankind in the context of its accomplishments as a way for people

to establish a greater perspective, and foster mechanisms of social creativity. Issues that concern Americans are certainly influenced by the sum total of accomplishments of mankind. The vital link to creativity is that it affords the individual a greater sense of perspective. This, in turn, facilitates an altogether greater wisdom when undertaking tasks.

To round out the analysis, one could also play devil's advocate. If tasks, habits, rituals, and routines stimulate creativity, does the lack thereof hamper creativity? Dalton (2005) conjectured that the lack of tasks would generate a void in an individual's life. Tasks generate stimulus and create problems for the individual to creatively solve. Another consideration would be: does the overabundance of tasks, habits, ritual, and routines serve to crowd out the time to contemplate and foster creativity? Peltz (2005) discussed the "manic society" (Peltz, 2005, p. 350) where the individual is flooded with too many activities, "crowding our lives with pursuits, accomplishments, commodities, and symbols of achievement." (Peltz, 2005, p. 363). Without proper planning, and the willpower to trim time wasters, the typical modern American life quickly overflows with activities. Hopefully, some of these activities will be meaningful and important, presenting challenges that provide an opportunity for creativity to thrive. Peltz (2005) sounded a lifeguard's whistle for those fruitless activities to come out of the water of an individual's life.

Culture and Institutions of Society

Performing a drive-by mentioning, Cautilli (2004) espied culture as an "environmental experience" (Cautilli, 2004, p.127) that affects creativity. A person is surrounded by the trappings and idiosyncrasies that mark one society unique from others, which can be termed as culture.

Cautilli (2004) wed the notion of rules and regulations with the novel production of ideas.

Society establishes certain rules that citizens must abide by, Cautilli (2004) noted. However, these rules are complex. They mutate, evolve, and most importantly present situations for an individual. By overcoming these situations a person engages creativity. Additionally, rules and regulations, Cautilli (2004) noted, can serve as a way to filter stimuli and guide an individual through a situation. Miettinen (2006) buttressed this viewpoint by mentioning that invention springs forth from cultural resources. Creativity worms out of the individual's mind through interaction within a "cultural context" (Miettinen, 2006, p. 174).

Healy (2002) appraised the situation in a different light than Cautilli (2004). Healy (2002) observed the situation from the standpoint of intellectual capital being produced from creative workers. Culture, community institutions, social choices, cultural industries, "creative industries" (Healy, 2002, p. 93), cultural policy, cultural activities, commercialized culture (Healy, 2002, p. 91), and "people strategy" (Healy, 2002, p. 96) are at the nexus of promoting creativity at a societal scale, Healy (2002) volunteered. Contrast this notion to Mills (1959) focus on uniquely defining cultural characteristics, such as individualistic spirit, cultural diversity, liberalism, and intellectual freedom as the propellant of creativity. Modern American culture is an environmental factor to creativity because it serves as a mental diving board, inviting the creative person to jump in and explore the creative waters. The researchers, theorists, and philosophers converge on the viewpoint that modern American culture provides a richness of culture, openness of thought, nurturing institutions, and an abundance of creative opportunities ripe for the picking. Healy (2002) wrote that creativity and innovation are an "axial principle" (Healy, 2002, p. 93) in society, a principle that underpins and explains structural trends in society.

Jenlink (2004) discussed the broad range of diversity that exists in modern American culture. Jenlink (2004) noted that "social, ethnic, racial, linguistic, cultural, and religious

diversity” (Jenlink, 2004, p. 237) grips modern American society. This diversity creates opportunities, presents challenges, and creates a “sociopolitical ecology” (Jenlink, 2004, p. 237), produces cultural differences, and introduces social complexities. The diversity also presents unique opportunities to share cultures, to learn about different practices, to evolve a new way, to adopt effective techniques from other cultures, to borrow linguistic terms, and develop creative ways for disparate cultures to work in harmony. The challenges that are presented through the diversity are creative opportunities waiting to be solved. This diversity is also a hallmark of modern American society. It is a characteristic environmental trait that influences a person’s creativity because of the broad array of concepts, beliefs, languages, and customs that are mixed together. “Social adaptations and social adjustment” (Jenlink, 2004, p. 227) are utilized to confront tensions that arise from social diversity. Creativity is the primary tool used in order to produce the variations necessary to address these social issues. Seitz (2003a) followed up Jenlink’s (2004) viewpoint by stating that the communities and environment acts as a “cultural amplifier” (Seitz, 2003a, p. 247) selectively augmenting certain activities and attenuating others.

Science

Cautilli (2004) discussed the process of science with respect to “discriminatory learning” (Cautilli 2004, p. 129). The scientist comes across something unknown in the environment, and feels compelled to explain the thing or phenomena. Cautilli (2004) demonstrated knowledge of science creativity by stating that the scientist focuses on particular events in order to produce a theory to explain the phenomena. In this way, the scientist discriminates some phenomena from others, much like teasing out cotton fibers from newly sheared wool. This leads to “novel ways of conceptualizing a case or classifying a phenomena” (Cautilli, 2004, p. 129).

Eventually, scientific theories serve as mental scaffolds, frameworks, and structures that

can be used to stimulate the mind and explain the world around them. This result is corroborated by Kuhn (1962), because he wrote of a similar effect produced by the work of scientists upon the common beliefs of individuals. Miettinen (2006) emphasized the prior knowledge is an important stepping stone in the journey of scientific progress.

Healy (2002) vitalized the notion that “science is a creative activity” (Healy, 2002, p. 94). This sentiment is directly shared with Kuhn, who wrote science is a “product of the human imagination. It is a conceptual scheme, a theory, deriving from observation” (Kuhn, 1957, p. 36). Healy (2002) contemplated some of the conundrums of modern creative scientific endeavors. For example, can the human genome be patented? The implication is that, a scientific discovery which took insight, creativity, diligence, and hard work to achieve, such as the mapping of the human genome, could be turned into beneficial genetic treatments. Science becomes not only an environmental factor that influences creative endeavors; but, simultaneously the effect feeds back upon itself. That is, creativity can alter the very process of performing science as it pertains to some environment. This, in turn, alters the environment for future scientists and citizens alike. As our understanding of the world expands by way of science, new horizons and creative opportunities are opened up.

Science in modern American society is rarely a lonely genius laboring away in an ivory tower. Seitz (2003b) explained that “science is the cumulative knowledge of many individuals, rarely an isolated breakthrough” (Seitz, 2003b, p. 385). The scientific concepts, scientific experiments, and prevalent scientific theories are part of the environment for a budding researcher wishing to add to the body of knowledge in a quest to explaining the inner workings of nature. His creative efforts in formulating new theories must emerge from the cocoon of present scientific understanding. This notion is also corroborated by Kuhn’s (1962) use of the

term *paradigm*.

