

Singapore Management University

## Institutional Knowledge at Singapore Management University

---

Research Collection Lee Kong Chian School Of  
Business

Lee Kong Chian School of Business

---

7-2019

### Toward a typology of organizational creativity

Gilbert TAN

Singapore Management University, gilberttan@smu.edu.sg

Follow this and additional works at: [https://ink.library.smu.edu.sg/lkcsb\\_research](https://ink.library.smu.edu.sg/lkcsb_research)



Part of the [Organizational Behavior and Theory Commons](#)

---

#### Citation

TAN, Gilbert. Toward a typology of organizational creativity. (2019). *International Journal of Management*. 8, (3), 18-25.

Available at: [https://ink.library.smu.edu.sg/lkcsb\\_research/6691](https://ink.library.smu.edu.sg/lkcsb_research/6691)

This Journal Article is brought to you for free and open access by the Lee Kong Chian School of Business at Institutional Knowledge at Singapore Management University. It has been accepted for inclusion in Research Collection Lee Kong Chian School Of Business by an authorized administrator of Institutional Knowledge at Singapore Management University. For more information, please email [cherylds@smu.edu.sg](mailto:cherylds@smu.edu.sg).



## Toward a Typology of Organizational Creativity

**Dr. Gilbert Tan**

Associate Professor, Department of Strategic Management (Education)  
Singapore Management University, Singapore

### **Abstract:**

Both researchers and practitioners realize the importance of organizational creativity as a source of competitive advantage and long-term organizational success. Although, research on organizational creativity abounds, many researchers and practitioners view organizational creativity as a unidimensional construct. This narrow view of creativity limit our understanding on how organizations generate creative ideas to compete in the market. This paper examines organizational creativity using a two-by-two matrix along 2 dimensions: Thinking Approach (Analytical versus Intuitive) and Problem Type (Bounded versus Unbounded). According to the framework, there are four types of organizational creativity: (1) Imaginative Creativity (application of intuitive approach to unbounded problem); (2) Improvisational Creativity (application of intuitive approach to bounded problem); (3) Incremental Creativity (application of analytical approach to bounded problem); and (4) Integrative Creativity (application of analytical approach to unbounded problem). Examples of the four types of creativity in organizations are discussed. The paper also offers suggestions for future research.

**Keywords:** Organisational creativity, innovation, organizational change & development

### **1. Introduction**

Managers are eager to understand what makes some organizations better at formulating novel and useful ideas, processes, services or products than others based on the belief that organizational creativity plays an important role in influencing organizational success. Research studies have supported the linkage between organizational creativity and organizational performance (Lin & Chen, 2007; Zhou & Shalley, 2008). In fact, there is a body of research to show that organizations are able to gain a competitive advantage over their rivals through innovations (Herrera, 2015; Anning- Dorson, 2016; Anning-Dorson, 2018). This explains the intensification of research on organizational creativity in recent years (Andriopoulos, 2001; Anderson, Potocnik & Zhou, 2014; Blomberg, Kallio, & Pohjanpaa, 2017).

Organizational creativity is defined as “the creation of a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system” (Woodman, Sawyer, Griffin, 1993, pg 293). However, this definition tends to portray organizational creativity as a uni-dimensional construct. It suggests that there is only one kind of creativity in organizations. I argue that this narrow view of organizational creativity limits our understanding on the complex nature of organizational creativity and what managers can do to generate and harness creative ideas in their organizations.

This paper proposes a typology that adopts a multi-dimensional perspective of organizational creativity. The typology suggests that there are different forms of creativity outcomes that an organization can obtain depending on the type of challenge or problem it focuses on, as well as the approach it takes to achieve or address the challenge or problem. It describes four types of organizational creativity along 2 dimensions : ( 1) Problem Type, and (2) Thinking Approach.

## 2. Theoretical Framework

### 2.1. Dimension 1: Problem Type (Bounded vs Unbounded)

Problems abound in organizations. According to the early contributor of management thought Chester Barnard (1938), formal organizations are created by the cooperative efforts among men that are “conscious, deliberate and purposeful” to deal with problems that by their own individual efforts are unable to handle. The first dimension of the problem type relates to the locus of creativity. It asks the question: What is the type of problem that the organization is facing that it is directing its creative efforts to solve?

