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What Factors Influence Team Creativity and Innovation?

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ABSTRACT

This paper takes into consideration the extensive research that has been conducted on team creativity and innovation. The literature review conducted allowed for the researchers to further understand some of the factors that influence team creativity and innovation. The researchers have also viewed and analyzed various frameworks proposed. However, there is not an all-encompassing framework that takes in to consideration all the factors that influence team creativity and innovation. The researchers have put forward a framework that takes into consideration different factors that have not yet been proposed. To further solidify and cement this framework, a survey will be designed and sent to industry experts in the field.

Keywords: Creativity, Innovation, Team

INTRODUCTION

Extensive research has been conducted on team creativity and innovation. Past research has allowed for scholars to gain a better understanding of the various factors that influence team creativity and innovation. There are different factors that influence team creativity and innovation. Mittone et al. list risk preferences, past performances, and the consequences of failing to innovate as factors that influence creativity. den Hartog et al. point to team variance in extraversion, team variance in agreeableness, and team variance in conscientiousness as factors that influence creativity. Chen et al. allude to the fact that there are certain domains of work that improve creativity. Du et al. conclude that positivity can affect creativity. Oldham et al. argue that skill variety, challenges, task identity, task significance, task feedback, and autonomy predict innovation at work. Burpitt et al. mention that leader empowering behavior is a factor that influences innovation. Ramirez et al. conclude that mutual trust, open exchange, regular contact, democracy, attendance, and team management influence innovation. Schumpeter et al. argue that team members' influence has the ability to impact team creativity and innovation. It refers to the method by which team communication and interactions occur. Baer states that an individual personality is a variable that can impact team creativity and innovation. Caldwell et al. emphasize the importance of domain knowledge within team creativity and innovation. However, the research conducted does consist of limitations. Past research

has been unable to present and illustrate the various relationships between the factors listed above. The gap in knowledge lies wherein researchers have not yet identified the relationships between the factors and how these relationships influence team creativity and innovation. The research problem revolves around the need to identify and illustrate the relationships between the various factors that influence team creativity and innovation. The objective of this research is to formulate a method by which these factors can be presented. A cohesive framework, about team creativity and innovation, will be established. This framework will consist of the various relationships between the factors and how these factors influence one another. In addition to this, the researchers will explore the most important factors underlining team creativity and innovation by eliciting knowledge from innovation experts and industry leaders. This paper is organized to present the readers with a literature review. Within this literature review, the subsections of team creativity, innovation, and other factors that influence team creativity and innovation are discussed. The subsequent sections consist of the research framework, the research methodology, and the conclusion as well as the next steps.

RESEARCH METHOD

One of the goals of this research is to elicit valuable practical knowledge from experts. To obtain information, we will design a survey that consists of open-ended questions. We will leverage the connections we have in order to obtain information from students in addition to industry professionals that are actively supervising digital innovation projects. These industry professionals can be CIOs, Project Managers, Entrepreneurs, etc. We will strive to ask open-ended questions for each construct in the proposed team creativity and innovation framework. An example question can be "based on your experience, what are the most important issues in organizational influence that has impacted team creativity and innovation?

LITERATURE REVIEW

Team Creativity

Creativity allows for the visualization, imagination, and reconstruction of certain events regardless of past, present, or future. Guilford defines creativity in terms of two criteria: novelty and adaptability. The creative person must be novel in their approach and adaptable to various situations. Madjar et al. allude to creativity as the production of new and useful ideas. Scholars argue that it is creativity that allows for the visualization, imagination, and reconstruction of certain events regardless of past, present, or future. There is a fundamental difference between individual creativity and team creativity. Bharadwaj et al. find that individual creativity refers to activities undertaken by individual employees within an organization to enhance their capability for developing something meaningful and novel within their work environment. However, Amabile refers to team creativity as the process that involves the production, conceptualization, or development of novel and useful ideas, processes, or procedures by an individual or by a team