Language

Mead's (1934) work on meaning from language echoes through the ages and the banner is carried up by Cautilli. Cautilli (2004) waved the notion around that language used creatively affects individuals through an "equivalence relation (Cautilli, 2004, p. 134). An equivalence relation is the phenomena when a creative work is capable of producing a sympathetic response. A story of joy, celebration, elation, and triumph can spark like emotional responses in the individual who reads the story. Ordinary language can produce "symbolic behavior" (Cautilli, 2004, p. 134) that is meaningful. Indeed, Mead (1934) wrote of language with respect to "meaningful conduct" (Mead, 1934, p. 73). Language can inspire, inform, command, and move an individual. Language is an environmental factor in creativity because it has the capability to produce an "equivalence relation" (Cautilli, 2004, p.134) in an individual.

The airport hub analogy that was used to illustrate the concept of Burt's (2004) social network holes also serves to illustrate another point that Cautilli (2004) made. Cautilli (2004) stated that, "analogy has a role in the study of creativity because of the wedding of two or more previous forms of a solution from different contexts." (Cautilli, 2004, p. 132). Thus, using language to create analogies using things in the environment, connects disparate concepts, expands thinking, stimulates creativity, and helps to visualize concepts. Thus, when other people use analogies, your mind and creativity is stimulated. Cautilli (2004) suggested that analogies can help to fragment, recombine, arrange, rearrange, and produce new stimuli that spur creativity on.

Education

Education is an environmental factor in creativity because it alters the way you think, the

information that you draw upon, the beliefs you hold, the method of attack you use on problems, and formalizes training into specialized disciplines of knowledge. Edwards (2003) sprung upon the link between education and creativity like a mousetrap on its prey. In a crushing grip of reason, Edwards (2004) seized upon the fundamental aspects that make education important to a person's creativity. If educational institutions can be made to increase trust, openness, ownership, involvement, purpose, expectations, and accountability, Edwards (2004) preached, they will foster creativity. Edwards (2004) struck a chord by writing that learning and creativity can be partnered. Learning and creativity share in common "inspiration, distillation, clarification, incubation, evaluation, persistence, and perspiration" (Edwards, 2003, p. 92). When education provides proper feedback, sagacious questioning, exploratory learning, clear intentions, organized study, good assessment, genuine self-evaluation the individual's creativity will be bolstered through their educational experiences, Edwards (2003) volunteered.

Edwards (2003) proffered positive experiences in education will engender an individual to keep on learning for life. He continued, that it will impart the "self-confidence and the ability to ask the right questions, to listen to our experience and learn." (Edwards, 2003, p. 92). In the end, after a person has left formal educational institutions, what have they got? Hopefully, they have learned how to learn if nothing else. Edwards (2003) championed the notion that education can be designed to stimulate creativity, to vitalize a person's intellectual curiosity, and engender a thirst for knowledge throughout a person's entire lifetime. "Through creative action we confirm purpose, and develop the skills and critical faculties to continue learning throughout life." (Edwards, 2003, p. 92).

In a completely different tack, Jackson (2006) described an innovative educational system that utilized holistic methods to develop an individual. Education is an environmental

factor to creativity because it changes the way you think, but Jackson (2006) pointed out that the notion can be turned about as well. Creativity can be incorporated directly into the educational process. Nursing off of the imagination of the students, teachers could create a synergistic learning environment. Jackson (2006) described holistic learning that cultivates the creative, spiritual, emotional, aesthetic, mental, physical, social, and technical aspects of a student. Jackson (2006) noted that education has the opportunity to foster imagination, creativity, spontaneity, originality, sensitivity, and responsibility.

Echoing the sentiments of Mead (1934), Jenlink (2004) established a beach head on the notion that education prepares an individual to become a transformative yet vital element of society. Both Mead (1934) and Jenlink (2004) stated that schools prepare an individual to become an active, contributing member of society. However, Jenlink (2004) went further than Mead (1934). He proclaimed that the “creative function of education” (Jenlink, 2004, p. 226) allows an individual to transform society. The central thesis of Jenlink’s (2004) work was that education is capable of cultivating imagination and thereby fuel human freedom and social discourse. Jenlink (2004) proposed that social injustices, inequities, shortcomings, and undemocratic practices can be checked through empowering educational systems. “Education is the medium for society’s hope of an alternative future” (Jenlink, 2004, p. 227). Jenlink (2004) theorized that education serves as the center of gravity of a society. Jenlink (2004) proclaimed that education needs to develop imaginative possibilities to allow individuals to address social woes. Clearly, education plays a vital role in the social development of an individual. Furthermore, it presents the chance to promote freedom, democracy, liberty, justice, and social harmony through creative alternatives and solutions. Education can promote creativity, and creativity should be promoted within education. Jenlink (2004) offered the notion that education

should be a force for creativity, a tool to imbue meaningfulness, “societal evolution” (Jenlink, 2004, p. 239), a mechanism for critical analysis, and a means by which future possibilities are imagined. Jenlink (2004) attested to the idea that social creativity can encourage beauty, freedom, and justice.

The seminal theorists, G.H. Mead, C.W. Mills, and T.S. Kuhn all acknowledged the importance of education in the development of a person. However, Edwards (2003) based his entire work on the connection between education and the fostering of creativity. The best institutions of learning have not only the power to inform but also the ability to inspire creativity, expedite curiosity, and develop a passion for learning. Edwards (2003) summarized that, “creativity is a key ingredient of education and the growth and development of the individual” (Edwards, 2003, p. 95). Modern American educational institutions fertilize the mind with knowledge that the individual draws upon in all their endeavors. Edwards (2003) persuaded the reader that there is an important coupling between creativity and learning.

History

Modern Americans are surrounded by the products of history. History leaves its roots in the form of both a physical and intellectual legacy. For example many buildings, forts, outposts, and establishments from bygone eras are available for Americans to visit. Scientific discoveries and technological accomplishments of yesteryear reach forth from the past to speak to the denizens of the present. In what way to the products of history have an effect on creativity? How does the accumulated knowledge from past scientific discoveries influence the thinking of the modern scientist?

Individual history can play an equally important role in affecting presenting thinking. An individual’s experience builds up a view of the world that can serve to stimulate creativity.

Cautilli (2004) bowed to Mead's (1934) wisdom in discussing individual history as an environmental factor in creativity. A person's history Cautilli (2004) wagers has a cumulative effect through the culmination of experiences. A person's history is an integration of all of the other environmental factors through time. Of course, Cautilli (2004) fell short of Mead's protracted didactic on individual history; however, he highlighted an interesting point which Mead never discusses. A person's individual history can interfere with their present work, and their present work can serve to erect a smokescreen for previously learned things. The former is termed "proactive interference" (Cautilli, 2004, p. 128), and the latter is identified as "retroactive interference" (Cautilli, 2004, p. 128). An example of retroactive interference could be served by a person learning tennis. In the example, assume the person in question had already learned how to play tennis from a friend. That person figures out a method to serve, and return a tennis ball. He or she develops a method well enough to hit the ball about, but not play a serious game of tennis. Suppose a few years pass and that person continues to play tennis on a regular basis. The person decides to take tennis lessons and gets formal training from a professional tennis instructor. Thus, that person's previous learning on serving a tennis ball would interfere with the professional instructor's method of serving. Once a person becomes a master at tennis, they can create ways of hitting the ball that have never been thought of. The personal history they have developed allows them to be creative. A person's individual history is an environmental factor of creativity because they draw upon their previous experiences in order to produce ideas.

