

## **Cultivating Innovation by Understanding the Creativity-Innovation Relationship**

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### **Abstract**

Looking back at the history of science and technology over the last few hundred years, we can identify people such as Thomas Edison, James Watt, and Graham Bell as innovators, due to the outward result of their endeavors. However, it is harder to recognize Isaac Newton as an innovator, even though he was able to develop the concept of calculus, almost overnight, to overcome the hurdle to the mathematical problems he was trying to solve. Fast forward to the 21<sup>st</sup> century. What makes an innovator? How do we cultivate innovation? Do we teach them, train them, or what? In this paper, the author will share his experience of the last twenty years in Singapore, where he started promoting innovation as a binder that can hold concept with reality, art with design, form with function, abstract with concrete, fuzzy with focus, and idea with business. This paper presents an important framework for the relationship between creativity and innovation, mapping its progress from pure creativity to useful innovation. This map can then be used as a background for cultivating innovation by individuals, teams, and corporations alike.

### **Innovation: Caught in a Traffic Jam**

As a start, one can look at the term “innovation” itself. Lots of other words usually get associated with innovation whenever the term is mentioned, including art, creativity, imagination, design, invention, lateral thinking, and forward-thinking. Then there are new terms that you see in magazines, books, and articles such as innovation economics, innovative products, innovative process, innovative business models, innovative customer experience, innovative designs, and design-inspired innovation. Doesn't innovation have a place by itself? The dictionary meaning for innovation from three dictionaries is as follows:

#### **In-no-VA-son [in-uh-bey-shun] -noun**

- 1) <http://dictionary/>
  - something new or different introduced
  - the act of innovating; introduction of new things or methods
- 2) <http://dictionary/>

- (the use of) a new idea or method
- 3) <http://Merriam-Webster/>
- the introduction of something new
  - a new idea, method, or device

The common words from the dictionary definition of innovation seem to be:

“(something) new,” “idea,” and “method.”

But what is that something new? What is that idea? What is that method? Looking at it from a dictionary meaning, it seems clear that innovation, by itself, has little meaning, unless it is associated with that something else, which in author’s opinion does not represent innovation. The most clear definition is from Barnett (1953) in the book titled *Innovation: The Basis for Cultural Change*, in which he defines innovation as “any thought, behavior or thing that is new because it is qualitatively different from existing forms” (italics by the author).

When innovation has come to be associated only with physical emancipation of ideas (new things) today, it is heartening to see that H. G. Barnett introduces “new thoughts and behaviors” as possible forms of innovation. He goes further by setting an important qualifying condition for innovation, when he mentions “qualitatively different from existing forms.” This definition allows the concept of innovation to be freed from the “traffic jam” of the world of physical innovation.

### **Innovation and Creativity**

Free from the thought that innovation needs to be associated with the physical, one can focus on creativity and its relationship with innovation. The general perception seems to be that creative people are innovative. Does one need to be creative then, in order to innovate? In a book titled *Creativity: Unconventional Wisdom from 20 Accomplished Minds*, Meyers and Gershwin (2008) have been able to elicit different interpretations for creativity from different (accomplished) personalities. Here are some of them:

“With creativity, there is a high level of individualism and you have to trust your instincts” – David Halberd, journalist (12)

“I am determined that creativity is determined by some quirk in the neurological pathways of our brain” – Edward Albee, playwright (24)

“I think that a creative person is someone who sees the world differently, and does not accept the structures that most people unthinkingly accept” – Erica Jon, author (64)

“Creative ideas don’t come by appointment but come when they come, and you have to be ready when they visit” – Spike Lee, filmmaker (146)

“Creative thought is really based on human and social behavior” – Kareem Rashid, designer (227)

All of them are creative in their own right, and they all seem to have their own source for creativity. What seems common in all this is that creativity has something to do with the brain and its ability to think, observe, and be ready. Somehow this sounds quite serious coming from personalities who come across as jovial in their outlook.

The most clearly stated opinion on creativity is by Handball (1984) in his book, *Fourth Eye: Excellence through Creativity*:

I suspect creativity has to do with the employment of a playfully exploratory rather than mechanical process of solving, by a person who is open and curious and imaginative rather than by a person who is inhibited and conventional, to find solutions that are novel (and yet useful) rather than merely run-of-the mill.

In Khandwalla's point of view, for a creative act, the **process** has to be "playfully exploratory," the **person** has to be "open and curious and imaginative" and the **result** "novel (and yet useful)." In the experience of the author, what seems missing in this, is a **conductive environment**. Unless the environment is conducive to allow for a curious and imaginative person to playfully explore solutions to what may be serious problems, there may not be any creative solutions.

