



## A Perspective to Innovation Leadership in Malaysia Education

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### Abstract

*The educational system nowadays faced a rapid change due to the advancement of technologies. The application of these new technologies brings more innovations to our educational system, either in the processes or products of education. These changes will need school leaders to be able to use these advancements to improve the school's achievement. Therefore, the objectives of this paper are to provide a review of the leadership skills that associate with innovations. Then, it will discuss the advantages and disadvantages of using these leadership skills in innovations, especially in an educational context and lastly, conclusions were made based on the reviews provided. The results of the studies conclude that there isn't a single leadership skill that can be used to drive innovations – various leadership skills found to be associated with the type, level and phase of innovation. To define a leadership skill that suitable in the organization, researchers need to determine the type, level and phase of innovation first. However, transformational leadership skills were seen appropriate for every kind, level and phase of innovation involved. Transformational leadership had been used widely in products, processes, incremental, radical, exploration, exploitation, team, individual and organizational innovations.*

**Keyword:** Innovation Leadership, Transformational Leadership, Ambidextrous Leadership, Educational Changes, School leadership

### Introduction

The advancement of the Malaysian Education system nowadays is rapidly changing to bring transformational changes to Malaysia's education in the next 21<sup>st</sup> century. The educational conventional practices decade ago were racing towards a more systematic and technologically advanced education system. Innovation is one of the agents in these educational changes. The presence of industrial revolution 4.0 (IR4.0) had brought a profound impact on the Malaysian educational landscape. This IR4.0 had led to the introduction of disruptive technologies such as artificial intelligence, robotics, the Internet of Things (IoT), autonomous vehicles, bio and nanotechnology, 3D printing, material science, quantum computers, augmented reality

technology, virtual reality and technologies in education. Through the Malaysia Educational Development Blueprint (PPPM) 2013-2025, Malaysia aims to change the country's educational landscape along with the business and social aspect by implementing these technologies. These changes had introduced the use of electronics lesson plans (*eRPH*), Smart School, Smart Lab, Net School Project, using a tablet in a classroom, and Google classroom in Malaysia education. It shows that the rapid changes in the Malaysian education system are evolving along with the technological advancement in this century. Thus, it has been capable of producing an internationally competitive student.

The introduction of innovation in Malaysia's existing education systems is a way to cope with the changes in the local and global environment (Hussein & Mohammed Sani, 2016). It is imperative to renew the operation of the country's education system, which is lagging. According to OECD (2016), in the 21<sup>st</sup> century, innovation is essential in education to improve the learning outcomes, to improve the quality of educational provision, to ensure equity and equality, to reduce educational costs and to maximize revenues from the educational budget. Therefore, our education can remain relevant, along with the rapid changes in society and the economy. Hussein and Mohammed Sani (2016) stated that innovations in Malaysia education need to update, strengthen and replace the existing one. Innovations also will improve the daily work practice, improve cost-effectiveness, make the transition from usual practical method towards a more dynamic, clear and secure processes in the financial and human resources, improved efficiency and making the institution more dynamic. Thus, to proactively fulfilling this mission, principals, headmaster or headmistress, administrators, headteachers, teacher and parent association presidents, teachers, students, parents and members of the community must collaborate.

The need for innovation in Malaysia education has given a new focus to the role of leaders in shaping the nature and success of members' creative efforts in their organization (Mumford & Licuanan, 2004). Today's leaders must deal with more complex issues every day, and this will indirectly force them to be more creative and innovative to find solutions (Marron & Cunniff, 2014). These creative and innovative leaders will be more effective in leading the innovation process in an organization (Bossink, 2004). Advances in technology and innovation today also lead the 21<sup>st</sup>-century leaders to acquire skills such as emotional intelligence, critical and analytical thinking, creative and innovative, communication and interpersonal skills, technological skills, organizational skills, personal management skills, teamwork and collaboration, partnership development skills, approach, development and engagement with the community skills, non-racial, equitable, equality and inclusive along with global awareness and understanding (Wagner, 2013 in Kaume-Mwinzi, 2016).