of individuals working together. Shin et al. define team creativity as the production of novel and useful ideas concerning products, services, processes, and procedures by a team of employees working together. Shalley et al. describe team creativity as both process and outcome. As a process, team creativity involves engaging in behaviors and activities that are directed at developing novel solutions that might be effective. As an outcome, team creativity is concerned with whether what the team produces, which can be ideas, solutions, products, or processes, is in itself deemed to be both novel and useful. Carmeli et al. argue that team creativity is the generation of new ideas and valuable solutions that are based on collective efforts and a collaborative exchange of perspectives and information. Bolinger et al. define team creativity as a collective process whereby diverse skills, knowledge, and perceptions of group members are coordinated to produce a product or performance that are both novel and appropriate for its intended purposes. The definitions mentioned in this subsection have been used in previous literature. However, the most common definition used revolves around team creativity being defined as a team working together to turn in to reality novel and useful ideas. It is important to note that there is not an all-purpose definition of team creativity. The definition of team creativity is one that is subjective in nature and depends on the context in which it is being used. In addition to the definitions provided, scholars have also illustrated team creativity through the use of frameworks. Amabile includes three dominant components: domain-relevant skills, creativity-relevant skills, and task motivations. Within each component, specific factors are needed and they are dependent on other factors to be realized.

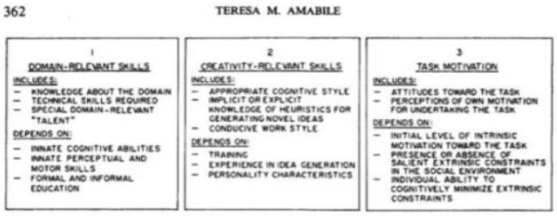

Figure 1: Amabile's framework depicting different factors that influence team creativity.

Sung et al. alludes to the notion that team creativity is dependent on team status conflict, leader prestige behavior, leader dominance behavior, supportive member interaction, and coercive member interaction.

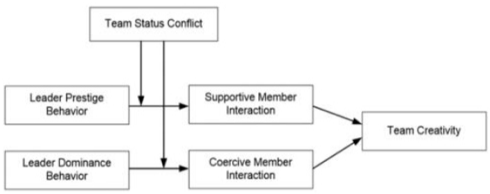

Figure 2: Sung's framework depicting different factors that influence team creativity.

Talat et al. conclude that team creativity is dependent on team autonomy, cognitive diversity, and team sensemaking.

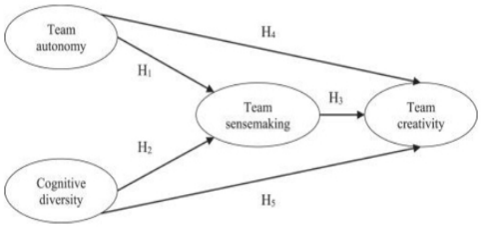

Figure 3: Talat's framework depicting factors that influence team creativity.

Bodla et al. attribute team creativity to perceived surface-level diversity, perceived deep-level diversity, inclusive climate, and team knowledge sharing.

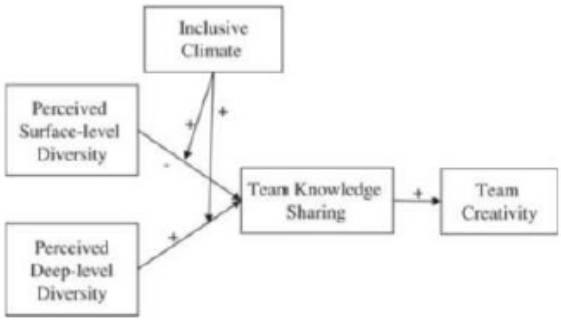

Figure 4: Bodla's framework depicting factors that influence team creativity.