Solis-Gadea (2005) invoked another interesting aspect of history, the evolution of theories. Kuhn (1962) pondered the impact of legacy theories upon the development of new theories. Kuhn considered the wholesale revision of old theories and their displacement by new theories. However, Solis-Gadea (2005) specifically considered the evolution of theories over

time. He weighed the historical impact that a theory has had. Solis-Gadea (2005) posed a contemplative question asking the reader to consider how a theory had been cultivated “throughout history” (Solis-Gadea, 2005, p. 113). His answer came in the form of a challenge. He stated that intellectual works should be a work in progress. Modern disciplines should be “a creative form of inquiry more than as a secure source of definite answers” (Solis-Gadea, 2005, p. 177). This rally cry is inspirational, asking theorists to continue to think, probe, question, ponder, and develop ideas.

What made Solis-Gadea’s (2005) work particularly relevant to this analysis is that he considered the historical evolution of Charles W. Mill’s (1959) theory of *sociological imagination*. He described the historical impact of the theory and its development. But Solis-Gadea (2005) also described a new sociological imagination, one where a theorist should probe, explore, deduce, and analyze. His words ring true about all scientific endeavors. The quest should use “grounded thinking in service of questioning reality. It creates conjectures that are always provisional but consistently scrutinized.” (Solis-Gadea, 2005, p. 117). The works of Solis-Gadea (2005) are a good example of how the historical development of a theory can serve as a launch pad to take the theory in a new direction.

Another interesting aspect of history is alluded to by Tepper (2006). People leave behind a trail of ideas. The ideas, experiments, thoughts, ponderings, theories, and concepts that people have developed in the past can serve to inspire new ideas today. While Tepper (2006) does not directly address this historical aspect of creativity, Tepper (2006) did describe a number of historical developments in the quest to better understand creativity. Thus, Tepper (2006) served as a concrete example even if he did not directly address the power of history on present creative efforts.

History has some interaction with the other environmental factors in creativity. This is true of the other environmental factors in creativity as well. For example, history influences science through previous theories. History leaves a legacy of people, places, and things that a present-day individual can explore or interact with. History leaves behind traditions that influence present culture. Over time, languages evolve to accommodate new concepts. People have used a variety of governmental forms and political policies.

Form of government, Government policy

Modern American government uses a representative democracy which fosters a laissez-faire capitalistic economic system. The form of government is an environmental factor to creativity because it affects the basic living circumstances of the country's citizenry.

Governmental policy influences what sorts of programs are valued, what programs will be fostered, and what types of research will be encouraged or hampered.

Healy (2002) professed that political policy and economic policy can encourage and emphasize creative endeavors, the arts, innovative technologies, and inventive solutions to social problems. Furthermore, Healy (2002) heightened an interesting issue. He noted that political policy sets the tone for economic policy by fostering trade between particular countries.

Partnerships, alliances, treaties, joint ventures, coalitions, negotiations, and international summits are all the work of political engines. The outcome of these arrangements greatly affects the environment of the individual. For example, the things that a person owns, the topics that the person talks about, and the social networks that a person establishes is affected by whether America is at war, in trade, in negotiation, at economic odds, or in cultural synergy with the other country. The governmental policy affects what an individual talks about and thinks about because it can affect the country as a whole. Large social upheavals like prohibition, the great

depression, world wars, 1960's, suffrage, slavery abolition, market globalization, and the dot com boom rippled out to affect every American citizen.

In a similar vein, Miettinen (2006) expressed the position that innovation and creativity are vitally important in making policy. Creativity and innovation needs to be fostered by public administrators to achieve success in the modern economy, Miettinen (2006) noted. Consequentially, the US department of defense, and other institutions, Miettinen (2006) wrote, developed tests to measure intelligence, and standardized the business of creativity by utilizing such methods as brainstorming and *synetics*. A great deal of attention has been paid to the factors that stimulate creativity. Miettinen (2006) explained that creativity stems from a confluence of conditions and determinants. Miettinen (2006) acknowledged social factors, psychological factors, native abilities, and the result of action, the influence of social networks, cultural phenomenon, and technological products as environmental factors that influence creativity. Miettinen (2006) followed the precedence set by Mills (1951). Mills (1951) recognized the importance that political policy played in the fostering of creativity through its influence on commerce, consumerism, monetary policy, ideology, public discourse, propaganda, bureaucracy, property law, taxes, employment, social policy, and social contracts. Miettinen (2006) highlighted specific policy decisions that were utilized to identify creative traits and creative individuals. The specific examples that were used by Miettinen (2006) are insightful. The government and other institutions can foster particular techniques, methods, tests, strategies, and studies which will coax people to be more creative. By recognizing the importance that creativity plays in the modern global economy, political policy can result in programs aimed at developing the innate creative capacity of its citizenry.

Politics, Civics

Healy (2002) identified that economic and political activity can influence the price, supply, growth, competitiveness, and demand for cultural creative goods. In addition to basic cultural creative goods, such as the performing arts, broadcast media, cultural arts, historical preservation, and artistic work, governmental policy can influence creative works in the service industry, such as creative works in the software industry. Healy (2002) instituted the notion that “cities need a people strategy even more than a business strategy.” (Healy, 2002, p. 96).

Jenlink (2004) brought up an interesting aspect of civics. Jenlink (2004) observed that the connection between civics and education shapes the way society operates. Civic education not only prepares a citizen for social acceptance, but also opens the doorway to understanding the ideological framework and institutional beliefs of the society. The consequences of this civic education form the basis by which an individual can promote change within the society using the rules established by the society. Civic knowledge imparts upon the individual an understanding of the basic principles by which society operates. Jenlink (2004) termed the expansive possibilities generated through this mechanism, “educated hope”. A strong case has been made that education influences creativity, and a similarly solid case has been presented that politics is a factor in a person’s thinking. It only stands to reason that there could be a relationship between the two environmental factors that combine to influence the individual’s creative capacity.

One of the defining characteristics of American politics is representative democracy. Mills (1959) explored how democracy is dappled throughout the American culture affecting the way Americans think and operate. Peltz (2005) acknowledged that democracy, social structures, and political policy play an important role in “providing an environment that fosters growth and creativity” (Peltz, 2005, p. 347). Peltz (2005) lamented that American politics is frequently intertwined with economic affairs. This phenomenon pervades the individual and results in an

affect that Peltz (2005) termed “the manic society” (Peltz, 2005, p. 350). Americans lead frenetic lives where the boundary between work and play is blurred. Peltz (2005) described how an individual American is bombarded by political rhetoric, marketing schemes, and institutional forces. Political expression is often intermingled with economic intent. This socio-politico-economic backdrop melds together to form part of the individual’s environment. Peltz (2005) warned that the aims of the free market are often in conflict with truly democratic and socialistic aims. Peltz (2005) professed that there is great potential to harvest creativity through proper political policy especially if it is disengaged from economic affairs.