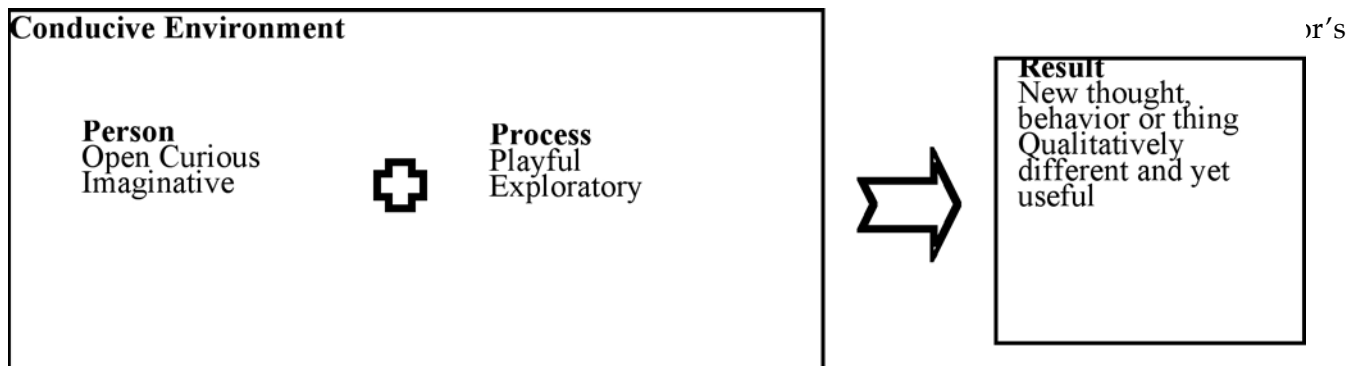


Figure 1. *A Framework for Creativity Leading to Innovation*

Two things are evident from Figure 1. First, innovation does not occur in isolation. It does not appear all of a sudden, without a concerted effort to build the three support structures: the person, the process, and the environment. Second, creativity is the road that leads to innovation of the "qualitatively different" kind.

Creative outputs or innovation can be new thoughts, behavior, or things that are useful. Examples of these are sculpture, paintings, poetry, music, plays, comedy, and humor, to name a few. How does this correlation work? In order to understand this, the framework may be expanded, leading to the development of a map of the realm of creativity and innovation.

### Realm of Creativity and Innovation

A map proposing a visual depiction of the realm of creativity and innovation is presented in Figure 2, based on the author's study of the subjects and his experience as a practicing designer and design educator over the last twenty-three years. This visual depiction is important in understanding how innovation can be cultivated in individuals and organizations. This map is not just a representation, but also a visual tool for professionals and educators to use as a general guide to nurturing creativity and innovation

The map uses five parameters that help define the state of innovation as it flows along the creative process. Together with these parameters, two sets of approaches are proposed as tools that define the dynamics of the creative process. The five parameters that define the state of innovation are:

- 1) Area of Focus
- 2) Mental State
- 3) Human Reaction
- 4) Outcome
- 5) Concept

The two sets of approaches that define the dynamics of the creative process are:

- 1) Creative Action Approach
- 2) Mental Approach

Using the western convention of writing, the sophistication of the creativity to innovation realm progresses from the left to the right in Figure 2.