Many researchers recognize that leadership is a critical factor in influencing organizational innovation and development (Chongcharoen, 2018; Gil, Rodrigo-Moya, & Morcillo-Bellido, 2018; Sitthisomjin, Somprach, & Phuseeorn, 2018; Sethibe, 2018; Lukowski, 2017; Haapaniemi, 2017; Al-Husseini & Elbeltagi, 2016; Alsolami, Cheng, & Twalh, 2016; Zacher, Robinson, & Rosing, 2016). However, there is no single agreement between the researchers on a single leadership to lead innovation. Researchers are using various leadership styles in driving innovation. Al-Husseini and Elbeltagi (2016), Sethibe (2018), Gil, Rodrigo-Moya and Morcillo-Bellido (2018) and Sitthisomjin, Somprach, and Phuseeorn, (2018) focus on transformational leadership in leading innovation. Meanwhile, Alghamdi (2018) uses ambidextrous leadership theory developed by Rosing, Frese and Rosenbusch (2010) in looking at innovation leadership. Lukoschek, Gerlach, Stock and Xin (2018) introduced a dual innovation leadership theory based on ambidextrous leadership theory. Chang, (2018) using charismatic leadership theory. Meanwhile, Shadiya, Mohamed, Norhashima, Hazizi and Dania (2018) stated that leader-follower leadership theory (LMX), interactive leadership theory, consultative leadership theory, participatory leadership

theory, instrumental leadership theory, transformational leadership theory and charismatic leadership theory are essential in leading innovation. Łukowski (2017) also looks at directive leadership theory, participatory leadership theory, interactive leadership theory, charismatic leadership theory, transformational leadership theory, transactional leadership theory, instrumental leadership theory, strategic leadership theory and CEO leadership theory involved in leading innovation. Alsolami et al. (2016) suggest that innovation leadership consists of charismatic leadership, transformational leadership, innovation leadership attributes and leadership competencies.

Therefore, the primary purpose of this paper is to examine the leadership skills that associate with innovation in the educational context. First, the review presents a critical discussion on the various leadership skills that associate with the innovation processes, type and level of innovation. Second, the reviews will highlight the strength and weaknesses of each leadership skill used to lead innovation. Third, the review will conclude the best leadership skills that best lead the innovation, especially in the educational context in Malaysia.

## Literature Review

### The definition of Innovation

The term Innovation Leadership was first introduced in 1990 and was first mentioned in the early 21st century (Schork, 2018). The early definitions of innovation leadership are managers who encourage innovation (Bossink, 2004) and innovation leaders that shape the work environment and enhance learning and absorption capacity (Carmeli, Gelbard & Gefen, 2010). Innovation leadership involves the synthesis of different leadership styles within the organization to influence employees in producing creative ideas, products, services and solutions (Anand & Saraswati, 2014). It is a practice and approach to change management (Gliddon & Rothwell, 2018; Zuraik, 2017; Anand & Saraswati, 2014; Adjei, 2013). Groups, teams, organizations and governments can implement innovation leadership to support the development of innovation (Gliddon, 2018).

The term innovation derived from the Latin word '*innovare*' which means 'something new.' Therefore, in defining innovation, many researchers state that innovation involves new ideas, processes, or practices within the organization. The earliest definition of innovation was given by Rogers (1962), where innovation was the use of existing ideas, practices or objects that were viewed by individuals or units. In this definition, whether the idea is objectively new as measured at the time it was created is not important. New ideas seen in individuals, groups, or organizations determine their reactions to them. If the idea looks new to an individual or group, it is considered innovation (Rogers, 1962). Damanpour (1991) defines innovation as generating, developing and implementing new ideas, whether in the form of new products, new services, new production processes, new structures, new administrative systems, or new programs that are relevant to members in the organization. Amabile, Conti, Coon, Lazenby and Herron (1996) associate their definition of innovation with creativity. They think every innovation starts with a creative idea. They define creativity as the result of new and useful ideas in each domain and define innovation as a success in executing those creative ideas in an organization. The success of implementing a new program, introduction of a new product, or service depends on the individual or group of great ideas who can develop the idea beyond the original idea.

