

**“A Study on Exploring the Concept of Building Innovation Capabilities – Design Thinking Driver of Innovation”**

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**Abstract**

The Design thinking emerged as a management concept promising to innovation inspired by new design. The concept is poorly conceptualized and truly investigated in the organizational settings; the especially in relations are potential role in enabling of innovation. Building is an empirical studies of a companies and organisation, The organizations are claiming to use new design thinking, this paper aims is to provide a better accepting of the concept, how to use the innovation and applicability in daily routine works, and role in the building innovation capabilities are in the large firms. This studies show the large variety in the understanding and utilization of the concepts, it is an integration and addition to presented practice the concept of design thinking is to be caught in between the field of creative innovation and design thinking. On one hand over the concept can be seen as over simplify the difficulty of new design practices, and on another hand, the results of this paper show as to use of new design thinking is allied with several practices decorated by creative innovation scholars and researchers.

The Design Thinking plays a vital role of building innovation capability in wide and large organisation. The studies show that how to perceive the values and effects of using design thinking are connected to different elements presented in innovation capability theory. The resources, processes, is creative and strategic intent to the innovate.

**Key Words:** *Design Thinking, Innovation Capability, Design Process, Expertise, Expert and Novice.*

**Introduction**

Around the early 2000s, the concept of design thinking emerged as approach to innovation, and within a few years interest had grown exploded among managers striving to transform their business, and the business schools wants to better prepare for their scholars an increasingly complex and uncertain environments. Proponents of design thinking suggest that organisation could only learn to think and how work more like designers, they would learn how to address the problems differently, come up with new and innovation ideas, balance exploration and exploitation better, and transform their business by being more innovative. Of course the such miracle cures can be questioned, the concept has to already been accused of being the latest management, an increasing number of firms are implementing new design thinking in various fields, and judge from unreliable evidence to increasing numbers of books and articles and business press, they are doing some success. Yet to date there is very little empirical research on design thinking in organizational settings, and particular research investigating design thinking in relation to be innovation.

Design thinking is generally is said to as an analytical and creative process that engages a person with different opportunities for the experiment, to create and for the prototype models, to gather from the feedback, and redesign. Several characteristics. The good design thinker should possess have been identified from the different literature. The primary purpose of this article is to summarize and analyze the research on design thinking.

A better understand between characteristics and processes, as well as the differences between novice and expert design thinker.

Being a successful person in today's highly competition developed technological and globally competitive in world requires a person to develop and use a different set of skills knowledge and talent where needed. These skills is called design thinking. Design has been considered widely to the central or distinguishing activity of engineering and management. It has been said that engineering programs should graduate engineers can develop new design effective solutions to meet the social needs and wants. Like problem solving, design is a natural and human activity. Needs and dissatisfaction with current state combined with a determination that some action must be taken to solve the current problem and start the design process. In this view many researchers have been designing and acting as designers throughout their careers, in this means to bring new thinking and different actions how we are lead, manage, and go about our work. We are thinking differently about our role and challenges in our organization and facing and break open entrenched, intractable problems between employees.

The designs of products and services is major component of business competitiveness, are the extent that many known firms have committed to themselves to becoming a design follower. It's also design thinking has become an integral part of the design and engineering fields of business, it also have a positive influence on 21st century education across disciplines because it involves creative thinking in generating solutions for the problems. These is academic environments, students should read required critical thinking and logical reason, and solve different problems. Thus who are help to students succeed in there inter connected work, we are staying in digital world, educators are should support students in developing there carrier in 21stcentury skills and talent. New design thinking, systems process thinking, and group work skills the enhancing their solving problem. Skills and prepare them for college and career.

The innovation and creation capability is the new field for organizations. To work like a funnel seeking, locating and developing potential innovations and creation that also transferred into the mainstream. This is key of mechanism for self-identifying within the organization and products. An innovation capability is brings together hard work and efficiency of the mainstream with the creativity of the new stream. This is achieved through their knowledge bases and creative and innovation capability is defined as the ability to continuously transform knowledge and ideas into new products, processes and systems for the useful of the firm and stakeholders. The Innovation capability is not for just ability to successful at running a business new field or stream, and to maintain the mainstream capabilities employees. Innovation capability is about synthesize these two operating paradigms. High performing innovators understand this linkage. Dell Computer, one of the most successful start-ups in history, has made its mark providing low cost, quality computer products customized to customers' needs. They have been able to combine main-stream management skills with a business model for innovation that has redefined their industry.

### **Objectives**

- To Summarize the findings to gain better understanding knowledge the differences between novice and expert design thinkers.
- To provide an insight from the literature regarding design thinking for our educational system.
- To Support the proposition that quality practices will improve the innovation.