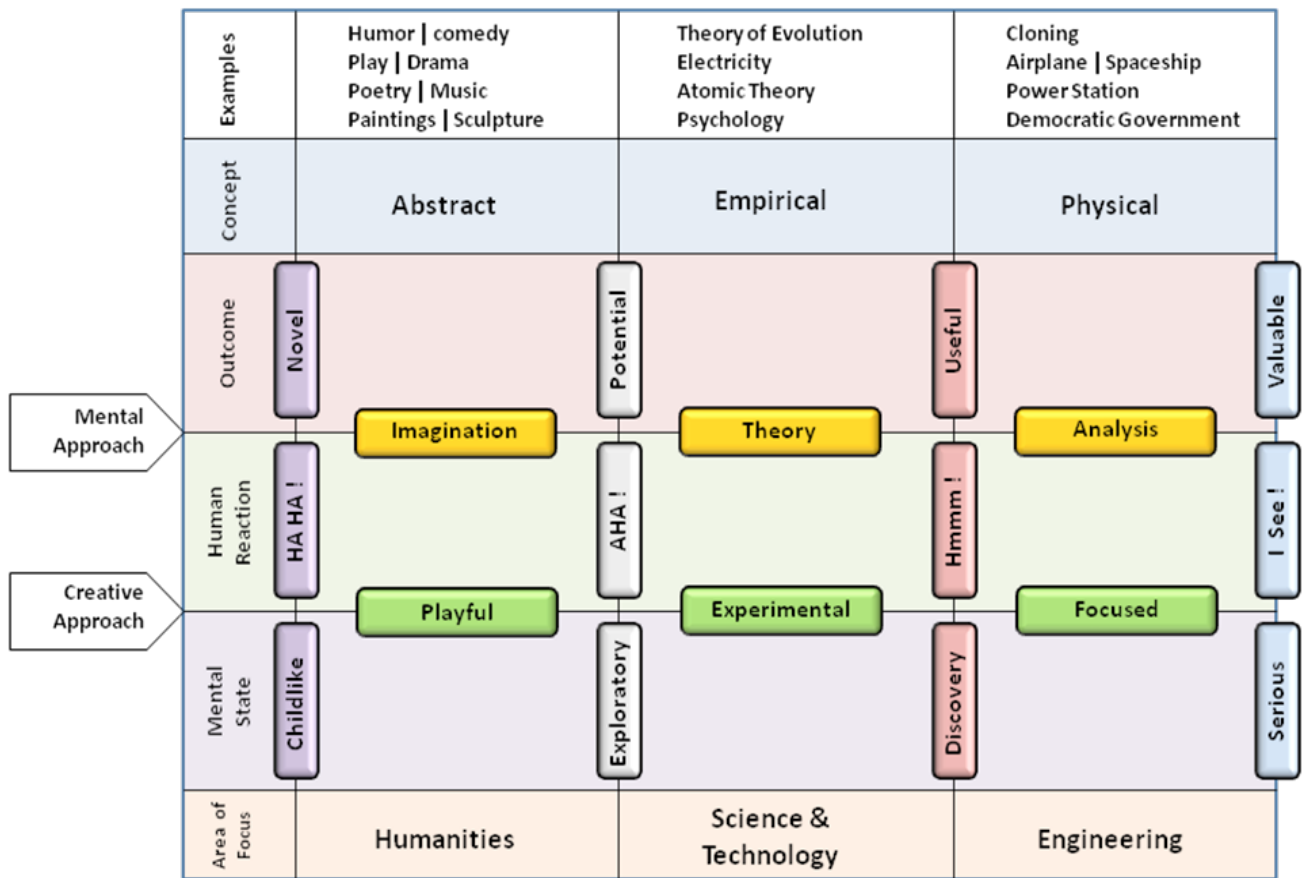


Figure 2. Map of the Realm of Creativity and Innovation

From the map in Figure 2, one can clearly see that the qualitative outcome of innovation through a creative process can range from purely novel through potentially useful to valuable as it moves from abstract

concept through empirical concept to physical concept. The mental approach used during abstract concept is the imagination; during the empirical concept it is theory; and during the physical concept it is analysis.

The human reaction to pure abstract concept starts at “Ha Ha!” This could be due to the fact that the novelty of the innovation could be an excellent joke or a comic strip in a newspaper. Moving forward from this, the human reaction becomes “Aha!” when they seem to grasp an idea that has potential, which then turns to “Hmmm!” when the idea starts to show results. Once the idea has been implemented and become valuable, the human reaction would be “I see.”

In the realm of creativity and innovation, in order for ideas to flow from abstract to physical, creative approach and mental state play important roles. During the abstract stages of creativity, the mental state is childlike. Hence the creative approach normally used is playful. This moves to exploratory (mental) state, where the creative approach is experimental. Once the idea starts moving to physical concepts, the mental state becomes discovery and the creative approach becomes focused. At the point of transformation of an idea into a valuable innovation, the mental state becomes serious. This serious state would, of course, be eclipsed by a state of jubilation once the innovation is recognized as successful.

The author has added “Area of Focus” as a parameter, just to show that many of the innovations that stop at abstract concepts are normally in the area of humanities, while those that stop at empirical concepts are in science and technology, and those that see through to realization are in the discipline of engineering. This is not a hard and fast rule, and is only introduced as an interesting observation.

In all this, the assumption is that the environment is either conducive to creativity, or, as in many cases of creative people, made conducive by the individuals who succeed in innovation. It is a common observation that creative individuals do not stay long in workplaces that are not conducive to creativity.