For simplicity, the typology of this dimension looks at problems as bounded versus unbounded, although in reality boundedness is really a continuum. The extent to which a challenge or problem is bounded depends on a number of factors, such as, the information availability, technical know-how to solve the problem, resource constraints, etc.

Bounded problems represent challenges with defined constraints where the solutions are available within the problem space. In other words, bounded problems are those where known solutions exist. Variables in bounded problems are obvious and inter-relationships among the variables are easily recognized. Bounded problems are highly structured with little uncertainty involved (Getzels, 1975). Examples of bounded challenges or problems abound in mundane, operational, day-to-day work related issues in organizations.

Unbounded problems have no known solutions (Getzels & Csikszentmihalyi, 1967). Variables in unbounded problems are not clearly specified and inter-relationships among variables appear incomprehensible. Unbounded problems require the problem-solver to organize the problem space and view the challenge from different perspectives. Wertheimer (1985) suggested that these problems require “productive thinking” in order to develop a reasonable understanding of the problem space. Unlike bounded problems, unbounded problems have no definitive formulation and data are either uncertain or missing (Horn & Weber, 2007). Often unbounded problems have to be discovered through conscious efforts or serendipitously. Sometime, they are imposed upon the organizations unexpectedly during crises.

### 2.2. Dimension 2: Thinking Approaches (Analytical versus Intuitive)

The second dimension describes the thinking approach adopted by the organization to solve the problems. The proposed theoretical framework suggests that the thinking approach (analytical versus intuitive) taken by the organization to address the problem will influence the type of creativity outcomes. The intuitive and analytical approaches have attracted the interests of many management scholars (Mintzberg, 1976; Simon, 1987; Agor, 1989). These two distinct approaches in problem solving have been termed as System 1 and System 2 approaches (Stanovich; 1999). System 1 is described as intuitive, whereas System 2 is described as analytical.

The intuitive approach is directly opposed to the analytical approach. It is inductive, ambiguous and unsystematic. It relies on hunches by operating associatively, quickly, automatically and is generally unconscious. It steers away from hard data and looks at problems holistically (Stanovich, 1999; Evans, 2003). The intuitive approach involves weaving ideas and experiences together and combining them in different ways; application of the intuitive approach often leads to apprehension without full comprehension of how and why. Unlike the analytical approach, the intuitive approach puts more weight on soft and speculative data. It values impressions and possibilities more than conclusions. Data are synthesized rather than analyzed.

The analytical approach involves breaking down a problem systematically into its components and examining the relationships among them. Unlike the intuitive approach, it permits abstract reasoning and hypothetical thinking. It is also characterized by sequential, logical and conscious effort to arrive at solutions driven by hard data. The analytical approach is evidence-based. It examines cause-effects relationships and makes conclusions. The goal of the analytical approach is to reduce uncertainties and improve predictability (Sloman, 1996; Stanovich, 1999).

### 2.3. Matrix of Organizational Creativity Types

Figure 1 shows the typology of four different types of creativity outcomes in a 2x2 matrix. The resulting four types of organizational creativity are named: (1) *Imaginative Creativity*– application of intuitive approach to unstructured problem; (2) *Improvisational Creativity*– application of intuitive approach to structured problem; (3) *Incremental Creativity*– application of analytical approach to structured problem; and (4) *Integrative Creativity* – application of analytical approach to unstructured problem.

### 2.4. Incremental Creativity (Analytical Approach to Bounded Problems)

Incremental Creativity happens when employees approach their creative efforts towards bounded problems in an analytical fashion. This type of creativity involves the application of known solutions within the defined problem space, as opposed to exploring radical ways of doing things, and involves the least risk. Uncertainties are manageable due to the highly-structured nature of the challenge and the search for solutions that is backed by evidence and hard data, which leaves little room for mistakes.

Examples of Incremental Creativity include new ideas to improve internal work processes, existing products and services in the organization. This type of creativity manifests itself in daily work activities where employees are encouraged to

pursue “better ways of doing things at work” in achieving higher efficiency and productivity. Toyota is a good example of how a corporate promotes Incremental Creativity among its employees. As early as in 1951, Toyota started the Creative Idea Suggestion System to gather ideas from employees to make improvements in the existing organizational practices. Today, Toyota is well known for its Toyota Production System (TPS). The principles and tools of TPS have contributed to higher quality products and work at Toyota. Toyota has consistently been able to produce vehicles faster and cheaper than its competitors (Liker, 2004; Liker & Morgan, 2006).