### **Scope of the study**

The new design arises as an important component of organizational strategic approach and competitiveness since it allows the synthesis and integration of an external and internal knowledge with organizational capabilities. The major study says about how the integration of the specialized activities such as new design and manufacturing constitutes an essential element of innovation and for the creative success. The Scholars main attention is to begin

with a focus on how the design can influence a firm's decision making and their efforts in building a competitive advantage. The design is strictly intertwined with a firm's management concern. In reality, this attitude dates back to earlier research that focused on the importance of new or a creative design as a strategically process which seeks to optimize the consumer satisfaction and company profitability different levels such as improved performance, different forms, durability, and value in connection with the products, environments. They suggested that satisfactory results can be achieved by training general managers, marketers, and engineers about the content and the value of design, and designers about the ways of interacting with other actors within the firm.

### **Research Methodology**

This study aimed to identify the best design thinking were identified and collected. By focus of the investing was to access full documents using various research terms conditions or keywords such as design thinking, design cognition, design behavior, design studying, design reasoning, design process, thinking of design, visual thinking, and prototyping. The research was not limited to a particular date or experimental studies.

### **Literature Review**

According to Many authors have written about the nature of and different processes underlying the design thinking process (e.g., Liu, 1996; Owen, 2007; Stempfle & Badke-Schaube, 2002). We now present our review of the literature of this area, starting with a description of the nature of design thinking, its characteristics, and processes. Next, we present literature regarding expertise, expert versus novice design thinkers, and expertise in design. We then present our design thinking model adapted.

According to Shute and Torres 2012. Finally, we discuss the findings from the literature, showing the importance of design thinking and providing suggestions for future research. According to Jaw et al. 2010 Services are produced, delivered, and consumed simultaneously making it harder to distinguish between service product innovation what is produced, delivered, and consumed and service process innovation how it is produced, delivered.

According to Vargo et al. 2012. Innovation in manufacturing is more product and technology-oriented and relies on technical expertise and professional capabilities, while the role of cultural capabilities and human capital capabilities such as person-to-person skills.

According to Johansson-Sköldberg 2013 to summarize, the variety of ways that DT is understood and presented makes it difficult to address the implicitly assumed value of DT. The promises of DT are rather vague and range from the development of creative ideas.

### **Nature of Design Thinking**

In many fields, knowledge is a day today updating generated and accumulated through action for doing something new and evaluating the research and results that knowledge is used to produce the work improvement, and work evaluated from producing knowledge. Creative people are tending to work in two different ways either as finders or as makers Finders are demonstrate their creativity through discovery. They are driven to understand and to find explanations for phenomena as well understood. Makers are equally creative, but they are driven to synthesize what they know in new constructions, arrangements, pattern, compositions, and concepts. The fundamental process in differences between how are the finders and makers think and working to other factors it may be similarly differences among professional fields and help to define the nature of design thinking. One such factor is the content with which a field works.

It is core design thinking. Design thinking is refers to how designers are see and how they consequently think and interactive process between designers. (a) What is the representation of problem-solving concepts/ideas, (b) draw relations between ideas to solve the problem, and (c) what has been drawn informing for further design efforts. The new Design thinking often begins with a diagrammatic pictures representation and gradually transformed to more complex graphic designs. These design diagrams facilitate the designer's reflection, dialogue, and self-critique and purpose of representing and testing the designer intent. In other words we can say diagrams are primary vehicle for thinking and solving problems.

The design thinking process is a general and continuous process where designers modify either the tentative or current design based on requirements and specifications, and based on new information available. This is an ongoing process and continuous process and modification a performed in order to remove discrepancy and establish between the problem according to requirements and specifications, and proposed design solutions.

### **Processes of Design Thinking**

Design thinking is process of problem solving. Unlike analytical thinking, design thinking includes "building up" ideas with few or no limits on breadth during a "brainstorming" of the design thinking process has seven stages: define research, ideate, prototype, choose, implement, and learn.

The design process is characterized by being exploratory, and sometimes process. It starts from some brief, and terminates with the description of a product while gradually refining the product specifications and Intermediate. The current states of the design process might include conflicting specifications and product descriptions. Specifications may change in reaction to proposals or unexpected problems discovered during the process. The design follows cycles of mutual adjustment between specifications and solutions until a final solution is reached. The design process, designers engage in several different cognitive processes. There are three processes required in design thinking: (a) preparation, (b) assimilation, and (c) strategic control. In this process, designers need to learn more what to focus on and what is relevant. During the design the specifications and constraints of the problem, reinterpretation of ideas, visualization, problem reformulation including situation assessment and elaboration, and the assimilation process involves making proposed to solution, data, and observations coming from the design environment, the feedback from experiments with prototypes. the strategic control process, designers must make many decisions over the course of a design like, which idea to elaborate or to adapt next, which constraints to relax, how to set priorities to design process. They also move among the various tasks, problems, and design processes in a flexible and highly opportunistic manner.

