

Coffee Filters and Creativity: The Value of Multiple Filters in the Creative Process

Quan Hoang Vuong and Nancy K. Napier

Creativity is often defined as developing something novel or new, that fits its context, and has value. To achieve this, the creative process itself has gained increasing attention as organizational leaders seek competitive advantages through developing new products, services, process, or business models. In this paper, we explore the notion of the creative process as including a series of “filters” or ways to process information as being a critical component of the creative process. We use the metaphor of coffee making and filters because many of our examples come from Vietnam, which is one of the world’s top coffee exporters and which has created a coffee culture rivaling many other countries.

We begin with a brief review of the creative process its connection to information processing, propose a tentative framework for integrating the two ideas, and provide examples of how it might work. We close with implications for further practical and theoretical directions for this idea.

Keywords: 3-D Creativity; Serendipity; Aha! Moment

JEL classifications: C42; M13; O31; P27

CEB Working Paper N° 12/036
December 2012

Coffee Filters and Creativity: The Value of Multiple Filters in the Creative Process

Quan Hoang Vuong, Ph.D.*

Researcher, CEB/Université Libre de Bruxelles

CP114/03, 42 Avenue F.D. Roosevelt, Brussels 1050, Belgium

quvuong@ulb.ac.be

Nancy K. Napier, Ph.D.

Professor, COBE/Boise State University

1910 University Drive, Boise, ID, USA

nnapier@boisestate.edu

Aalborg University

International Business Centre

Aalborg, Denmark

December 12, 2012

Keywords: 3-D Creativity; Serendipity; Aha! Moment

JEL Code: C42; M13; O31; P27

* Corresponding author.

Thanks to Tri Dung Tran (DHVP Research & Consultancy) for insightful discussions and Rebekah McGourty (Boise State University) for assistance during the preparation of the paper.

Special thanks also go on to Mr. Dang Le Nguyen Vu, Chairman of Trung Nguyen Coffee Group (Vietnam) for sharing philosophical values from his “Coffee Spirit” thinking that prompted the authors to seriously work on own research program.

Coffee Filters and Creativity: The Value of Multiple Filters in The Creative Process

Abstract

Creativity is often defined as developing something novel or new, that fits its context, and has value. To achieve this, the creative process itself has gained increasing attention as organizational leaders seek competitive advantages through developing new products, services, process, or business models. In this paper, we explore the notion of the creative process as including a series of “filters” or ways to process information as being a critical component of the creative process. We use the metaphor of coffee making and filters because many of our examples come from Vietnam, which is one of the world’s top coffee exporters and which has created a coffee culture rivaling many other countries.

We begin with a brief review of the creative process its connection to information processing, propose a tentative framework for integrating the two ideas, and provide examples of how it might work. We close with implications for further practical and theoretical directions for this idea.

Coffee Filters and Creativity: The Value of Multiple Filters in the Creative Process

Creativity and innovation have gained increasing attention within countries and organizations in the last decade, especially as more leaders see it as a renewable resource. Despite the variations in definitions of creativity, many researchers (such as Klein, 1982; John-Steiner, 1997; Runco and Richards, 1997; and, Sternberg, 1999) agree that creativity is typically characterized by notion of something that is novel or new, fits its context, and has value. When an interactive television service, called QUBE, emerged for the American public in the mid 1970s, it was novel, but did not fit the context because people were not ready for it, and thus had little value beyond being seen as a fun game. When Southwest Airlines introduced its new business model of low cost, direct flight service in the U.S. in 1971, it was novel, fit the context in which oil prices were forcing large airlines to boost prices dramatically, and thus had real value for travelers looking for a good deal.

Academic and practitioner interest in organizational creativity has boomed in the last two decades (e.g., Runco and Richards, 1997; Napier and Nilsson, 2008), in large part because leaders have begun to see creative outputs as essential for sustainable advantage. As organizations seek novel products, services, processes or business models, the ability to assess information and come up with ideas that can be implemented becomes more critical. The connection, then, between information process and creativity and how they may work together in creating a process for improving outcomes is what we will explore in this paper.

The paper has four parts. First, we consider the reasons for this discussion and a possible framework that seeks to provide leaders with a way to think through and apply creativity and information. Second, we review briefly literature on creativity, especially the process of generating and choosing ideas, and its role in organizational pursuit of advantage. Next, we propose a tentative conceptual framework to integrate creativity and innovation and the role of information, including the underlying rationale and questions that lead to the framework and how it could contribute to helping organizations use creativity as a “productive engine” for an innovation process to function. Finally, we close with insights and implications for further practical and theoretical directions for this paper.

The underlying rationale and a critical question

Creativity has long been studied as a concept in psychology and management (e.g., Runco, 2004; Sternberg, 1999), and more recently in terms of its relationship to neuroscience and brain research (Joseph, 2011). But in practice, creativity is often appreciated “after the fact,” when some concrete outcome or idea emerges, whether as something tangible, in oral or written form or as an action. For too long, as well, managers or employees have regarded creative outcomes (e.g., products, solutions, process) or performance as the natural outcome of only certain types of people - those who are “creative” (Unsworth and Clegg, 2010). Furthermore, despite widespread discussion, research and evidence to the contrary (Barczak *et al.*, 2010), many organizational members continue to assume that creativity requires complete work place freedom, that creativity arrives unexpectedly or in a flash rather than after hard work, or that it demands a certain life style, like that of “a starving artist.”

For instance, many people count Google as among the world’s most creative companies. To explain the creative output, they may look to photos or stories about how Google provides a great work environment -- free food, playful settings, an informal dress code, an in-house spa and fitness centers. Such explanations may be a result of the firm’s success, rather than the drivers that the founders used to come up with Google in 1997. Yet recent research counters the notion that creativity thrives (only) under freedom with no boundaries or that simply having an engaging work environment will generate new ideas. In fact, some research argues for the converse, specifically that structure and certain types of discipline matter, and that a willingness to use trial and error and learn from mistakes is fundamental to the process of emerging novel ideas. Inventors epitomize this notion. Well known physicist Michael Faraday conducted a staggering number of experiments – some estimate more than 16,000 (Guilmette, 2012). Thomas Edison is attributed to have said that he did not “fail” when he was developing new inventions; he just needed to try something 1000 times before he got it right (Axelrod, 2008).