Political policy, political decisions, and political expediency can dramatically affect the social environment that the modern American swims in. Peltz (2005) outlined a framework wherein American government could play second fiddle to market forces, or could break free from those very same bonds that hold it down. By doing so, Peltz (2005) highlighted the importance the political policy plays in an American’s life. The government, Peltz (2005) explained, provides for basic social services, erects provisional webs, creates assistance programs, establishes welfare programs, distributes symbols of authority, provides healthcare, educational opportunities, and affects the standard of living of its citizenry. All of these things determine how the American individual will live, how they are supported, and the sort of environment they operate within.

Solis-Gadea (2005) indicated that modern America is a dynamic place with complex moral challenges, social structures, historical contexts, developing facts, personal agendas, ethical issues, technological imperatives, capitalistic forces, territorial tensions. All of these are encased within a cosmopolitan political framework seething with change. Solis-Gadea (2005) incited people to include “theory, history, empirical facts, logical formalization, systematic

analysis, creativity, local knowledge, moral judgment, inspiration” (Solis-Gadea, 2005, p. 118) in their tools kit to better understand the modern world.

Religion, Beliefs

In the opening shots of Jackson’s (2006) paper, a description of an oppressive Nazi German society was given. Jackson (2006) described a Jewish person exiled from his native soil. Today, in modern American society, people enjoy the luxury of religious freedom. Rather than hindering creativity, spontaneity, and imagination that result from persecution, modern Americans have lush open fields of intellectual freedom and cultural tolerance. Jackson (2006) described a novel, and innovative learning community called the Camphill movement that fosters spiritual, emotional, creative, as well as intellectual development.

Religions and beliefs can hem in your thinking, but in the proper atmosphere they can also provide a social network, and a path for self-development. The exposition of Jackson’s (2006) writing demonstrated that the beliefs of an individual can serve to unleash the human spirit. With respect to changing modern society, Solis-Gadea (2005) mentioned how religion is adapting to the new social practices, global culture, and modern trends. People act according to their beliefs. The issues that a person takes an interest in and the problems that they choose to engage in are affected by their beliefs. Beliefs can stimulate curiosity if an individual is motivated to validate their beliefs with reality.

Parenting, Childhood

The maturity of a person through childhood is termed ontogenetic development. Cautilli (2004) delineated the difference between phylogenic level and ontogenetic level differences during development as an influential factor in personal creativity. Some intrinsic, natural, talent is genetic or phylogenic to the individual, while many the environmental factors contribute to the

ontogenetic development of a person through childhood and into adulthood.

Parents also codify rules through storytelling, Cautilli (2004) noted, that affects how a person think about morals. For example, a parent could ask the child of the moral assertions from the story of Goldilocks and the three bears. Cautilli (2004), made the case that children will want to hear the story repeatedly, whereas they would tire rapidly of a reductionistic rule such as, “don’t talk to strangers”.

The fundamental premise here is that parenting is an environmental factor because it can serve to stimulate and develop an individual’s creative capacity. Mead (1934) described numerous mechanisms that the child, parent, and groups of children engage in that foster creativity. Peltz (2005) was forthwith in acknowledging that parental guidance and “attentive care” (Peltz, 2005, p. 353) are instrumental in the development of the child. Family life, Peltz (2005) implied, is responsible for shaping social values held by an individual. Peltz (2005) wrote that supportive families can ignite “creative passions that emerge out of the integration of instinct and relatedness” (Peltz, 2005, p. 354). Children depend on their caretakers, parents, families, and social networks for their development. Human adults are shaped by their childhood. The notion of an individual’s personal history is discussed in the history factor. Childhood experiences influence a person’s attitude, behavior, values, viewpoints, beliefs, and perspectives. Peltz (2005) explained that children can thrive physically, mentally, emotionally, and creatively if they have nurturing social relationships.

Sometimes it is insightful to consider the antithesis of a notion in order to gain insight into the original thesis. Jackson (2006) mentioned a crisis in childcare linked to child abuse. An abusive parent hampers a child’s creative spirit. A traumatic childhood poses an obvious threat to the emotional, psychological, mental and physical well being of an individual. Peltz (2005) also

acknowledged the potentially harmful effects of improper parenting. He wrote, “The potential for human destructiveness intensifies in situations of parental neglect, abandonment, or trauma.”

(Peltz, 2005, p. 365). Poor parenting stunts a child’s potential. When a person is concerned with nothing else but basic survival, mental sanity, and psychological trauma there is little room left over for creative endeavors. Yet, this counter-example serves to illustrate that the opposite condition with nurturing parents can foster growth and creativity.

Conclusion

The Breadth component concluded by identifying environmental factors that influence creative output. The factors identified were people, places, things, tasks, culture, science, language, education, history, government form, politics, beliefs, parenting. These factors were teased out of the work of pioneering theorists Samuel T. Kuhn, George H. Mead, and Charles W. Mills. The Breadth component discovered a number of powerful connections to creativity for each environmental factor. This essay concludes that there are new dimensions to each of these environmental factors in creativity. Some of the new insights, terminology, ideas, concepts, and viewpoints result from incorporating aspects of modern American culture including the internet, high technology, holistic education, intercontinental politics, and virtual collaboration. A new crop of researchers have brought a fresh perspective by delivering new evidence and theories that support the link between these environmental factors to creativity. This essay also reinforces the link between the environmental factors identified in the Breadth component to that of creativity in modern American society.

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Core Knowledge Area Module Number 1 Depth Essay:

Current research on the environmental factors of creativity in modern American society

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APPLICATION ESSAY

Professional Practice and in Environmental Factors in Creativity—Introduction

Speeches are delivered for a variety of reasons. Some seminars serve to inspire. Some are used for demonstration. The seminar presented in this paper was used to inform. The purpose of this instruction was to impart some insight about creativity to the attendants.

The purpose of this KAM is to analyze the environmental factors in creativity. Creativity factors are aspects of an individual's environment that serve to influence a person's sense of imagination, lateral thinking, originality, and creativity. The primary environmental factors of creativity presented are: people, places, things, science, tasks, languages, cultures, education, history, governmental forms, politics, beliefs, and parenting. Furthermore, this presentation analyzes the environmental factors within modern American society

I have delivered over 200 speeches to audiences ranging in size from three to 1,000. Experience in making and delivering presentations develops mental rules of thumb. I have found that it is prudent to allow approximately three minutes of delivery time per slide. The presenter should use presentation slides as a sailor would use a map. The map can guide the sailor along - even in a fog. Each of the slides should have a principle function. The main purpose of each slide should be captured in the title of that slide.

There should not be more than six main points in a slide. As such, the sinew and meat of the presentation is delivered by the presenter to be draped over the skeleton of the slides. What follows is a commentary and analysis on the individual slides. The actual slide package follows the analysis. A commentary on the actual delivered speech is incorporated into the analysis.

Seminar analysis

The presentation started off with a brief introduction of me as the presenter. The second slide gave a basic concept of creativity. Everyone in the audience already had some mental preconception about what creativity is. The point of this seminar was to share some insight into how creativity works. The seminar outlined the description of a creative person, who gets a creative idea, using some kind of creative process, within a creative environment. The purpose of the seminar would be to discuss the creative environmental factors that influence creativity.