### *2.5. Integrative Creativity (Analytical Approach to Unbounded Problems)*

The outcome of applying analytical thinking in solving an unbounded problem is Integrative creativity. In pursuing Integrative creativity, organizations rely on existing technical know-how and procedures to understand the dynamics of the undefined problem space before generating alternatives to solve the problem. Alternatives are evaluated thoroughly with data and evidence before being accepted. Integrative creativity involves rigor and discipline.

Radical product and service innovations that involve transformational improvement in product offering and service delivery are examples of Integrative Creativity. This type of creative effort leads to breakthroughs in science and technology. 3M is a technology-driven corporation with an intense culture of research. It follows a structured approach to identify disruptive product ideas, and invest heavily in R&D. The fruits of its labor are evident in its successful products like Post-it Notes, Nexcare bandages, Aldara skin-care cream, multi-layered optical films, fiber optic connector, etc. (3M, 2002). 3M demonstrates how it taps on Integrative Creativity to develop game-changing products.

### *2.6. Improvisational Creativity (Intuitive Approach to Bounded Problems)*

The third type of organizational creativity occurs when employees “discovered” new ways in solving mundane problems in organizations. Improvisational creativity does not follow a rigorous and discipline process in solving the problem. Improvisational creativity is down-to-earth. It adopts an iterative and does not have objective criteria to evaluate the acceptance of the ideas. Often Improvisational Creativity is based on trial and errors and experiences.

Southwest Airlines is a good example of how it encourages its employees to practice Improvisational Creativity. It has the reputation for surprising its customers with unique flight experiences by spontaneously producing “moments” of fun in daily, repeated tasks, such as safety demonstrations. The fun-loving workplace culture at Southwest Airlines encourages their employees to express their creative selves freely, and look for opportunities to delight their customers with fun and laughter (Klein, 2012).

### *2.7. Imaginative Creativity (Intuitive Thinking to Unbounded Problems)*

When organizations apply intuitive thinking to unbounded problems, the outcome is imaginative creativity. This type of creativity calls for courage to depart from conventional ways of looking at the problem. Typically, imaginative creativity requires multiple iterations of problem and solution finding. Organizations which exhibit imaginative creativity tend to be visionary in nature, and have the perseverance to make the impossible possible. Although they are constrained by existing resources and knowledge, they bend reality and challenge assumptions in their search for solutions. Organizations which pursue imaginative creativity tend to have high risk appetites. Compared to other types of Organizational Creativity, Imaginative Creativity is the most risky as practicing it requires handling two unknowns: (1) uncertainties around what problem to solve, and (2) uncertainties around how to solve the problem. This also means that they must be ready for failures. Success in imaginative creativity requires the willingness to go back to the drawing board repeatedly in order to achieve the desired outcome.

Apple’s impressive list of successful innovations such as the iMac, iPod, iTunes Store, iPhone, iPad, etc., is a good example of Imaginative Creativity in action. Apple does not rely on market research to find out what customers want because market research is unable to uncover desired products that do not yet exist. Instead, the company relies on intuition to uncover what customers want in order to develop game-changing products (Isaacson, W. 2011).

## **3. Discussion**

Table 1 summarizes the typology of organizational creativity. It provides a better understanding of the similarities and differences between the four types of creativity. Imaginative Creativity and Improvisational Creativity result from intuitive thinking. They tend to be more experiential-based and rely more on soft-data, human emotions, values and attitudes. In contrast, Incremental Creativity and Integrative Creativity are results of analytical thinking, are more evidence-based, and rely more on hard, quantifiable data.

Improvisational Creativity and Incremental Creativity focus on problems with defined and structured boundaries. These problems more mostly day-to-day work issues confronted by frontline employees at the operational level. The impact of Improvisation Creativity and Incremental Creativity will be more immediate and they are targeted at improving the operational effectiveness and efficiencies. In contrast, Imaginative Creativity and Integrative Creativity are directed at undefined and ambiguous problems that have long term implications. When managers strategize for the future of their

organizations they have to exercise Imaginative Creativity and/or Integrative Creativity to formulate unique strategies to compete in business.