Within the creativity literature, the role of information and information processing has received generally less attention, but that is growing. For example, Chiu and Kwan (2010) suggested a process model of creativity by examining cultural impacts on three stages of the way new ideas emerge: selecting, editing and marketing ideas, and acceptance. Information, of course, has often been an instrumental turning point that has dramatically shifted economies dramatically. For example, Gutenberg’s printing press in 1436 (Vander Hook, 2009) triggered changes in

15th century Western Europe from social mobility and education, to science and technology, to the attitude toward the Papacy. In the late 20th and early 21st centuries, the use of the Internet generated similar paradigm shifts in the way the economy, social interaction and political engagement occurs, including political shake-up in the world such as the outbreak of the Arab Spring in 2011.

Information and the way it spreads thus deserves examination in terms of its role in analyzing creativity processes with emphasis on management implications. Every enterprise, from tiny start-ups to multinational companies likely use information for scanning an environment, managing effectively, or employing high-profile business intelligence with a goal of gaining some competitive edge that adds value. To understand the connection between information and creativity better, we ask two questions: (1) what is or would an information-based creativity process look like, and (2) how might information and creativity factors jointly generate creative outcomes?

In this paper, we assume that information comes in various forms, that once collected it needs to be assessed or filtered, that there may be different levels or stages of this filtering or assessment process and that at each stage, there could be an addition to the creative process.

Brief review of creative process and information process

Much of the literature about organizational creativity focuses on factors that influence more likelihood of creativity, such as, organizational culture (Barczak *et al.*, 2010; Glaveanu 2010), physical design (Guilmette, 2012), structure and habit (Runco and Richards, 1997) and un/intentional intersection of people from different fields (Napier, 2010). In addition, some literature discusses the value of both unexpected and unexploited information in the process of finding unexpected connections; chance events or information can be the basis for serendipity (Napier, 2008; and, Napier and Vuong, 2013), assuming the recipient individual and organization is open to new opportunities. That ability to absorb and sort large amounts of information, spark insight and then check for reliability is also important for organizational members to develop. While discussing serendipity, Napier and Vuong (2013) represent the method of observing useful – but unexpected and unexploited – information and insights, the evaluating them to decide whether an emergent opportunity should be considered valuable and worth pursuing.

Information and information processing in relation to creativity

To support the creative process, information and the way it is filtered or processed seems to be important in the mix (Purves, 2010). We suggest that organizations and individuals receive at least three types of input and the way it is processed feeds into the creativity process. We define “inputs” in three key ways: (1) data, or quantifiable facts; (2) information, or qualitative evidence, events or anecdotes that are less quantifiable and perhaps less tangible; and (3) basic or “primitive” insights, or initial connections drawn between or from the first two types, which can result in new bit of knowledge a problem that completes some understanding or solution to a problem. Such primitive insights are useful in understanding but create marginal or incremental knowledge or adjustment.

Neuroscience research suggests that the brain can absorb and process several types of input (Purves, 2010), especially through the senses of sight, hearing, taste, smell, and touch. Information is then compared to existing knowledge in a “permanent bank” of understanding and experience. The brain evaluates the information, connects separate pieces of info for future response or reaction. The speed and quality of information “digestion” depends on not only the size of the permanent bank (understanding and experience) but also on what might be called a “soft bank” of skills (Purves, 2010). Last, response or reaction may also be affected by a social environment where an individual in. The permanent and soft banks, so to speak, are in essence filters for information.

In particular, the types of filters or ways that information may be processed could be similar to coffee making and the filters used there. Making coffee in many countries has become a complex and artful process. In Vietnam, where a coffee culture has existed for years and has only grown in importance for the economy in the last two decades, it is an elaborate process. A good method is to use a metal container that incorporates a filter and demands six steps (Figure 1): the circular, flat metal filter is set onto the coffee cup; roasted coffee powder or ground coffee goes into the filter; next, a pierced pressing disc is set on top of the layer of coffee powder; the fourth step is to pour hot water into the filter; a cap goes onto the filter with a covering lid; and last one waits until all the hot water goes through the filter. The black coffee is then ready to drink with milk or sugar. No matter how

new a drinker is to this way of making coffee, if she follows the process in a disciplined fashion, she can create a cup of coffee. Going back to information process, the hot water and coffee grounds are inputs: water is similar to quantifiable data, coffee grounds are information that can vary by quality, source, and may be less tangible than water. The cup and the filter are the “permanent bank,” the coffee maker’s soft bank is her skill at measuring the proper amount of coffee grounds. The resulting coffee is the outcome of the process, and may vary on tastiness or aroma.

Figure 1. Coffee making process in Vietnam

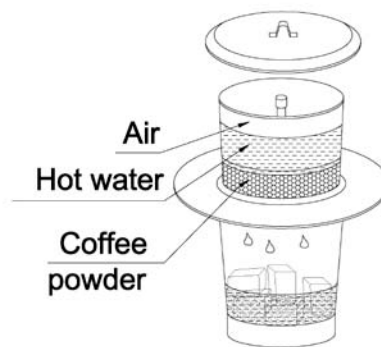


Figure 2 illustrates the process more conceptually in terms of the inputs of information and filtering process. Similar to the coffee making process, several “steps” exist in this initial processing and filtering procedure within an enterprise’s management information system. First, information is collected and contributed in by clients, staff members, or suppliers, and is then stored in the “hardware,” or “permanent bank.” In a firm, this would be a normal server, which managers access to find needed information for making decisions. Analytical software (the soft bank) helps managers to gain insights more efficiently. The expectation is that when the filter is the conceptual ideas of the three disciplines (Napier and Nilsson, 2008), creative outcomes may come more readily.