The next slide listed all of the principle environmental factors in creativity that have been identified in this KAM. The environmental factors of creativity presented were: people, places, things, science, tasks, languages, cultures, education, history, governmental forms, politics, beliefs, and parenting. Interwoven into this slide are more than six points. The army of points would seem to shatter one of the cardinal rules of thumb in making presentations. That is, don't speak to more than six points on a slide. However, the principle purpose for this third slide was not to discuss in depth about each of the environmental factors in creativity. Rather, the slide presented, as a whole, the notion that there are key environmental factors that shape a person's thinking. This slides served as a visual agenda. The audience was told that each of these environmental factors in creativity would be discussed in more detail.

One good rule of thumb in making presentations is to first describe what you will be describing to the audience. Then, step through and describe the material. Finally, conclude by reviewing, and summarizing what you just described. The third slide, the visual agenda, serves the purpose of describing for the audience what they are about to experience, and also encapsulates the principle points that they can return to as a summary slide. In order to keep the

presentation down to approximately 15 slides, the visual summary also doubled as a conclusion slide.

The fourth slide entitled “People” followed the visual agenda. This slide served to herald a series of slides each of which is devoted to describing a different environmental factor of creativity in modern American society. The Breadth and Depth components of this KAM describe in detail each of the environmental factors in creativity. The photograph was taken by me in the Pocono Mountains. This slide serves to summarize the findings. How are people a part of a person’s creative environment? First, people share ideas. People who span the gap between two isolated social groups are called *idea brokers* (Burt, 2004).

People within a social network can help an individual generate ideas. Social networks allow people to collaborate and share ideas (Miettinen 2006). Virtual communities facilitate collaboration and idea sharing by bringing together people from all over the world (Miettinen 2006). *Gemeinschaft* and *Gessellschaft* were terms tossed about by Seitz (2003a). The first term represents a person’s inner circle, the second their professional associates. Mills (1959) described how relationships influence a person’s values and perspectives. Mills (1959) argued that this, in turn, affects what sorts of problems people will engage in, and what issues they consider important to think about. Mead (1934) presented perhaps one of the most powerful statements about people as a creativity environmental factor. He offered the notion that the very act of generating ideas is a social process.

The fifth slide discussed how places can influence creativity. The photograph was taken by me during a trip to the Rocky Mountains. Mills (1959) offered that places have a unique sense of identity. Kuhn (1962) wrote about places which allowed for free thinking to occur. Barnes (2004) focused on special, inspirational places that served as a propellant for creativity. These

places are called *Heterotopias*. Healy (2002) discussed geography and spatial organization can play a role in bolstering a “creative class”. Solis-Gadea (2006) emphasized that physical space is an important aspect of an individual’s experience. A person relates to the world around them through the physical space they live in.

Things can serve as a motivator of creativity. The sixth slide depicted a replica of one of the first light bulbs ever created. The photograph was taken by me on a trip to the Thomas Alva Edison childhood museum in Milan, Ohio. The museum tour guide informed the audience that the light bulb uses a carbonized bamboo filament enclosed in a spherical vacuum. Technology, instruments and tools serve as the implements of creativity, Kuhn (1957) implied. Mead (1934) pointed to the fact that the application that people find for something comes to determine how that thing is conceptualized. For example, two matching strips of fuzzy Velcro will come be conceptualized as a quick-release reusable fastener. Before the invention of the internal combustion engine, oil was not mentally conceptualized as a fuel.

Mead (1934) explained that as people become proficient with something, they develop a skill. The development of a skill can ignite creativity because new opportunities are created. For example, Mills (1934) argued that proficiency with a telescope, in the hands of a skilled astronomer, allows him to digest all that the heavens have to offer. Modern Americans are surrounded by mass manufactured things. Mills (1951) pointed out that modern capitalism churns out goods that come to affect how Americans interact with their surroundings. The pool of tools that Americans have available at their disposal greatly expands their potential creative opportunities. Finally, Giaccardi (2006) described how high technology can foster creativity. Modern telecommunication systems, the internet, media products, and software programs can become tools of the mind, food for thought, and an electronic muse. Of course, in a sense, the

entire world around an individual is composed of things. Another person can be seen as a thing as well. However, this slide highlighted those things that serve as an implement of creativity,

The seventh slide concerned tasks. Each of the points on the slide explored a different important aspect of the relationship between task and creativity. Mead (1934) explained that modern American society requires people to specialize. The products of modern capitalism are complex enough that the division of labor requires specialized knowledge, unique terminology. This serves as a factor in creativity because job differentiation results in the specialization of skills which allows a person to see the world in a unique way. Mead (1934) further explained that work served to develop a person's mind and sense of self. Mills (1959) contributed that work is also a principle mechanism by which an individual is incorporated into society. Kuhn (1957) mentioned how tasks can give a person purpose and meaning. Dalton (2004) explored the link between habit and creativity. Tasks that are performed regularly become routine. The challenge of finishing tasks requires an individual to engage their creativity, Dalton (2004) claimed. Cautilli (2004) considered an opposing viewpoint. Cautilli (2004) noted that rather than routine, it is the escape from routine that impels creativity forward. Cautilli (2004) noted that play, impulse, and exploration foster creativity. The activities that people chose to engage in, and the job that they hold enables an individual to develop skills. Activities serve to spawn new opportunities and new challenges for creativity to thrive in.

The eighth slide concerned beliefs. Beliefs can serve to stimulate creativity; however, it can also chain it down. Kuhn (1962) noted that people develop a world view that serves as a filter upon a person's reality. By this he meant that a person who holds a particular belief will experience the world in a particular way. For example, consider the belief that bacteria on a person's teeth multiply by the millions within the span of a few hours, and that these bacteria

cause plaque and tooth decay. The person who holds this belief will act to eliminate these bacteria by brushing their teeth. Kuhn (1962) noted, among other theorists and researchers, that beliefs affect the values that a person holds dear. Finally, Kuhn (1962) noted that beliefs have inertia. He explained that the beliefs held by an individual or society is slow to change, and require a significant impetus to bring about that change. Solis-Gadea (2005) noted that religion is a factor in a person's environment. Religion affects what a person believes to be true. Mills (1959) noted that there are certain beliefs that are developed within a particular society or culture that are held by the members of that society. Some of these notions are codified into superstitions, traditions, and folklore. Mills (1959) noted that modern American society is characterized by individualism, a laissez faire economy, religious choice, a liberal democracy, and freedom of individual action. This unique political system translates into the belief that this individual freedom should be cherished thing. Beliefs serve to foster creativity because they affect how an individual views the world and serves as the diving board for a jump into the murky waters of reality.

The ninth slide was devoted to science. The photograph of the space shuttle was taken me at the National Air and Space Museum in Washington, DC. Science affects creativity because the scientific process itself is a journey of creative discovery. Science, as an abstract concept, is a process and a body of knowledge by which the workings of the natural world are revealed. Kuhn (1957) noted that scientific theories are "a product of the human imagination." (Kuhn, 1957, p. 36). Kuhn (1962) described how science builds up a world view, a paradigm, and a model of reality. This paradigm serves as a framework for how an individual comprehends the natural world about him. Kuhn (1962) explained that for a new world view to take hold, a paradigm shift must occur. During a paradigm shift a new reality model displaces the old one. The handiwork of

science is the product of imagination, creativity, observation, and careful thought. Echoing Kuhn's (1957) assertion, Healy (2002) explained that "science is a creative activity." (Healy, 2002, p. 94).