Innovation

Twiss et al. define innovation as a process that combines science, technology, economics, and management, as it is to achieve novelty and extends from the emergence of the idea to its commercialization in the form of production,

exchange, and consumption. Baregheh et al. describe innovation as the multi-stage process whereby organizations transform ideas into new and improved products, services, and processes in order to advance, compete, and differentiate themselves successfully in their marketplace. Thompson concludes that innovation is the generation, acceptance, and implementation of new ideas, processes, products, or services. West et al. allude to the fact that innovation is the effective application of processes and products new to the organization and designed to benefit it and its stakeholders. Damanpour refers to innovation as a means of changing an organization, either as a response to changes in the external environment or as a pre-emptive action to influence the environment. Innovation encompasses a range of types, including new products or services, new process technologies, new organizational structures, or new plans and programs pertaining to organization members. Reiman et al. describe innovation as the initiating mechanism of new processes or events all while brining changes in behavior, personnel, and approaches. Plessis notes that innovation is the creation of

new knowledge and ideas to facilitate new business outcomes, aimed at improving internal business processes and structures and to create market driven products and services. Innovation encompasses both radical and incremental innovation. It is important to note that organizations have had difficulties in the overall conversion of creative ideas into actual innovative products. In addition, the introduction of a creative idea does not always develop from its initial ideation to its conversion. Amabile et al. note that the successful creation of new products, new services, or new business practices start with and is dependent on a creative idea and developing that idea beyond its initial state. The definitions mentioned in this subsection have been used in previous literature. However, the most common definition used revolves around innovation being defined as the introduction of new and improved products in order to compete within a marketplace. It is important to note that there is not an all-purpose definition of innovation. The definition of innovation is subjective in nature and depends on the context in which it is being used. In addition to definitions provided, scholars have also illustrated innovation through the use of frameworks. Helfrich et al. argue that innovation is dependent on different factors. These factors consist of management support, financial resource availability, implementation policies and practices, value fit, implementation climate, and employees.

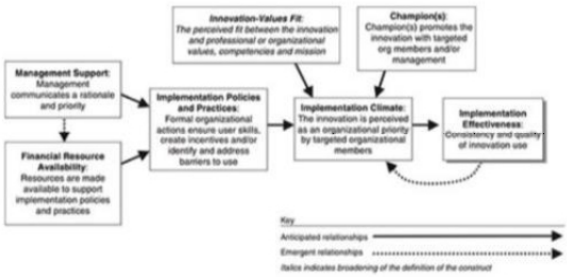

Figure 5: Helfrich's framework depicting factors that influence innovation.

Frambach et al. illustrate the various items that innovation is dependent on. According to the framework, innovation is dependent on organizational facilitators, personal characteristics, personal dispositional innovativeness, attitudes towards innovation, social usage, and individual acceptance.

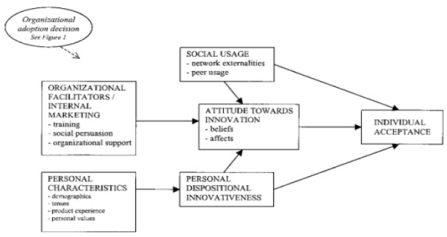

Figure 6: Frambach's framework depicting factors that influence innovation.

Other Factors That Influence Team Creativity and Innovation

Scholars in the creativity research area have conducted research on the various factors that influence creativity. Schilpzand et al. allude to the notion that variance of openness, regardless of how high or low, influences creativity. Medeiros et al. argue that the more experience one has, the more creative they are likely to be. Oldham et al. conclude that the more complicated the task at hand, the more creative one is likely to be. Somech et al. mention that a team's functional heterogeneity has a positive correlation with team creativity. Wang et al. conclude that mentorship can improve the overall creativity of someone. Scholars in the innovation area have conducted research on the various factors that influence innovation. Burningham et al. mention that the support for innovation, negotiated vision, and an aim for excellence are the most consistent influencers of innovation. Hendarsjah et al. find that intra-team trust is integral within innovation. Damasceno et al. mention that effective commitment is an important factor in innovation.

The frameworks included in this section do provide some context around team creativity and innovation. In addition, the frameworks also provide various factors that comprise team creativity and innovation. However, the relationships between the factors are missing. The research gap lies wherein researchers have been unable to depict the relationships between the various factors. This research is necessary as it will allow for researchers to understand the various factors that comprise team creativity and innovation and the method by which these factors are interrelated and interconnected.