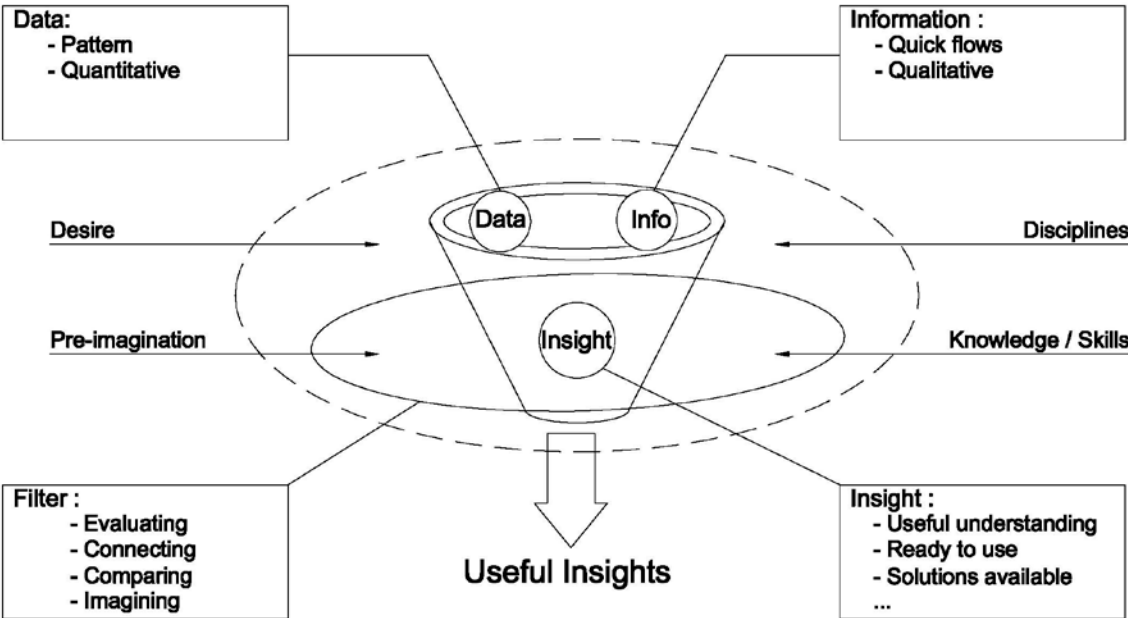
Similar to coffee making, several “steps” exist in this initial information processing and filtering procedure. First, inputs (data and information) enter the organizational employees’ and leaders’ awareness. They then make initial analyses and connections among the inputs to create basic or primitive insights. Those insights may occur throughout the organization, and ultimately need to be pulled together in bigger, more useful insights that can contribute to creative outcomes. The permanent bank of experience exists within those who absorb and process the inputs; the soft bank includes their skills and competencies (which should increase with practice) in making connections among inputs.

A recent example comes from a Vietnamese firm that started and manages one of the country’s most successful news and insight websites. The website, Vietnamica.net, seeks to produce insights on the economies of Indochina, especially Vietnam that will be useful for business leaders as they manage their organizations for the future. To differentiate from rival websites, Vietnamica’s content development team follows a disciplined process. First, the team scans news from public media worldwide to identify possibly useful information, grasps the main points of those articles, and then creates very targeted and concise syntheses and analysis. The result may consist of a few sentences or a paragraph. To use the analogy, the original news article would be considered qualitative information or data. An “information” article comes from text of expert opinions, arguments, and analyses. For example, a source article may report on a conference that seeks solutions to curb inflation in Vietnam; the article incorporates opinions and arguments from many participants and thus would be considered “information” input. The Vietnamica team’s conclusions or resulting piece would report that “following many discussions, the conference reached no solutions.” A second source article might include “data,” in terms of numerical or quantitative information. For example, perhaps during the same above-mentioned conference, an expert mentions the increasing pace of prices over a 60-month period. Vietnamica would report a series of CPI data and make mention that the 24th month (of the 60 month period) had the highest CPI. These initial two summary reports from Vietnamica represent primitive or basic insights that form the “dots” for subsequent analysis.

In the next step, the Vietnamica team tries to “connect the dots” – the insights from two articles – as a way to generate bigger or more useful insights that business readers could use. In this case, the team would make a

connection between the two articles and report: “although the current CPI is approaching its peak of the 24th month in the previous 90, the experts are still fighting each and there is no solution.” This would suggest to businesspeople what they may have feared: inflation is rising and no likely expert solution is likely in the near term; as a result, the businesspeople need to find ways to protect and hedge against future inflation dangers.

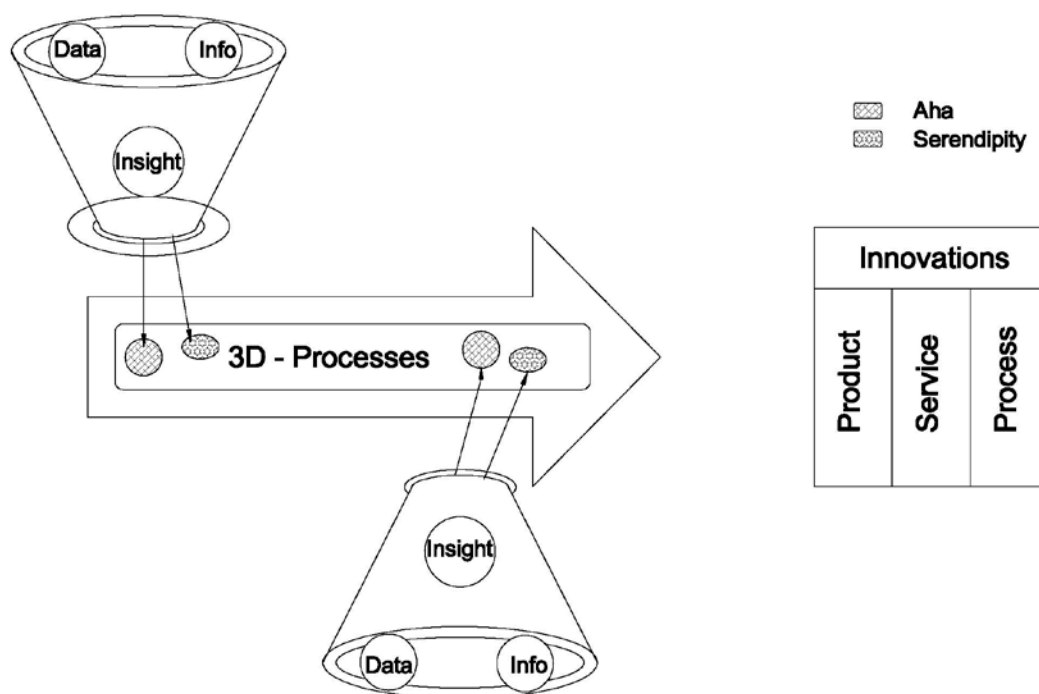
Figure 2 – Filtering information for useful insights



Combining inputs, a creative process and outcomes

To better appreciating the role of information in a typical creativity process, we propose an initial set of factors or major blocks that link information and creativity: a) an input (data/Information) block; b) a creativity processing block; and c) an innovation outcomes block, as shown in Figure 3.