In an educational context, Sagir (2017) defines innovation in the context of school management is to find new ways to solve problems faced by education, training, and management services, also to introduce changes to improve the quality of these services to compete with other schools. At the same time, it is believed that it will increase the productivity of the school. Serdyukov (2017) points out that in education, innovation can exist as a new pedagogical theory, a new teaching tool, a new methodological approach, a new teaching technique, or a new teaching structure that,

when implemented, produces significant changes in teaching and learning process, and improves student learning. Oslo's Manual defines educational innovation as an innovation in products and processes technology (OECD, 2016) and envisages new technology-driven products. Educational change involves technology products and processes that take place in the classroom, including teaching and learning – for example, product innovations in the new curriculum or improved curriculum, or the new educational computer software. Process innovation refers to new or enhanced pedagogical methods (OECD, 2008).

### **Leadership and Innovation**

Leadership and innovation are interconnected. The relationship between leadership and innovation has attracted many researchers in the literature. The importance of leadership in innovation cannot be underestimated; both play an important role in today's organization (Haapaniemi, 2017). Leaders play a significant role in shaping and leading innovation success (Aragon-Correa, García-Morales, Victor & Córdón-Pozo, 2007; Hunter & Cushenbery, 2011). The absence of leadership in organizational innovation will result in organizational failure (Zuraik, 2017).

Through the literature review conducted, there is a confusion between the two concepts of leadership by researchers, namely the concept of innovation leadership and the model of innovative leadership competence. According to Zuraik (2017), innovation skills are different from skills in leading innovation. There are misconceptions by academicians and practice on these two concepts. The first concept, often referred to as innovative leadership, is about the skills and characteristics of leaders. These leaders will act as a source of innovation by bringing new ideas, new actions and different ways of leading, managing and furthering their work. It refers to their differing thoughts on how to overcome the obstacles faced in the organization and how they can respond flexibly in the absence of information. This feature is superior to the competencies of innovation leaders, as described by Vlok (2012), Gliddon (2006) and Kremer et al. (2018).

The innovation leadership or known as leaders in innovation, is more focused on how to create an innovative environment where employees can spread innovative practices for new services or products through the support of an influential innovation culture. The concept of innovation leadership is still relatively new, but it is gaining its' importance (Vlok, 2012). According to Adjei (2013), because innovation leadership is a complex concept, there is no one explanation or formula for leaders to follow to enhance innovation. Innovation leadership plays a key role in facilitating organizational innovation, especially in influencing followers' creativity. According to Hunter and Cushenbery (2011), the success of innovation becomes realistic and achievable through appropriate leadership; without it, challenges would never be overcome.

According to Dubey and Pawar (2016), innovation leadership has two components; the first is the innovative approach to leadership itself. This innovative approach means that leaders will bring new ideas and actions on how to lead, manage and perform their work, and how a leader will think differently about the roles and obstacles faced by himself and the organization he leads. Second, innovation leaders must learn how to create an organizational climate where members of the organization can apply innovative thinking to solve problems in developing new products and services. It involves the development of a culture for innovation in the organization and is not limited to creative-minded employees only.

The study of Elkins and Keller's (2003) on innovation leadership in the R&D organization suggested that transformational leadership theory is highly relevant to the organization. The dimension of inspirational motivation in transformational leadership will provide a shared vision for innovation projects and allows team members from a different discipline to work together to

succeed. The dimension of intellectual stimulation can encourage team members from other disciplines to see problems from different angles and enhance innovation. The leader-member exchange (LMX) leadership will ensure high quality in exchanging relationships between project leaders and team members. As a result, more creative and innovative outputs can be produced. Path-goal theory is one of the effective leadership theories for more structured and less diversified tasks.

Bossink (2004), suggests that innovation leadership styles are composed of charismatic, instrumental, strategic, and interactive leadership. Charismatic leaders will communicate their vision of innovation, encouraging others to innovate and accelerate the process of innovation (Stoker, Looise, Fisscher, & DeJong, 2001; Tushman & Nadler, 1986). Instrumental leaders will structure and control the process of innovation (Tushman & Nadler, 1986). Strategic leaders will use their hierarchical power to favor organizational innovation (Harmsen et al., 2000; Waters, 2000). Meanwhile, interactive leaders will enable other employees to innovate, work with them to innovate and show them how to become leaders in innovation within their organization (Burpitt & Bigoness, 1997; Eisenbach et al., 1999). However, the findings of the study by Bossink (2004) found that other factors influence the success of managers in innovation leadership, namely integration of the role of information, knowledge and competency of managers in improving project innovation outcomes.