There are inevitably variations in the tools and methods used to develop the different types of creativity due to the differences in problem type and thinking approach. Integrative Creativity and Incremental Creativity enjoy the benefits of the rich heritage of management science that has a bias toward rational thinking. Over the years, management scholars and consultants have developed many tools and techniques to solve organizational problems. Tools and techniques developed for Total Quality Management (TQM) are relevant for Incremental Creativity, while Integrative Creativity requires more advanced tools and techniques – such as Business Analytics and field-specific R&D methodologies. Incremental Creativity and Integrative Creativity requires tools and techniques which help to process and analyze hard, quantitative data.

Improvisational Creativity and Imaginative Creativity require a different set of tools and techniques to process soft data on human experiences, feelings, thoughts and behaviors. Design Thinking Methodologies such as ethnographic research, empathy mapping, prototyping (Carlgren, Rauth & Elmquist, 2016; Kumar, 2013) are useful for Improvisational Creativity as these tools are designed to capture qualitative and soft data. Likewise, Blue Ocean tools such as Strategic Canvas and Value Innovation are applicable for Imaginative Creativity (Kim & Mauborgne 2005a; Kim & Mauborgne 2005b). These two types of tools (Design Thinking and Blue Ocean) are designed to tap on divergent thinking, and usually present their output in a more visual and pictorial manner.

Unbounded problems pose greater risks for managers than bounded problems because there are more ambiguities and uncertainties involved. Unlike unbounded problems, bounded problems involve more readily-available information and certainties. Practitioners are generally trained in an analytical fashion and organizations reward managers for their analytical prowess. This explains why the analytical approach tends to be the more favored approach in practice. It avoids mistakes and risk is mitigated through thorough deliberation of available evidences. In contrast, the intuitive approach accepts and learns from mistakes. Hence, the analytical approach minimizes risks whereas the intuitive accepts risks.

The risk level associated with each type of creativity differs. Hence, an organization's risk appetite influences which kind of creativity the organization focuses on. The practice of Imaginative Creativity is likely to pose the highest risk for managers as it involves working on unknown problems and taking chances on untested radical alternatives based on intuition and hunches. Similarly, the risk associated with Integrative Creativity is likely to be high, however, the risk will somewhat be mitigated through rigorous analyses of objective data. Relative to Imaginative Creativity and Integrative Creativity, the risk associated with Incremental Creativity and Improvisational Creativity will be lower since their foci are on operational, structured problems with defined boundaries.

Besides risk appetite, the drivers and organizational mindsets of the four types of creativity are also different. Imaginative Creativity is generally driven by visionary-thinking that paints a promising futuristic picture that bears little correspondence to current realities. Yet, vision dies without optimism – employees working in an optimistic environment will have a can-do attitude and believe in making the impossible possible. Steve Jobs was reputed to be a visionary leader. When he co-founded Apple, he had the vision that personal computers would change the world by altering how people work, learn and play. Since then, Apple has revolutionized seven industries – personal computing, animated movies, music, phones, tablet computing, retail stores, and digital publishing (Issacson, 2011).

Strategic intent refers to a firm's intense obsession to achieve a desired leadership position that is bigger than its current resources and capabilities (Hamel and Prahalad, 1989). An organization's obsession with achievement and commitment to pursue the desired leadership position prompts an organization to engage in Integrative Creativity – to create competitive advantages faster than their competitors. Employees working in an organization obsessed with achievement tend to share the belief that sky is the limit. 3M is one company that sustains its growth and innovation by stretching its current resources and capabilities, as evident from its heavy investment in R&D (Hindo, 2007).

The driver for Improvisational Creativity is the desire for fun and playful experiences at work. Working in a fun and playful work environment provides employees with the psychological safety to try new ideas and learn from their mistakes. It cultivates a growth mindset in the organization. One of Southwest Airlines' three key organizing values is a "Fun-LUVing Attitude". This value is widely-embraced by employees at Southwest Airlines. It fosters a fun environment for employees, and encourages them to give their best in coming out with new ideas to improve productivity and customer experience.

Incremental Creativity is driven by the quest for continuous improvement, and the organizational mindset associated with Incremental Creativity is discipline. This is illustrated in the case of Toyota. Toyota's ability to stay as the market leader of the highly competitive auto-industry can be attributed to its obsession with continuous improvement in its manufacturing processes. Employees at Toyota fully embrace the philosophy of Kaizen which prompts them to take ownership and do their best to think of innovative ways to improve their ability to perform their tasks.