Figure 3 – A conceptual design for creativity process



The input block, together with the relevant “filtration system,” helps leaders spot and select useful insights as they engage in a disciplined process of creativity. The filtering function also helps them sort input and identify (and toss) “garbage” so that the system will not have to expend energy for “waste treatment.” Input, consisting of qualitative fast-moving information, data and basic insights, flows into a main processing system, which incorporates several aspects that support a creative process. A disciplined creative process includes reviewing/generating/testing and implementing ideas. Using these factors, a disciplined creative process plays an integrating role, by bringing together inputs and a set of techniques and methods to generate creative outcomes and innovations. For a disciplined creative process to be a permanent part of any management system, an organization needs to have an innovative, supportive culture to promote useful insights, and a way of identifying and using best practices. Thus, creativity, when pursued in a disciplined way, comprises activities that include finding useful information, data and insights to processing them in a systematic manner so they become significant

inputs for key decisions to evaluating them in terms of whether they have the newness and added value of creative outputs. Part of the disciplined process includes encouraging and taking advantage of both aha moments and serendipity, which Fig. 2 tries to incorporate as well.

Aha! Moments (Napier, 2010), which are sudden awareness or understanding, involve gathering, absorbing and sorting information before using common techniques to spark new ideas, and then validating the idea to see if it is generalizable. Serendipity (Napier and Vuong, 2013), is similar except that the information is unanticipated. Because the receiver does not expect the information, she may not take advantage of it. The person who is open and recognizes possible benefits in unexpected information, then, can perhaps tap and use it to her company's advantage. In exploratory studies in Vietnam that bring national culture and business stage come into play (Napier, Dang, and Vuong, 2012; Vuong, Napier and Tran, 2012), the three factors – creativity, culture and business stage of development - appear to be related. Of the elements relating to creativity, it appears that having a disciplined process is important for business organizations in the early “entrepreneurial phase.”

Perhaps unexpectedly, it appears that serendipity can represent a useful way to capture or observe unexpected and often unexploited inputs (i.e., information, data and basic insights). An open manager or entrepreneur spots information, relates it to her situation or problems, evaluates its usefulness (often in terms of an opportunity) before deciding to take advantage of it.

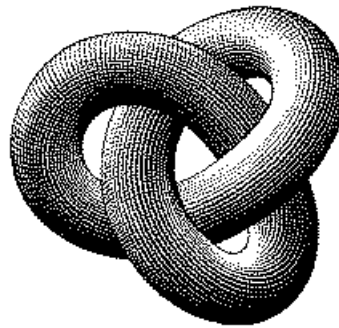
During the process of a typical Aha! Moment, a manager absorbs and sorts what might seem like an overwhelming amount of input, and then uses simple techniques to spark new ideas (e.g., connecting odd dots, looking at an idea in reverse), before validating the idea to see if it is generalizable.

The 3D process, according to Napier and Nilsson (2008), employs: i) out-of-discipline insights; ii) best expertise within the discipline; and iii) disciplined process of putting together methodology and inputs in a consistent manner to strive for creative performance and innovations. Since this is a process, nesting activities (including thinking) in a disciplined and consistent way, it relies mostly on all types of information, and a system of evaluation and measurement for both inputs and outputs of the system. Typically, to evaluate the inputs and measure the innovativeness of an output, such a 3D system employs critically important “mathematical” ideas such as: differences (good vs. bad, small vs. big, old vs. new, and so on), limits (how far the process can go toward the ultimate end), and relationships between opportunities to spot, methods to be developed, and outcome to be

generated. Information and information processing play a pivotal role in all three methods and is a natural connection among these methods, especially when the shared goal is innovation. Each of the three methods has a unique strength, thus it makes sense to use all. Serendipity, on the one hand, demands an ability to spot unexpected information and then take that for advantage; it may not, however, be enough for making consistent and substantial innovations. The Aha! Moment approach, conversely, could be useful for solving a particular problem, but also may not be the best approach for consistent innovation if it focuses solely on solving immediate or smaller problems. The 3D process, though, builds a unified system for taking into account production opportunities, methods and solutions, and disciplines to make insights and related effort to succeed the production process until the innovative outcome.

In Figure 3, the three aspects are shown as separate elements of a system, but in reality, separating these three is deceiving since they are so integrated. A better view about their relationship may be illustrated in a trefoil knot in the Figure 3, although degree of reliance on each method could vary between organizations or industries or timing.