Mills (1959) described the process of scientific discovery which includes the harvesting of data, or empirical evidence. Mills (1959) provided a lengthy exposition about the importance of empirical evidence. Science builds theories based on empirical evidence. The empirical evidence is gathered through creative experiments, or keen observations about the natural world. A theory about nature is conceived, and then experiments are devised to confirm or deny the theory. Kuhn (1957) noted that the impetus for new scientific theories is flaws with the existing framework of reality. Science is a tool to understand the workings of natural phenomena, Kuhn (1957) implied. By understanding the natural world a person can be assess what creative options are available to him or herself. Seitz (2003b) professed that science is a collaborative undertaking, rarely performed by lone cowboy scientists off in the theoretical wilderness. Rather, science builds upon accumulated knowledge, experience, evidence, and observations.

Culture is an important environmental factor in a person's creative repertoire. The tenth slide discusses the impact of culture on an individual's thought processes. The photograph was taken by me at the Uffizi Gallery in Florence, Italy. The painting is called "The birth of Venus" by Sandro Botticelli. It was painted during the Renaissance. The most intuitive thing about a culture is that it generates a social structure. Indeed, Mead (1934), pointed to the social structure of modern American society as providing basic necessities while offering creative latitude for its citizenry. Mills (1959) explained that American culture encourages individuality, freedom of expression, choice, diversity, and creativity.

Kuhn (1962) noted that culture establishes norms and accepted practices. Kuhn (1962)

also described the fact that social institutions are established which govern many aspects of an individual's life. Social institutions can encourage certain ideas by providing assistance, rules, endowments, grants, and resources. Cautilli (2004) echoed Kuhn's (1962) sentiment. Rules and regulations present challenges that can serve to stimulate creativity. Jenlink (2004) observed that cultural diversity can serve as an important stimulus to creativity. Diversity provides an individual with many unique viewpoints, perspectives, cultures, linguistic terms, ideas, and adaptations. Modern American culture is a hotbed of social ideas. The freedom offered by American culture fosters experimentation, originality, imagination, individuality, and creativity.

The eleventh slide focused on the government as environmental factor. Mills (1959) pointed out that the democracy Americans enjoy serves to foster individuality. Healy (2002) cited that political policy can serve to stimulate creativity through the promotion of creative works. Miettinen (2006) described the importance of fostering innovation through public policy. Mead (1934) noted that the type of government can foster freedom and individuality, which, in turn, encourages creativity. Governmental institutions, Kuhn (1962) noted, can play a role in fostering or hampering creative solutions. Finally, Healy (2002) described how political policy can influence economic policy. Economic policy has the ability to stimulate creativity and innovation through incentive programs, endowments, grants, and market forces. The form of government is an environmental factor in creativity because it sets in motion a variety of other things that can promote and stimulate creative works.

The next slide concerned politics. The photograph of the United Nations building was taken from the East River by me during a tour on the Circle line cruise ship around Manhattan. Politics plays a role as an environmental factor because of its relationship to society. Healy (2002) described how political activity can influence the demand for creative goods. Civic education,

Jenlink (2004) noted, plants the notion that an individual should participate in the political process. This participation serves to stimulate thinking about the inner workings of the political process.

Social programs were the focus for Peltz (2005). He indicated that social programs have the ability to nurture the development of creative works. Solis-Gadea (2005) spelled out how dynamic American politics is. Modern American society presents a changing political landscape, complex social structures, and political issues. The political issues and technological imperatives can serve to stimulate a search for solutions to address these problems. Mills (1951) reinforced the fact that political policy can foster creativity. Finally, Mead (1934) described the notion that the political process requires social participation from the citizens. Engaged citizens in the political process will expand their creative horizons.

The next slide was concerned with childhood. Mead (1934) analyzed the affect of parenting on the development of the child. He made several important points. First, the role of the parent to provide a stable nurturing environment is vital to the development of the child, Mead (1934) explained. Mead (1934) described the positive impact that childhood games, make believe, and social activities have on an individual's creative abilities. He explained that the family as a basic social unit was important in establishing this nurturing environment for the child. The family plays a central role in the social development of an individual, affecting their ability to express ideas, Mead (1934) noted. Cautilli (2004) differentiated the inborn, natural, ontogenetic factors versus the environmental phylogenic factors in a person's development. . Cautilli (2004) discovered an important notion, that phylogenic factors are environmental factors that accompany a child through their formative years. Childhood and parenting are vital contributors to a person's mental well being. Activities fostered as a child influences how that

child interacts with the world as an adult.

History was the next topic. History is an environmental factor of creativity. History envelops the present environment of an individual with the products of the past. The photograph on this slide is a model of the lunar module, Eagle, that landed on the Moon. It was taken by me in the National Air and Space Museum in Washington, DC. The photograph was chosen for the iconic symbol that the moon landing represents as a milestone of history. Typically, historians highlight significant events. Kuhn (1957) made an important point. That is, the present crop of researchers are the “intellectual heirs” (Kuhn, 1957, p. 4) of their scientific forefathers. When an important scientific discovery is made, it makes its mark on history. Mead (1934) explained that a person’s individual history plays a vital role in their present life. A person’s individual history represents their body of accumulated experience that they draw upon to solve problems. Historians also play an important role in understanding the past Mead (1934) noted. Future thinkers can draw upon history to stimulate their own thinking into a problem.

Historians make an effort to understand events that have transpired, and the circumstances that surrounded those events. As such, historians play an important role in our conceptualization of the world. As a result, they influence our ideas and creative works. Kuhn (1962) also noted that history lays down the conceptual railroad tracks that steers present thinking. In order to transcend the present notions, Kuhn (1962) indicated, the new ideas must burst free of the confining tracks and institutionalized notions. Kuhn (1962) also noted that history also provides a sense of perspective. What once seemed like an intractable problem, today seems like common sense. He stated, “What were ducks in the scientists’ world before the revolution are rabbits afterwards.” (Kuhn, 1962, p. 111). Cautilli (2004) described “proactive interference” meaning a person’s history can interfere with their present work. He also described

“retroactive interference”, when present activities interferes with previous learning. History reaches out from the past and grabs a hold of an individual’s mental apparatus. The legacy of history cements a conceptual foundation that new ideas must work with.

Language was depicted on the fifteenth slide as another environmental factor in creativity. The photograph of my cousin on a cell phone was taken in Seattle, Washington. This photograph was chosen to represent language because wireless cellular telephony has come to dominate modern communications. Language is a potent environmental factor that shapes the way people think, how they represent ideas, capture concepts, convey discoveries, and express new ideas. Mills (1959) discussed the role of semantics and syntax in the use of language. Mead (1934) explained that symbols and signs can also convey meaning and are used to encapsulate important ideas. Mead (1932) described how language can be used to communicate ideas and be used as a vehicle for creative expression. Cautilli (2004) described *equivalence relations*, whereby language can evoke a mental or emotional response in the listener.