The proposed typology offers managers four types of creativity which they can apply to enhance the performance of their organizations. However, this does not imply that managers should go all out to cultivate all four types of creativity in their organizations simultaneously, nor should they focus on just one type of creativity. No single type of creativity is superior. They can all produce results and be cultivated in an organization. It is most important for managers to know how each type of creativity contributes to organizational performance, as well as how to organize resources and activities to support the development of each type of creativity.

Integrative Creativity and Imaginative Creativity have greater impact on organizational performance strategically, whereas Incremental Creativity and Improvisational Creativity produce more immediate results operationally. Anderson, Potocnik & Zhou (2014) warned us about the “innovation maximization fallacy” – that it is naïve to assume creativity is always good for organizations, and that the more the merrier. To avoid falling into the “innovation maximization fallacy”, managers should deliberate on the extent and type of creativity they want to cultivate in their organizations, taking into account their goals. If their goals are to achieve operational effectiveness and efficiencies then they should focus on Incremental Creativity and Improvisational Creativity. They should foster Integrative Creativity and Imaginative Creativity if they strive for strategic competitiveness over their rivals.

#### 4. Future Research Directions

This paper provides a conceptual framework on a typology of organizational creativity. There is a need to test the construct validity of this typology empirically using well-developed instruments to measure the four types of organizational creativity. Theory development and measurement design go hand-in-hand. Designing reliable measurement and empirical tests for constructs is essential for theory development (Cronbach & Meehl, 1955). The development of valid instruments will enable further research using this typology of organizational creativity.

Organization architecture refers to all the macro and micro systems of the organization including its structure, reward and appraisal systems, organizational processes, workplace climate, and human capital (Naidler, Gerstein & Shaw, 1992). Every organization has its unique organization architectural arrangement that specifies how resources and capabilities are created and deployed. It is unlikely that an organization is equally strong at all the four types of creativity. The chance is that organizations will most probably focus on one or two types of creativity given its limitation in resources and capabilities.

Future research can investigate how organization architectural factors influence the development of the various types of organizational creativity. Woodman, et al (1993) provides a theoretical framework to explain how organizational creativity happens as a result of complex interactions among individuals, groups and contextual factors in the organization. The organization architecture exerts contextual influences on individual and group creativity within the organization. As it is likely to have intra-organizational variations in contextual influences, research effort can be directed at examining the presence of the different types of creativity among the different units within an organization. For example, the Manufacturing & Production department may more likely to demonstrate incremental creativity, whereas the R&D Engineering department may be more likely to demonstrate integrative creativity.

Past research shows that the national culture has impact on organizational practices (Hofstede, Hofstede & Minkov, 2010; Kirkman, Low & Gibson, 2006). Another research direction can focus on exploring how national culture influences organizational creativity. Asian cultures tend to score lower and stay near the restraint pole in the indulgence-restraint dimension. Societies higher on the restraint score generally suppress natural human desires and impulses of free thinking (Zheng et al., 2016). People from high restraint societies tend to restrain their behaviors to follow existing rules and guidelines, aside as derived from the impulses of free thinking may often be rejected by authority and dogma in these societies (Garfield, Taylor, Dennis & Satzinger, 2001). These studies imply that employees in Asian organizations typically adopt an analytical approach to their creative efforts. Future research studies can investigate if Asian organizations are more inclined to pursue Incremental Creativity and Integrative creativity.

Likewise, Asian cultures score low on the individualism dimension. Asian employees who exhibit a preference for a tightly-knit framework have a tendency to reject unique identities and individualistic behaviors, as consensus is important in collectivistic societies. This opposes the formulation of atypical solutions driven by intuitive thinking styles. This is consistent with the uncertainty avoidance dimension where Asian cultures are likely to feel uncomfortable with the uncertainty of the intuitive thinking style, as it employs unproven methods and accepts or pursue risk. It would be interesting to investigate if the mix of cultural factors in Asia stifles Asian organizations in pursuing Improvisational Creativity and Imaginative Creativity.