Figure 4 – Trefoil knot

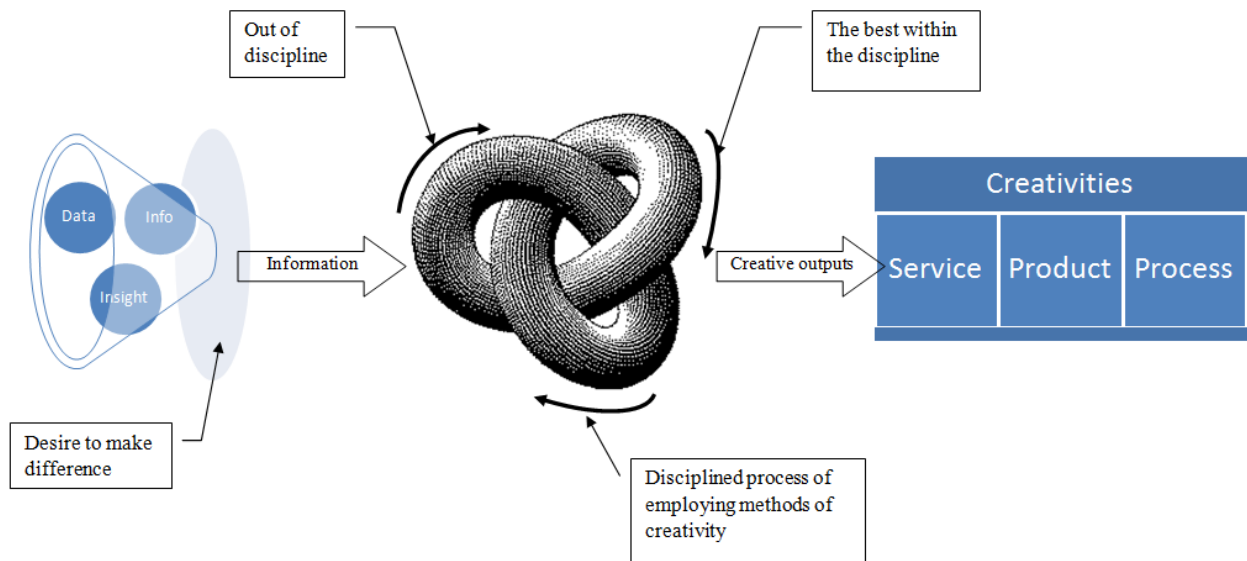


In fact, we can regard information, data and insights as forming the so-called “creative quantum” that should travel to processors (using creativity methods of Serendipity, Aha! and 3D) in discrete (not continuous) packets, in diverse forms (e.g., a dream can give a good hint for a problem-solving process), and unexpected timing. Without a real discipline in place, and performed consistently, we can see that Serendipity and Aha!Moment could hardly fully employ value of “creative quanta” to produce genuine creativity and innovations.

Using the framework in examples

This section simplifies the proposed framework in Figure 3 and offers examples that illustrate it.

Figure 5 - Diagram of Information Process of Creativity



Individuals and institutions that seek creativity first receive information. As inputs arrive, the process activates simultaneously three disciplines of creativity proposed by Napier & Nilsson (2008). The disciplines are (i) being the best expertise within the discipline in order to identify useful insights and or 'primitive solutions' available; (ii) connecting the best expertise out of the discipline to work out a somewhat (near) optimal solution; and (iii) strictly following disciplined process of permanently employing methods of creativity until innovations arrive.

Although one discipline often prevails in a creative outcome it is impossible to separate the information process into an order of disciplines (i.e., (i) is followed by (ii), then by (iii)), or different pairs of disciplines (i.e., (i) and (ii)). Here the theory of Knots is of help (De Santi, 2002). Flows of information continuously enter the process. Discipline (i) helps spot insightful information or assess which input is already an insight. Discipline (ii) helps connect separate insights logically/optimally to work out a solution. Absolutely, more than two insights are needed to connect a line. The more insights/dots we have the better logics and connections we arrive. Therefore, discipline (iii) is needed to produce the insightful dots. Connecting the dots is also trial-and-error efforts. The discipline of employing methods of creativity is everywhere. In light of this, creativity, which is often perceived as a qualitative concept, can be measured by popular algebraic difference and/or standard error.

4.1. Serendipity is... not serendipitous

Once inputs arrive, the importance of out-of-the-box discipline comes into play. People who are able to look at information from different viewpoints may be able likely to spot an opportunity for a creative outcome which is (i) out of the ordinary, (ii) unintentional, or (iii) something others have not noticed. Next, those from different disciplines may have the ability to connect previously discrete pieces of information to solve a problem or to uncover an opportunity. Napier and Vuong (2013) suggest that organizations and individuals who tap serendipity, which is that ability to notice, evaluate, and take advantage of unexpected information better or faster than competitors, may build or develop this as an advantage. But, despite its benefits, serendipity is not serendipitous.

Christopher Columbus took four voyages (in 1492, 1493, 1498 and 1502) nominally in search of the Strait of Malacca to the Indian Ocean. He, serendipitously, landed in the Americas in 1492. Despite the serendipitous landing, he nonetheless had followed a disciplined process – in his quest for financial and political support, begun in 1485 when he presented his plan to John II, King of Portugal, albeit refused. While it seems that success stories from creative performance are most often reported and praised, numerous mistakes and missed opportunities, which may be ignored, are critical for ultimate success. A person able to spot opportunities needs practice in the process, as we also note with some famous inventors (who are willing to admit how tedious the invention process may be). Thomas Edison had many innovations but he also has a funny and famous quote: “I have not failed. I've just found 1,000 ways that won't work.” Rare, lucky and probably unrealistic, is the “only-one-time serendipitous person.”

Also, to be so fortunate on a first try may in fact dampen resilience to try again after such a windfall. Focusing on spotting opportunity to escape from the other creative disciplines, perhaps, results in a popular mistake in relationship-based and rent-seeking economies, such as Vietnam. That is, increasing the chance of meeting serendipity by trying to enrich information inputs and quickly make decision on any spotted point. That results in a contingent strategy. Even when there are many insightful points, the process that transforms insights and creative ideas into new product, service, and solution still needs a logical connection and a disciplined process of employing methods of creativity. Here, there is a dilemma. People try to collect information as much as possible

in order to make well-informed decisions. Meanwhile, if they are lack of methods to digest the information then the more they get the more confused they are. In light of this, the bunch of valuable information is worthless.

There is also serendipitous outcome but not creativity. For instance, a veteran accountant finds a way to cheat tax collectors and in the process make a lot of money. Although his solution is novel and creates pecuniary value, it is not appropriate. One of the two pivotal characteristics of creativity is not satisfied.

Critical elements to make serendipity valuable

Taking advantage of unsought or unexpected inputs (i.e., serendipity) works under certain conditions. First, the user needs to have a desire to make a difference. The “owner” of serendipity typically has a decision or problem that is festering and, when the unexpected information arises, is able to see its value and use it to make a positive difference for an organization, such as finding new business opportunities. Her evaluation is similar to the filtration approach described above. The “permanent bank” of experience and understanding of a market situation and management theories, in conjunction with entrepreneurial alertness and risk tolerance, helps an entrepreneur evaluate how ready she is to move from the ‘observed’ insights to a valuable innovation in the marketplace, or in our view the distance from his personal evaluation and the “perceived” opportunity.