Taking music as an example, a musician hears a tune in his or her head as an abstraction. This tune would be mere novelty inside the head of the musician (“Ha Ha!” others would say) if he or she does not start imagining the tune and playfully exploring until the “Aha!, I’ve got it” moment. Things do not stay there. The musician then experiments and develops the tune further, adding complexity and lyrics, as he or she may find suitable. When the music has gone past the potential stage of outcome to the useful stage, the musician may demonstrate it to someone, perhaps a producer, who says “Hmmm!” The producer may give some feedback, which requires the focused attention of the musician, until the music is recorded. The potential buyers hear it at that point in time and say “I see !” and start buying the album. The creative process of developing music has resulted, perhaps, in an innovation that has become “valuable” at the time of realization.

This extrapolation example shows how innovative outcomes could be extended to design, writing, speaking, and many other areas where creativity and innovation has proved itself valuable.

### **Cultivating Innovation**

A visual depiction of the realm of creativity and innovation (Figure 2), sets the background for cultivating innovation. Cultivation, as the word suggests, is an agrarian phenomenon, where a nursery or a kid of a domestic animal is reared from its inception till it is ready to be consumed as grain, milk, meat, etc. Could innovation, then, be cultivated for human consumption? There are three important aspects to consider when cultivating innovation:

- 1) Child-like Mind
- 2) Conducive Environment

### 3) Culture and Leadership

#### *Child-like mind in individuals*

The starting point to the creative process that leads to “qualitatively different or valuable” innovation is the “child-like” state of the mind. This allows one to use imagination “playfully” and set in motion the creative path leading to innovation. Hence, the first area that needs to be cultivated is the child-like state of mind in individuals, which helps in their imagination and playful disposition. One can see from Figure 2 that children can easily deal with, and play with, abstract concepts and ideas, are happy with “novel” outcomes, and do not worry about “valuable” ones.

#### *Conducive environment*

The second area to cultivate is the environment. Environment does not mean physical ambiance alone. It also means open minds that allow for the child-like state of mind to germinate and grow. Conducive environment consists of the physical space, as well the collection of individuals making up a team or a department. Individual preferences and idiosyncrasies are tolerated, with a general understanding that there will be a certain level of direction leading to collective achievement.

#### *Culture and leadership*

Culture and cultivation have the same roots in the English language, from the Latin word *cultura*, stemming from *colere*, meaning “to cultivate.” The author feels strongly that culture plays an important role in cultivating innovation. A conducive environment is like good soil, whereas culture provides the nutrients needed for a healthy crop. Leadership has a big role to play in bringing about a culture, within the environment and for the individuals, that supports cultivation of innovation. Authoritarian leadership, with strict timelines and milestones, normally results in mediocre innovation.

Innovation and creative teams need inspired leadership at the beginning of the creative process, coaching or mentoring leadership in the middle, and persuasive leadership toward the finish line. Inspiration allows for failures at the beginning, mentoring allows for effective decision making in the middle, and persuasion helps in completing the task to the desired level of detail and output. This does not mean that leadership has to come in threes. It just indicates that innovation requires creative leadership that embraces inspiration, mentoring, and persuasion. Identifying creative individuals who have tolerance for failure, are capable of decision-making, and have the capacity to cross the finish line is a talent by itself, within creative teams.

#### **Discussion**

This paper is the result of the personal experience of the author, initially working in creative teams, followed by leading them, for over twenty-two years. The map of the realm of creativity and innovation (Figure 2) is the outcome of his attempt to visually represent this experience in a meaningful way, to allow readers to understand the close relationship between the creative process and innovation and how creativity progresses to useful innovation. The map also allows one to understand the complex relationships between the different parameters, states of progression, and the different approaches (individual mental tools) required for an effective creative process that brings about innovation.

How can this map be used within teaching environment in order to cultivate innovation? The framework shown in Figure 2 is not a syllabus by itself, but a backdrop on which topics could be built. Class projects can be designed where innovative outcomes are expected and executed through the progression shown in Figure 2. Knowing that each student will progress from a gist of an idea through exploration, experimentation, and focused effort to arrive at the desired innovation allows educators to inspire, motivate, and persuade each student to arrive at that innovation meaningfully. In the event that the project

is designed in a manner that the students need to grasp, discover, and understand facts, knowing the progress depicted in Figure 2 will allow educators to ensure that the students pass through each stage, through specific ideas and facts that they should explore, experiment, or learn at each stage.

Researchers will find this progression map important in mapping the research route for themselves, as well as collaborators, and in understanding what type of approach is needed from the beginning till the completion of the research.

## Conclusion

Mapping the relation between the creative process and innovation is only the starting point in the effort to bring about innovation that is meaningful and “qualitatively different” in its outcomes. One needs to understand this relationship before proceeding to cultivate innovation with the right people, the right environment, and the right leadership. The author hopes that the map depicted in Figure 2 would be useful to everyone in defining their own paths to cultivating innovation.

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