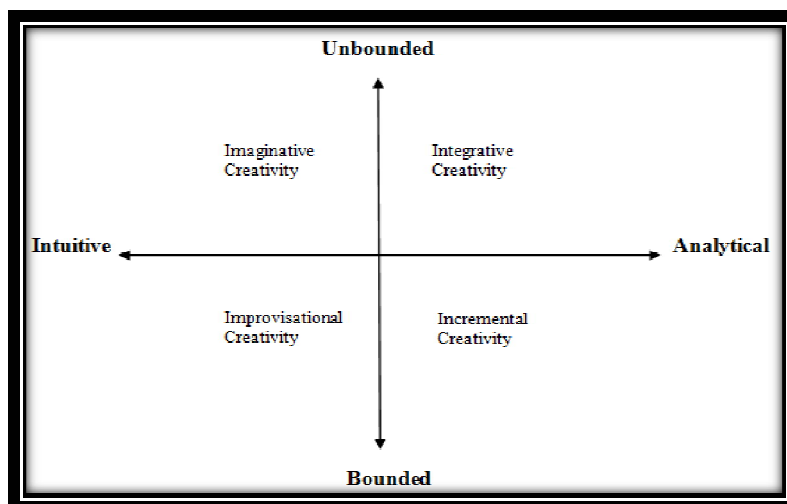


Figure 1: A Typology of Organizational Creativity

	<b>Imaginative</b>	<b>Improvisational</b>	<b>Incremental</b>	<b>Integrative</b>
Description	Intuitive approach to unbounded organizational problems	Intuitive approach to bounded organizational problems	Analytical approach to bounded organizational problems	Analytical approach to unbounded organizational problems
Data requirement and support	Experience-based; heavy reliance on soft data	Experience-based; heavy reliance on soft data	Evidence-based; heavy reliance on hard data	Evidence-based; heavy reliance on hard data
Organizational level	Higher management level	Lower operational level	Lower operational level	Higher management level
Time frame	Strategic long-term focus	Day-to-day operational focus	Day-to-day operational focus	Strategic long-term focus
Typical Tools/ Methodologies	Blue Ocean Methodologies	Design Thinking Methodologies	TQM methodologies	Business analytics; field-specific R&D methodologies
Risks involved	Higher risk – take chances on untested radical alternatives based on hunches and instinct	Lower Risk - accept risk through trial and errors; learn quickly from mistakes and failures	Lower risk – evaluate plausible alternatives thoroughly with carefully collected data	Higher risk – take calculated chances on novel alternatives backed by rigorous analyses and evidences
Driver	Vision	Fun and playful experiences	Quest for continuous improvement	Strategic intent
Organizational Philosophy	Optimism – nothing is impossible	Growth Mindset – fail often and learn quickly	Discipline – take ownership and do your best	Obsession with achievement – sky is the limit
Examples	Apple Inc	Southwest Airlines	Toyota	3M