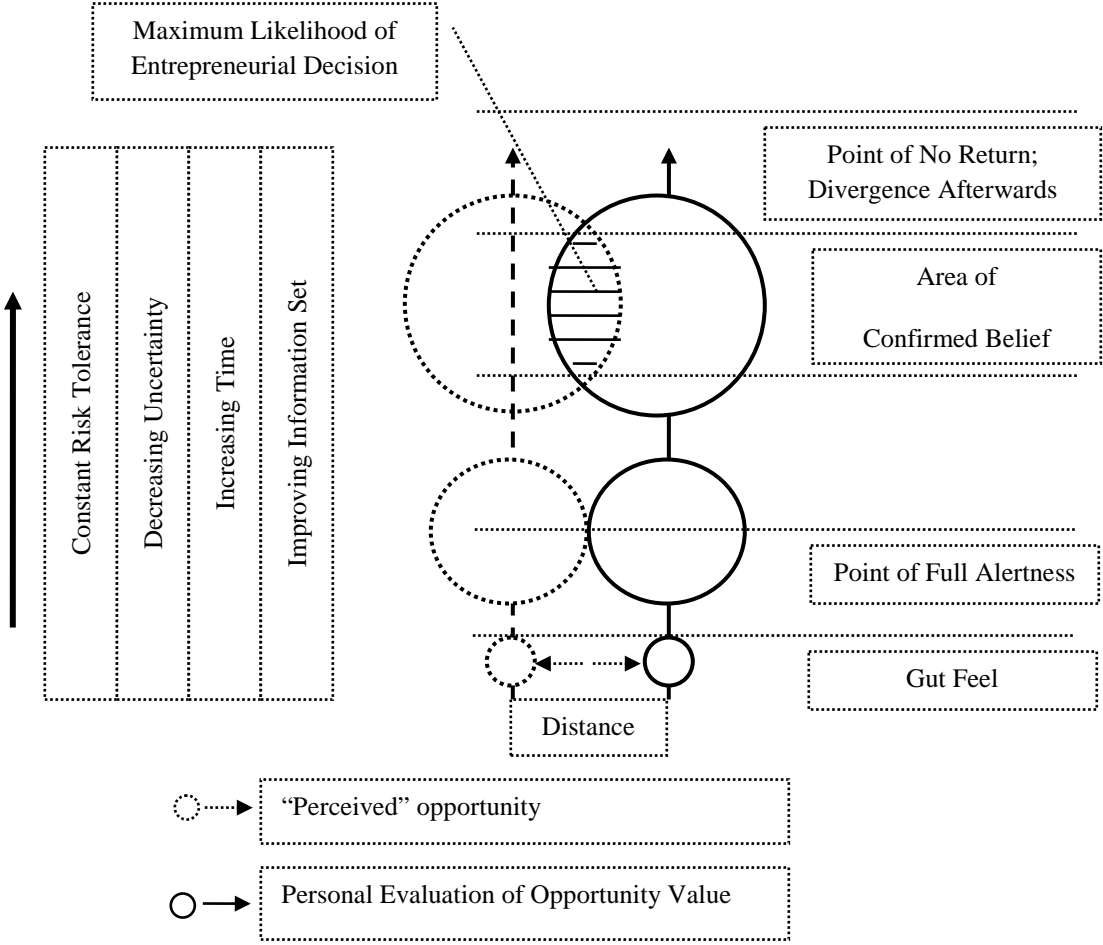
Second, a manager who wishes to tap serendipity needs to be willing and able to reach out of his own discipline. For many people, if the “distance” between disciplines is large, then the manager may forget (or not understand) the information. The serendipity maker, instead, sees value in the information and a potential opportunity. He may then gather additional helpful inputs through discussions with friends or experts, or simply by surfing the internet on something else, always keeping the unexpected initial information in mind.

Third, the person attuned to serendipity is able to connect (odd) dots. Systematic collection of external (?) information provides the serendipity maker with a number of separate dots of inputs and information, which, if connected could become a solution or new level of understanding. Then the left dashed circle (Figure 5) becomes larger and larger. In parallel, the “internal” information, in the right hand circle, consists of knowledge, capital, business relations, production capacity, and even willingness and imagination is improved as results of education and learning by doing.

The two sets of information (external and internal) are correlated, in that the more external dots the serendipity maker spots, the better he could become at evaluating opportunity. The more efficiently he connects

the dots, the better he is at detecting missing points. For example, when public media reports an increasing number of securities-investment success stories, business people start paying more attention to securities market, enriching their set of internal information by reading news, watching market movements, or enrolling evening classes on securities businesses.

Figure 6: Information process of serendipity



Source of Fig. 6: Adapted from Napier and Vuong (2013)

Last is the routine or discipline a person needs to employ methods of boosting creativity. The disciplined process of spotting and connecting the dots creates the shaded area where two sets of information intersect. This is when the serendipity maker can use the insights to make decisions. Even so, the two sets must not always overlap for a decision to emerge. This is where the role of entrepreneurial spirit encourages the decision maker to decide to move or not.

4.2. Aha! Moment is when...a long-standing problem is solved

In another case, attempts to place separated dots in a logical order finally arrive at an Aha! Moment - the sudden awareness of a problem solution or understanding of some idea (Napier, 2010). The discipline of connecting the dots shows its value. However, before the dots are connected, discipline (i) should be employed to make the dot appear. The first connection may be not the most reasonable. So is the second, the third and the followings. This is a trial and error process. Then the handsome solution is badly in need of a discipline of employing methods of creativity. When Sebastian Mallaby - a British-born journalist and author; and director of the Maurice R. Greenberg Center for Geoeconomic Studies - uncovered the mystery of hedge fund in *More Money Than God* his discussion of first hedge funds revealed that the “godfather” of the industry, Alfred Winslow Jones (1900-1989), exemplified some of the creative discipline aspects we have described. Jones did many out-of-the-box actions while building success on “connecting separate dots:” from spotting good stocks, to collecting information on them and managing his portfolio, to privately raising funds, to designing performance-based profit sharing schemes (Mallaby, 2010). We offer Jones’s example as one that illustrates Figure 4.

First, Jones had a desire to make a difference. He changed the way of thinking about hedge funds in 1949 when the job of most fund managers was to “conserve capital, not to grow it.” To this end, fund managers were conservative trustees. Jones was not. He made handsome profits from hedging financial techniques.