Cautilli (2004) also noted how language can be used as a creative mechanism. He indicated that analogy is a creative process to explain a complex concept. Analogy is a mental creative process by which two concepts are bridged through language. Kuhn (1962) indirectly described how language is used as a tool to convey new ideas. Language is a mental tool that can be used to capture complex, abstract concepts such as democracy, liberty, justice, truth, and capitalism. Language can be used to inspire, incite, describe, inflame, sooth, negotiate, entertain, humiliate, praise, and assist individuals. Language is an important environmental factor in creativity. Language can also serve as the primary mechanism by which new concepts are conceptualized and conveyed to other people.

Many of the people who attended the seminar were also from my American Sign

Language class. Sign language is a good example of a language that is expressive, and visually creative. Because sign language is a visual language that can be used to represent abstract concepts, it expands an individual's perspective. In general, language stimulates creativity because ideas can be shared. Additionally, language captures abstract concepts which help hatch new ideas. Finally, the act of describing ideas using language can promote critical thinking. Mills (1959) argued that the definition of a complex abstract term shapes the way the idea is conceptualized in the mind. Mead (1934) drew an important link between language and its relationship with mental activity and mental development. Areas of the brain are devoted to processing language.

Education was the last slide, and the last environmental factor that was discussed in the seminar. The photograph is of my American Sign Language class was taken during a lecture. Education is an efficient vehicle to convey information. Children and adults use education to learn about established concepts. Education augments creativity because it provides the necessary background to develop an idea. Mills (1951) described the importance that universal education plays in modern American society. Education affords an individual in modern American society to become engaged in activities that exercise creativity. Indeed, one could step back in time and picture a society where education was only available to the upper crust of society, leaving seething masses of uneducated and illiterate people.

Mills (1959) described how education shapes the knowledge of an individual. This may seem obvious, but it is the reason why this is one of the most important environmental factors. The understanding that a person has of the natural world and how to interact with that world is largely acquired through education. Mead (1934) noted that education is used by society as a mechanism by which an individual can be integrated into society. Jenlink (2004) reinforced

Mead's (1934) notion. Jenlink (2004) described how education can be used as a vehicle for social change. After a student comes to understand the social issues that plague society in the appropriate historical context, they have a basis by which they can bring about social change. Edwards (2003) focused on the powerful link between education and creativity. Properly designed education, Edwards (2003) claimed, has the potential to encourage creativity. When educational institutions are designed to increase trust, involvement, and accountability, it can foster creativity. There are many things in common between creativity and education, "inspiration, distillation, clarification, incubation, evaluation, persistence, and perspiration" (Edwards, 2003, p. 92). Jackson (2006) followed in Edwards (2003) footsteps. Jackson (2006) described the Camphill movement, a community learning environment that has been effectively used to holistically educate students. Education has come to be an important part of modern American society. Properly designed, education can engage creativity. Mills (1959) described the process of how educational institutions make use of textbooks. Textbooks accumulate a treasure trove of ideas. The text books used in modern American educational institutions collect ideas that stimulate a person's creativity by exposing them to important concepts. As the seminar was delivered to professionals, they could appreciate the role that education has played in their lives. Many of the aspects that the researchers and theorists highlighted about the link between education and creativity were apparent to the attendees. Edwards (2003) noted that positive educational experiences motivate an individual to continue learning for life. Education is an efficient mechanism that allows individuals to expand their horizons and obtain new perspectives.

The shortcoming of a lecture is that the presenter must be well versed in the material and be able to express the ideas concisely. Unlike exposition, the presenter must get it right on the first try. A live performance is a marked distinction between premeditated writing that a writer

can then later revisit and revise. Words which escape the mouth are set free never to return.

Many of the ideas, facts, notions, and conceptions captured by the theorists and researchers in the Breadth and Depth component were necessarily compressed and abbreviated. Any analysis of a presentation would be remiss without considering the format that was chosen to convey the information. Time is a valuable commodity, and the presentation material had to be concise enough to fit into the allotted presentation time and yet capture the central tenets.

Speech is an imperfect medium to transfer complex ideas, but it has served mankind for millennium. Short of reading the entire work presented in this paper, a full account of the ideas must fall short in some way. However, the strength of a presentation is that the material can spring to life. The audience had a lively dialogue with me during and after the presentation. An interesting idea or a new perspective can serve as a launching point for an interesting conversation. Writing solidifies a notion in concrete, but a presentation allows the person who had an idea to discuss it with others.

The seminar was an effective way to convey the information about the environmental aspects of creativity because the work of culling out the most important points was performed in the creation of the seminar. Many of the audience members would not be motivated enough to examine a lengthy exposition on their own time. The audience was composed of educated, professional adults. The presentation generated quite a bit of interest with many questions raised from an attentive and curious audience. As I was delivering the seminar, I found it useful to use examples from either the researchers or the theorists to introduce many of the topics or to answer questions. For example, I used Kuhn's discussion of telescopes in astronomical discoveries for the things environmental factor. I discovered through audience interaction that about one-half of the aspects of each of the environmental factors were considered to be obvious. Approximately,


one-third of the aspects of each factor were enlightening. That is, the audience found those aspects to be unintuitive, yet interesting. Finally, the remaining 17% of the aspects caused some confusion. Typically, these generated questions or quizzical looks from the audience. For example, explaining retroactive and proactive interference was a difficult task. After mulling over the technical definition, some members of the audience still remained confused. Finally, an example of learning to play tennis allowed people to wrap their minds around the concept. If you learned tennis on your own and then years later take formal tennis training, the previous learning interferes with present learning. That is an example of proactive interference. To illustrate retroactive interference, I used the example of driving an automobile. Suppose someone took driving lessons from a professional driver. Then, later that person took lessons from an inferior instructor. Their present learning interferes with their previous learning.

From the lively interaction with the audience it is safe to estimate that they absorbed a majority of the concepts. Certainly, the principle thesis that these thirteen environmental factors impact a person's thinking, creativity, and perspective was understood and well received. I think the length and material was just about right for the audience that I delivered the seminar to. The slides presumed an intellectually curious, intelligent, motivated, and adult audience. Of course, if I were to compose the slides for children, I would choose different words. The seminar lasted a healthy 90 minutes. This means, on average, 5.6 minutes was spent on each slide. From my many years of presentation experience, this indicates a healthy interest by the audience on the topic and material. Indeed, this notion is reinforced by the large volume of questions and animated discussion that the seminar generated. If I were time constrained to an hour I would probably remove the technical terminology and concepts. While they are interesting and reinforce the concepts being presented, they slowed down the presentation. The friction they


generated was disproportionate to the percentage of the slides that they occupied. I would not particularly add anything to the slides. They brought home the point effectively. I'm not sure I would do anything differently for a future application on the same topic. Perhaps remove a couple of the more confusing concepts in order to streamline the delivery. Though, in this case, I allocated two hours for the seminar presentation time. So there was plenty of time to go into as much detail as the audience desired. Hence I would not change anything in a future delivery. One thing that might have been helpful is to list as a bullet item a concrete example for each environmental factor. However, I found it equally effective to just deliver the anecdote as part of my delivery.