We are reviewed the literature related to design thinking. The Expert designers are focused solution rather than problem focused. This appears to be feature of design thinking. And its comes from with education and experience in designing the building is experience in a particular domain or field allows designers to quickly identify the problem and solution specific areas. Analysis, Generating, synthesizing, and evaluating a solution are frequently identified for a features of design expertise. Researcher has found that creative and innovation productive design behavior seems too associated with frequent types of cognitive activity. The designers should have able to assess the conditions of a given situation and quickly they have take actions depending on the current needs and wants in organisation.

Designers are helping the scholars to think for the better preparation to face the difficulty situations and for solving the complex problems in their career and in their life. Current educational practices, though, typically to outdated theories of learning and pedagogy, evidenced by a called content fetish. That is learning continues to focus on increasing the scholars proficiency in traditional subjects and reading. We should move beyond that limited

focus and consider the new educationally valuable skills like design thinking, multi tasking, digital literacy to value, assess and support. As described earlier, enhancing the scholars design thinking skills for achieving through incorporating authentic and intriguing tasks for providing many opportunities for the application design processes. The majority of the studies we reviewed aimed to examine either the differences between novice and expert designers or characterize expert behavior in the designing process. However experimental evidence is lacking in the field of design research.

Researchers who are interested in measuring and supporting design thinking have great opportunities to conduct a wide range of experimental studies that can lead to important findings. For instance researchers may examine the effects of the design thinking process on various learning outcomes. They can also investigate the effects from different tasks and their complexity relative to enhancing design thinking skills, which in turn to increase scholars for learning outcomes.

It would also be interesting to know design thinking skills are the learning process. In other word we can say design thinking skill is may serve as a mediator that clarifies the nature of the relationship between an independent variable like problem solving skill and dependent variable like moths as test. So, rather than hypothesizing a direct causal relationship between problem-solving skill and math test scores, we may hypothesize that problem-solving skill enhances design thinking skill, which in turn leads to an increase in math scores. Another important study could examine the domain-specific versus domain-independent nature of design thinking. In other word design thinking skill is examined independently of particular domains like engineering vs. marketing. Currently we have found no valid performance-based assessments of design thinking skills. This lack adversely affects the ability to collect good evidence about the effects of these skills on learning. A major challenge is to design and develop accurate performance-based on measures skills.

Assessing of 21st-century competencies is beyond the capabilities of most traditional assessment formats like multiple-choice test, self-report survey and innovative assessments that aim to reliably measure those skills should be designed and developed to assist researchers to collecting valid and reliable evidence. We suggest employing the evidence centered design (ECD) frame work for designing valid performance- based assessments for 21st-century skills. ECD is a systematic approach to the design of assessments that focuses on the evidence scholar performance of proficiencies as the basis for constructing assessment tasks and making inferences about competency levels. ECD is especially helps for assessments are involved complex problems and dynamic, interactive environments which are exactly the kinds of contexts required for design problems.

There is considerable work to be done to establish a full understanding of design thinking. The studies surveyed in article it show the characteristics of novice and expert designers. The having good design thinking skills can assist in solving complex problems as well as unexpected changes. The design process involves in-depth cognitive processes - which may help our scholars build their critical thinking skills like reasoning and analysis it also involves personality and dispositional traits such as persistence and creativity.

If we are serious about preparing scholars to succeed in the work and to handle current challenges of the industry, we should provide them opportunities to interact with content think critically about it and use it to create new information and ideas.

## **Findings**

The above study is relevant in research new design that has provided the basis for understanding (a) the nature of design thinking, (b) experts' behavior in design thinking and



(c) differences between novice and expert designers. The researchers examine the effects of the design thinking process on various learning outcomes and volumes. The most of these studies were qualitative and quantitative employed protocol analysis, which has some limitations as a research method, especially for investigating new design activities process. For the researchers aim to create new design process and thinking in investigation and increase their productivity level, reduce costs and improve their working condition and competitiveness in organizations.

## Conclusion

The paper has highlighted how design thinking has influenced individuals and group behaviors in firms. The decision making with regard to new product design and development to provide a structured firms, this paper is organized three broad themes, Overview of new design The Dynamic and Systemic Process of creative Innovation and Management of Innovation design thinking .This paper presents the distinguishing characteristics and dimensions of innovation of design thinking. The key concept of service design and reviewed, as are the complex and dynamic routines involved in collaborating with design thinkers in creative and innovation. A systemic perspective of innovation is used to study and how innovation is diffuses in company's value design. The paper also explores the alignment of appropriate strategies and capabilities to sustain new design thinking and managing organizational knowledge, learning and culture for innovation. The different approaches to measure its impact on firm-level productivity and performance, as well as economy-wide growth and prosperity are also reviewed. In all, this paper presents an aerial view of the design thinking literature by bringing together its complex and diverse aspects emanating from a multidisciplinary body of knowledge.

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