Before being a financier, Jones was America’s vice-consul to Berlin, a member of a secret Leninist Organization against Hitler, an alleged participant in U.S. intelligence operations, a sociologist, a *Fortune* magazine journalist, and a failed magazine owner. In his forties, his motivation to join the industry was to money to support his family (wife and two children) in expensive New York City.

Jones explained his investment techniques in a 1961 prospectus sent privately to outside partners. Essentially, he used both leverage and short-selling for hedging his fund. Whereas an ordinary fund manager split US\$100,000 80-20% (\$80,000 into blue chip best stocks and \$20,000 into safe bonds), Jones acted quite differently. He raised and borrowed a total of \$200,000, then bought \$130,000 good stocks and put \$70,000 into short sells of bad stocks. To Jones, more exposure was not necessary riskier, but rather could be more profitable. His own ‘net exposure’ was \$60,000, compared to \$80,000. Whatever the market situation was, this investment strategy allowed Jones enjoying his above-average gains. If the composite index goes up by 20 percent then the best stocks

assumedly go up by 30 percent, representing 10 percent above the average. Ordinary fund managers gain \$24,000 ($=30\% \times \$80,000$). Managers who follow Jones's strategy gain \$32,000 ($=30\% \times \$130,000 - 10\% \times \$70,000$). The short sells made a loss of \$7,000 because the prices of the worst stocks go up just by 10 percent instead of 20 percent.

Jones continued to try new approaches throughout his career, even into his retirement. In his sixties, Jones's philanthropy focused on "the humiliated poor", and conversations on Russian hegemony in Yugoslavis as follows: "Too many men [those committed to Wall Street] don't want to do something after they make money. They just go on and make a lot of more money."

Jones's hedge fund also involved looking out of his discipline or connecting dots in new ways. First, while Jones was not good at picking stocks, he was good at encouraging the best stock pickers to work for him. Jones invited brokers to run "paper portfolios" by selecting their favorite shorts and longs then phone in changes. Although it was a fun game, Jones nevertheless compensated the players according to their performance earnings and used what he learned from as a source for stock-picking ideas. As a result, brokers phoned Jones with hot ideas before passing them on to Jones's rivals. Today's online foreign exchange trading websites offer investors what Jones did six decades ago: simulative demo trading.

Jones also excelled in gather information, especially that which his competitors lacked. In the 1950s and 1960s, as well as today, having information in advance of the others puts certain fund managers ahead of the markets. Not only did the "paper portfolio" managers send hot tips to Jones, but his in-house staff members "scrambled for gossip and insights" (Mallaby, 2010, p. 23). One of them, Alan Dresher, went to the Securities Exchange Commission offices to read company fillings as soon as they appeared while his Wall Street peers waited for the postal service to deliver those reports. The result: Jones had critical information sooner than peers.

Jones also made profits from tax loopholes. Again, Jones was not an accountant but he was smart enough to find a good one. Richard Valentine, who was described "cartoonishly absentminded" (Mallaby, 2010, p. 22) showed Jones that if managers took a share of a hedge fund's investment profits rather than a flat management fee, they could be taxed at the capital-gains rate of 25 percent rather than 91 percent of personal income tax (this was in 1950s-1960s period). When Jones duly charged his investors 20 percent of the upside," wrote Mallaby, he termed it "performance reallocation" to separate from "an ordinary bonus that would attract normal income tax".

In the area of marketing, Jones kept operations private. He never made public any advertisement for his fund. He declined to register under the Securities Act of 1933, the Investment Company Act of 1940, and the Investment Advisor Act of 1940. He took these steps not of his earlier clandestine experiences (but maybe that played some role), but rather because the acts prevented investment funds from borrowing or selling short, which was part of what Jones wanted to do.

Jones spotted many pivotal “dots” for his industry, although simply spotting them did not make the leap he is known for. Jones needed to connect those separated dots into an efficient business model. Jones was neither good stock picker nor proficient tax-shield accountant nor a money-making portfolio manager. His major Aha! Moment (from connecting dots) came when he connected and integrated those talents into the hedged fund that accumulated a return of just under 5,000 percent in about 20 years, from 1949 to 1968. Whether it is his intention or not, Jones absolutely had to follow a discipline of spotting the dots and trying many different ways to draw the most beautiful picture of those spotted dots.

Finally, Jones and his team had strong discipline and an approach to their work. To implement his investment strategy of selling short for hedging, Jones had to detect bad stocks (actually harder than finding good ones). Jones compared the volatility of all stocks, which he called “velocity,” with S&P’s 500 Index and in the process figured out the measurements for about two thousand firms’ stocks at two-year intervals. This was pre-personal computers. Three years after the launch of Jones’s fund, Harry Markowitz (1952), published his paper called “Portfolio Selection,” in which he discussed how difficult it was to calculate correlations for just twenty-five stocks, because it demanded more computer memory than the Yale economics department could provide for him (Mallaby, 2010: p. 21). Jones and his legend reveal that innovations came both hard work and following creative disciplines, such as spotting the dots and connecting them. His ultimate success is rooted from tedious works on finding the most insightful information about different expertise and never-ending efforts to make the best use of these insights together.

But Jones’s disciplined information process did not always work well. He missed Alfred Cowles’s (1959) writings on stock market forecasting that state that “trends in market prices are too faint to be profitable”.. As soon as a technical analyst finds a trend of stock prices and makes his decision the others learn and do the same. Such consensus creates a new trend of prices which can be even adverse. Jones paid a price for ignoring those

trends, when in 1962, “he was net long 140 percent of his capital, whereupon the market fell. Then he turned bearish, but the market turned up” (Mallaby, 2010: p. 23).

When studying the case of Alfred Winslow Jones, it is noted individual innovations – many are resulted from out-of-box discipline – are prevailing and intuitively. The other two disciplines of connecting the dots and permanently employing methods of creativity are behind the scene. However, the inter-correlation of the three creative disciplines are obvious because any innovative outcome/performance, whether an intermediary or ultimatum, is resulted from collaboration of the three.

5. Concluding remarks

The delivery of the typology of information process of creativity is a proof of it. The authors have done individual works on creative disciplines (Napier and Nilsson, 2008), insight (Napier, 2010), serendipity (Napier and Vuong, 2012), empiric on employment of methods of creativity (Vuong, Napier, and Tran, 2012), and empirical relation between creativity and entrepreneurship (Napier, Dang, and Vuong, 2012). Then the desire of a synthesis arrives.