RESEARCH FRAMEWORK

A framework about team creativity and innovation is posed in Figure 1 based on prior research on team creativity and innovation. This framework was inspired by the components of creative performance proposed by Amabile. In this framework, motivation, domain knowledge, and problem solving ability are the tree primary factors directly impacting team creativity while they can be affected by organizational influence, team members' influence, and individual personality. In the innovation stage, team creativity and resources are the two inputs to the implementation process. During the implementation process, utility and value is achieved and inputs are converted into innovation outcomes and results.

Organizational Influence refers to the influence from an organizational environment such as the organizational culture and leadership style. It has been found by many researchers (Damanpour, 1996) that organizational culture and leadership styles play important roles in impacting team creativity and innovation. This construct is proposed to encompass all organizational effects on team creativity and innovation.

Team Members Influence is proposed to represent how team communications and interactions impact team creativity. Many studies (Amabile, 1996, Baer, 2012, Burpitt et al., 1997) have revealed that team dynamics have a direct impact on team creativity and innovation.

Individual Personality plays a key role in individual creativity (Bharadwaj et al., 2000, Chen et al., 2016). However, it is still unclear to researches how

exactly different personality traits may be related to difference creativities. Most of them agree that personality is vital to team creativity and innovation.

Problem Solving ability is defined as to what extent a team can devise and implement a solution to a target problem. This is directly impacted by individual personality, organizational influence, and team members' influence. It is also worth noting that some problem solving abilities can be trained and learned.

Motivation is the desire to accomplish a goal by solving a target problem. It is well known from prior research (Shalley et al., 2018) that task motivation plays a vital role in creativity. Motivation may be impacted by organizational influence.

Domain Knowledge is the specific knowledge needed to solve a problem in a specific domain. This can be learned and trained. In a team environment, members can complement each other in their domain knowledge.

Team Creativity is about how a team can develop original and innovative solutions to a problem. It is directly impacted by motivation, domain knowledge, and problem solving abilities. It focuses on the idealization while innovation stresses implementation. Resources include resources required in implementing a creative solution in different forms such as materials, technologies, tools, human resources, etc.

Implementation process is the actual process in which utility and value are realized. Many creative ideas and solutions can't be realized due to many different reasons and constraints. Therefore, these ideas do not lead to actual innovations. It is those creative ideas that are actually fulfilled and become practical innovations.

Innovation outcome and impact can be assessed in different ways. While the absolute impact of an innovation is pivotal, the cost effectiveness should also be taken into consideration when evaluating various innovation outcomes. Cost effectiveness may ultimately determine the fate of an innovation. The framework will be depicted as follows:

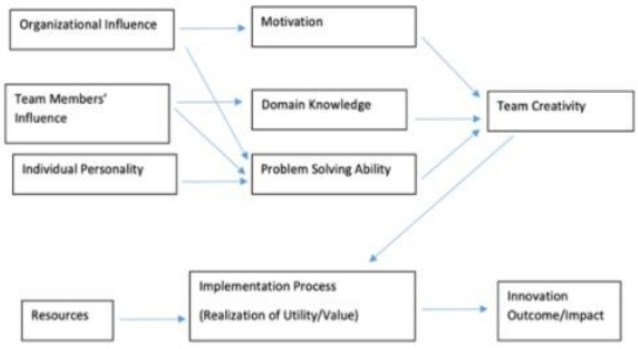

Figure 7: The researchers proposed framework.

CONCLUSION AND NEXT STEPS

A framework on team creativity and innovation is proposed. It provides a panoramic view of the creativity and innovation process. In the next step, a survey with open-ended questions will be conducted to elicit practical knowledge about team creativity and innovation. Outcomes are expected to be invaluable to practitioners and they will also help researchers continue their studies of team creativity and innovation with a solid theoretical foundation.

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