In conclusion, this KAM set off to gain some insight into the environmental factors that affect creativity in modern American society. The theorists and contemporary research pointed to a number of factors that were pertinent. The Breadth component concluded that people, places, things, tasks, history, science, education, politics, government forms, parenting, language, beliefs, and culture are the principle environmental factors. The Depth component introduced some new perspectives, new dimensions, new theories, new insights, new ideas, and new terminology to further reinforce the link between the identified factors to creativity. Furthermore, the Depth component considered contemporary issues, conditions, and technology prevalent in modern American society. The Breadth and the Depth components presented an array of evidence and research reinforcing the claim that the identified environmental factors influence creativity in modern American society. Finally, in the Application component, the conclusions were socialized to an audience in a scholarly seminar. The Application component also highlighted the six most important points supporting each environment factor.

Seminar slides



Environmental factors in creativity within modern American society



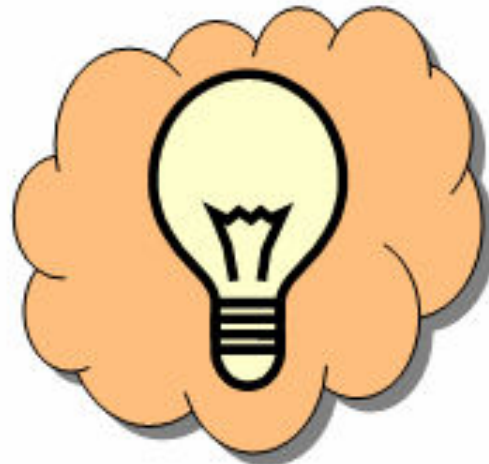
by Benjamin Cheung

Prepared July 2007

Having an idea



Creative Person



Creative Idea



Creative process



Creative environment

Creative Environment



People



Places



Language



Education



Beliefs



Science



Culture



Government



Politics



Childhood



History



Things



Task



People

- Idea Brokers (Burt 2004)
- Social Networks (Miettinen 2006)
- Virtual Communities (Miettinen 2006)
- *Gemeinschaft / Gesselschaft* (Seitz 2003a)
- Relations affect value, perspectives (Mills 1959)
- Ideas as a social process (Mead 1934)



Places

- Uniqueness of location (Mills 1959)
- Places of free thinking (Kuhn 1957)
- *Heterotopia* (Barnes 2004)
- Geography (Healy 2002)
- Spatial Organization (Healy 2002)
- Physical space (Solis-Gadea 2005)



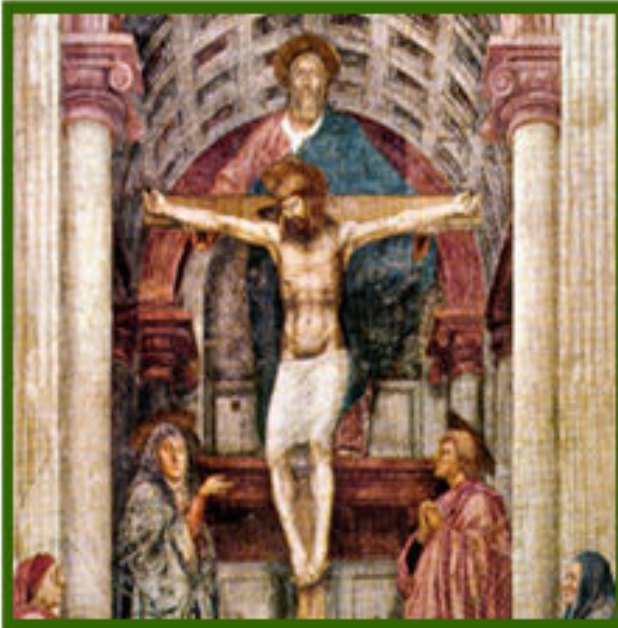
Things

- Technology (Kuhn 1957)
- Instruments, Tools (Kuhn 1957)
- Application, conceptualization (Mead 1934)
- Skills with things (Mead 1934)
- Manufactured things (Mills 1951)
- High technology (Giaccardi 2006)



Task

- Job differentiation (Mead 1934)
- Purpose, meaning (Kuhn 1957)
- Habit & creativity (Dalton 2004)
- Play, impulse, explore (Cautilli 2004)
- Work develops the mind (Mead 1934)
- Social integration (Mills 1959)



Beliefs

- Filter experiences (Kuhn 1962)
- Religion (Solia-Gadea 2005)
- Values (Kuhn 1962)
- Cultural, societal beliefs (Mills 1959)
- Inertia of beliefs (Kuhn 1962)
- Freedom of thought, expression, religion



Science

- Paradigms, World views (Kuhn 1962)
- Empirical evidence (Mills 1959)
- Process of discovery (Mills 1959)
- Understanding nature (Kuhn 1957)
- Science is creative (Healy 2002)
- Collaborative science (Seitz 2003b)



Culture

- Social structure (Mead 1934)
- Democracy, individualism (Mills 1959)
- Social norms (Kuhn 1962)
- Social institutions (Kuhn 1962)
- Rules and regulations (Cautilli 2004)
- Diversity (Jenlink 2004)



Government

- Representative democracy (Mills 1959)
- Political Policy (Healy 2002)
- Fostering creativity (Miettinen 2006)
- Freedom and individuality (Mead 1934)
- Governmental institutions (Kuhn 1962)
- Economic policy (Healy 2002)



Politics

- People strategies (Healy 2002)
- Civic education (Jenlink 2004)
- Social programs (Peltz 2005)
- Dynamic politics, issues (Solis-Gadea 2005)
- Political institutions, policy (Mills 1951)
- Social participation (Mead 1934)



Childhood

- Parenting (Mead 1934)
- Formative role of parent-child (Mead 1934)
- Games, make believe (Mead 1934)
- Family as a social unit (Mead 1934)
- Ontogenetic vs. phylogenic (Cautilli 2004)
- Social development (Mead 1934)



History

- Intellectual heirs (Kuhn 1957)
- Personal history (Mead 1934)
- Historians (Mead 1934)
- Institutionalized notions (Kuhn 1962)
- Historical perspective (Kuhn 1962)
- *Proactive/retroactive interference* (Cautilli 2004)



Language

- Terminology, syntax, semantics (Mills 1959)
- Symbols, signs (Mead 1934)
- Expression, communication (Mead 1932)
- *Equivalence relation* (Cautilli 2004)
- Analogy, creative writing (Cautilli 2004)
- Language as a tool (Kuhn 1962)



Education

- Universal education (Mills 1951)
- Education shapes knowledge (Mills 1959)
- Social integration (Mead 1934)
- Education can foster creativity (Edwards 2003)
- Holistic learning (Jackson 2006)
- Basis for social change (Jenkins 2004)

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Application References

There were no further references used in addition to those already listed in the Breadth and Depth components.