The connection of previous research results as well as examples in real-life business and other disciplines – for instance, physics, history, medical science, and so on – is illustrated in the above-mentioned typology.

The development of this paper is a disciplined process, of course. It follows academia standards and takes years to conduct numerous studies – all are creative research results, otherwise they were not published. In the making of this paper, Aha! Moment is when the authors reach a consensus on the typology.

What about serendipity? It is truly a serendipity if this work is nominated for Nobel prize.

The filtration mechanism is also an information process of creativity. Permanent bank needs to be enriched continuously. Richer knowledge and experience brings more opportunities for the soft skills to evaluate information and efficiently connect the insights. This implies that there is a discipline of teaching creativity.

The preceding suggested typology and discussion over the unified creativity principle ‘3D’ lead us to the following remarks.

Firstly, from a production point of view, we can consider innovative production system as one that employs conventional production inputs, namely labor (L), capital (K), to produce desired output. But since we stress the importance of innovation, in replacement of the autonomous “technology factor”, information in our

definition should be our production input of significant importance, which is denoted as Ω . We have a set of creativity methods denoted as 3D.

Naturally, we want a transformation that brings innovation into the value of output (V), which is measured and justified by both the market pricing, sales information, and valuation of the innovativeness, and with the 3D being parameters/benchmarks for measurement. Thus, we can symbolically write that process in the following expression:

$$f(K,L, \Omega; 3D) \rightarrow V(\Omega_{\text{Innovations}}; 3D)$$

Secondly, there are likely more important implications drawn upon this typology for HRM and change management practices if a team or an organization aims to improve its creative performance. The most direct implication that should be mentioned right here is about facilitating access to sources of expert information (including market insights), writing clear rules about limits of risk tolerance for personnel and installing “disciplined process for productive performance.”

Last, the previous studies such as Vuong, Napier and Tran (2012) and Napier, Dang, and Vuong (2012) report that creativity methods, particularly 3D method, lend themselves very well to the entrepreneurial stage of a business operation. These results together with relevant discussions about conditions and the limit of impact also suggest the existence of a creativity enabling setting we define as ‘entrepreneurial space’ in which individuals and teams know how to increase the flows of useful information for decision of making innovations and are able to do that when they have motivation. They can do that only with an appropriate organizational structure, cultural values and with clear orientation to and determination of pursuing creative performance as a strategic goal. Such an entrepreneurial space should be equipped with a 3D system.

Bibliography

- Axelrod, A. (2008) *Edison on Innovation: 102 Lessons in Creativity for Business and Beyond*, Jossey-Bass.
- Barczak, G., Lassk, F. and Mulki, J. (2010), "Antecedents of Team Creativity: An Examination of Team Emotional Intelligence, Team Trust and Collaborative Culture," *Creativity and Innovation Management*, 19: 332–345.
- Chiu, C., and Kwan L. (2010) "Culture and Creativity: A Process Model," *Management and Organization Review*, 6(3), 447-461.
- De Santi, G. (2002). *An Introduction to the Theory of Knots*. Stanford
- Glaveanu, V.P. (2010) "Creativity As Cultural Participation," *Journal for the Theory of Social Behaviour*, 44(1):48-67.
- Guilmette, L. (2012) "The History Of Maxwell's Equations," *WAC Prize Winners*, Paper 3.
- John-Steiner, V. (1997) *Notebooks of the Mind: Explorations of Thinking*. Cambridge, MA: Oxford University Press.
- Joseph, R. (2011) *Neuroscience: Neuropsychology, Neuropsychiatry, Brain & Mind*. University Press/ Amazon Digital Services.
- Klein, R.D. (1982) "An inquiry into the factors related to creativity," *The Elementary School Journal*, 82(3): 256-265.
- Kronfeldner, E.M. (2009) "Creativity Naturalized," *The Philosophical Quarterly*, 59(237): 577-592
- Mallaby, S. (2010) *More Money than God: Hedge Funds and the Making of New Elite*. The Penguin Press.
- Markowitz, H. M. (1959) "Portfolio Selection: Efficient Diversification of Investments," *Cowles Foundation Monograph*, 16.
- Napier, N.K. (2010) *Insight: Encouraging Aha! moments for organizational success*, Westport, CT: Praeger.
- Napier, N.K. and Nilsson M. (2008) *The Creative Discipline: Mastering the art and science of innovation*, Westport, CT: Praeger.
- Napier, N.K., Dang, L.N.V, and Vuong, Q.H. (2012) "It Takes Two to Tango: Entrepreneurship and Creativity in Troubled Times – Vietnam 2012," *Sociology Study* 2(9), in press.
- Napier, N.K. and Vuong, Q.H. (2013) "Serendipity as strategic advantage," in T. Wilkinson and V.R. Kannan (eds.) *Strategic Management in the 21st Century*. Westport, CT: Praeger/ABC-Clio, forthcoming.
- <<http://www.amazon.com/Strategic-Management-21st-Century-volumes/dp/0313397414/>>
- Purves, D. (2010) *Brains: How They Seem To Work*, Person Education, Inc.

- Runco, M.A. and Richards, R. (1997) *Eminent creativity, everyday creativity, and health*, Ablex Publishing.
- Runco, M.A. (2004) "Creativity," *Annual Review of Psychology*, 55: 657-687.
- Sternberg, R. J. (1999) "The theory of successful intelligence," *Review of General Psychology*, 3: 292-316.
- Unsworth, K., and Clegg, C. (2010) "Why do employees undertake creative actions?" *Journal of Occupational and Organizational Psychology*, 83, 77-99.
- Vander Hook, S. (2009) *Johannes Gutenberg: Printing Press Innovator (Publishing Pioneers)*, Abdo Publishing Company
- Vuong, Q.H., Napier, N.K., and Tran, T.D. (2012) "A Categorical Data Analysis on Relationships between Culture, Creativity and Business Stage: The Case of Vietnam," *International Journal of Transitions and Innovation Systems* 2(4), in press.
- Watson, P. (2006) *Ideas: A History of of Thought and Invention, from Fire to Freud*. NY: Harper Perennial.