Table 1: Summary of the Typology of Organizational Creativity

## 5. References

- i. 3M (2002). A century of innovation: The 3M story. St Paul, MN: 3M Company
- ii. Agor, W. (1989). Intuition in organizations: Leading and managing productively. Newbury Park, CA: Sage Publications.
- iii. Anderson, N., Potocnik, K., & Zhou, J. (2014). Innovation and Creativity in Organizations: A State-of-the-Science Review, Prospective Commentary, and Guiding Framework. *Journal of Management*, 40 (5), 1297-1333.
- iv. Andriopoulos, C. (2001). Determinants of organizational creativity: a literature review. *Management Decision*, 39 (10), 834-840.
- v. Anning-Dorson, T. (2016). Organizational culture and leadership as mediators of service innovation and firm competitiveness: a study of an emerging economy. *International Journal of Innovation Management*, 20 (7), 1600064.
- vi. Anning-Dorson, T. (2018). Innovation and competitive advantage creation: the role of organizational leadership in service firms from emerging markets. *International Marketing Review*, 35 (4), 580-600.
- vii. Barnard, C.I. (1938). *The Functions of the Executive*. Cambridge, MA: Harvard University Press.
- viii. Blomberg, A. Kallio, T.J., & Pohjanpaa, K. (2017). Antecedents of organizational creativity, barriers or both? *Journal of Innovation Management*, 5 (1), 78-104.
- ix. Carlgen, L., Rauth, I., & Elmquist, M. (2016). Framing Design Thinking: The Concept in Idea and Enactment. *Creativity and Innovation Management*, 25 (1), 38-57.
- x. Cronbach, L.J., & Meehl, P.E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52 (4), 281-302.
- xi. Evans, J.St.B.T. (2003). In two minds: dual-process accounts of reasoning. *TRENDS in Cognitive Sciences*, 7(10), 454-459.
- xii. Garfield, M. J., Taylor, N. J., Dennis, A. R., & Satzinger, J. W. (2001). Research report: Modifying paradigms—individual differences, creativity techniques, and exposure to ideas in group idea generation. *Information Systems Research*, 12, 322-333.
- xiii. Getzels, J. (1975). Problem-Finding and the Inventiveness of Solutions. *Journal of Creative Behavior*, 9(1), 12-18.
- xiv. Getzels, J. W. & Csikzentmihalyi, M. (1967). Scientific creativity. *Science Journal*, 3: 80-84.
- xv. Hamel, G. & Prahalad, C.K. (1989). Strategic Intent. *Harvard Business Review*, 67 (3), 63-78.
- xvi. Herrera, M. E. B. (2015). Creating competitive advantage by institutionalizing corporate social innovation. *Journal of Business Research*, 68, 1468-1474.
- xvii. Hindo, B. (2007). At 3M, A Struggle between Efficiency and Creativity. *Business Week*, Issue 4038, 8-14.
- xviii. Hofstede, G. H., Hofstede, G. J., & Minkov, M. (2010). *Cultures and organizations: Software of the mind: Intercultural cooperation and its importance for survival* (3rd ed.). New York, NY: McGraw-Hill.
- xix. Horn, Robert E.; Weber, Robert P. (2007). *New Tools for Resolving Wicked Problems: Mess Mapping and Resolution Mapping Processes*. Strategy Kinetics L.L.C.
- xx. Isaacson, W. (2011) *Steve Jobs: A Biography*. Simon & Schuster.
- xxi. Kim, W. C. & Mauborgne, R. (2005a). *Blue Ocean Strategy: How to Create Uncontested Market Space and Make Competition Irrelevant*. Boston, Massachusetts: Harvard Business School Press.
- xxii. Kim, W. & Mauborgne, R. (2005b). Value innovation: a leap into the blue ocean. *Journal of Business Strategy*, 26(4), 22-28.
- xxiii. Kirkman, B. L., Lowe, K. B., & Gibson, C. B. (2006). A quarter century of Culture's Consequences: A review of empirical research incorporating Hofstede's cultural values framework. *Journal of International Business Studies*, 37, 285-320.
- xxiv. Klien, G.D. (2012). Creating cultures that lead to success: Lincoln Electric, Southwest Airlines, and SAS Institute. *Organizational Dynamics*, 41, 32-43.
- xxv. Kumar, V. (2013). *101 Design Methods: A Structured Approach for Driving Innovation in Your Organization*. New Jersey: John Wiley & Sons, Inc.
- xxvi. Liker, J.K., *The Toyota way*. 2004. NY: McGraw Hill.
- xxvii. Liker, J.K. & Morgan, J.M. (2006). The Toyota Way in Services: The Case of Lean Product Development. *Academy of Management Perspective*, May, 5-20.
- xxviii. Lin, Y.Y. & Chen, Y.G. (2007). Does innovation leads to performance? An empirical study of SMEs in Taiwan. *Managing Research News*, 30 (2), 115-132.
- xxix. Naidler, D., Gerstein, M., & Shaw, R. (1992). *Organization Architecture*. San Francisco: Jossey-Bass.
- xxx. Mintzberg, H. (1976, July-August). Planning on the left side and managing on the right side. *Harvard Business Review*. 79-90.
- xxxi. Simon, H. A. (1987). Making management decisions: the role of intuition and emotion. *The Academy of Management Executive*. 57-64.
- xxxii. Sloman, S. A. (1996). The Empirical Case for Two Systems of Reasoning. *Psychological Bulletin*. 119: 3-22.



- xxxiii. Stanovich, K.E. (1999). Who is Rational? Studies of Individual Differences in Reasoning, Elbraum.
- xxxiv. Wertheimer, M. (1985). A gestalt perspective on computer simulations of cognitive processes. *Computers in Human Behavior*, 1:19-33.
- xxxv. Woodman, R. W., Sawyer, J.E., & Griffin, R.W. (1993). Toward a theory of organizational creativity. *Academy of Management Review*, 18 (2), 291-321.
- xxxvi. Zheng Fang, Xianxuan Xu, Leslie W. Grant, James H. Stronge & Thomas J. Ward (2016) National Culture, Creativity, and Productivity: What's the Relationship with Student Achievement?, *Creativity Research Journal*, 28:4, 395-406.
- xxxvii. Zhou, J. & Shalley, C.E. (2008). *Handbook of Organizational Creativity*, Taylor & Francis Group, New York, NY.