Gliddon (2006), introduced an innovative leadership competency model (Haapaneimi, 2017) based on leader-member exchange theory (LMX) and path-goal theory but no literature review has explained this leadership theory other than innovative leadership competency models he introduced in 2008. However, according to Gliddon (2006), innovation will be a new attractiveness that influences organizational behavior in the 21st century. These philosophies and theories of leadership are more than just a leader who identify and disseminate innovation. Innovation leadership involves the role of leader leadership across various levels of the organization and strategic orientation in the innovation and organizational cycle (Gliddon, 2006). Thus, Gliddon (2006) emphasizes that innovation leadership is not the responsibility of just one leader; it is too broad and should cultivate for all organizations. Through her thesis written in 2006, the dimension of her innovation leadership competency model is learning; creativity and imagination; energy levels and motivation; commitment and sense of ownership; mission and vision; communication, interpersonal skills and emotional intelligence; leading groups and teams; understand the external environment; the role of identity, power and politics; management and delegation.

Alsolami et al. (2016) agree with the concept of innovation leadership is made up of various leadership skills. They suggest that attributes to innovation leadership include charismatic leadership, transformational leadership and innovation leadership competence as the fundamental principles of innovation leadership. Stoker et al. (2001) applied the theory of leadership, initiating structure, charisma, consultative and coaching in leading the innovative nature of the R&D team. According to them, the theory of thought leadership, charisma and negotiation have a positive impact on the efforts to create innovative character within each member of the R&D team. Sarminah (2012) states that there is no single leadership theory that is appropriate in all situations when it comes to innovation.

Rosing, Frese, and Bausch (2011) had introduced ambidextrous leadership in 2011 to lead innovation. This leadership theory based on a meta-analysis on transformational leadership theory, transactional leadership theory, LMX leadership theory, advisory support, participatory leadership theory, and several other leadership behavior theories such as consideration and initiating structure theories. According to the analysis, they found that every theory has a positive

relationship with innovation. However, transformational leadership theory, initiating the structure and support of advisors showed the mixed result in the study; some even shown a negative relationship with innovation. Only the Leader-Member Exchange (LMX) leadership theory has a consistently positive relationship with the innovation. Therefore, Rosing et al. (2011) concluded that a single leadership style could not adequately promote innovation. Leaders who practice only one type of leadership will not succeed in leading innovation because it was proven that other leadership skills are essential too, depending on the context, goals of the organization and organizational structure (Cooper & Bradly, 1981). Using only one leadership will put innovation leaders at a disadvantage and weak in ensuring that the organizational environment is continuously changing as the innovation changes (Jones & Bartlett, 2015). Deschamps (2005) states that the failure of innovation in organizations is due to poor leadership skills.

Therefore, according to Rosing et al. (2011), there is another pathway to lead innovation (Bledow et al., 2009). Innovation cannot be led by a single leadership style (Rosing et al., 2011). Each type and phase in innovation requires different leadership styles. If this relationship is not well explained, then studies cannot provide clear answers on how to lead innovation (Łukowski, 2017). Therefore, Rosing et al. (2011) propose that a theory of leadership should exist as complementary to existing leadership theory. The existing leadership theories are extensive and made up of various sets of behaviors that can support and hinder innovation at the same time. They propose a specific set of leadership behaviors that match the needs of teams and individuals in the innovation process called ambidexterity. The need for ambidexterity in the process of innovation indicates that individuals working in the context of innovation require exploration and exploitation, as well as the need to move from one activity to another. The ambidextrous leadership theory introduced consists of three main elements: leader behavior in support of exploration, leader behavior in favor of exploitation and temporal flexibility to switch from both behaviors when the need arises.

Studies involving various leadership theories in leading innovation are due to the nature of innovation itself. According to Amabile et al. (1996), innovation is complicated as it consists of several activities. These activities included the approaches to different levels of innovation or phases of innovation, types of innovation, namely innovation in product, processes, organizations or markets (Schumpeter, 1934), or impact such as radical and incremental innovations (Dosi, 1982). The selection of leadership styles that do not fit the type and level of innovation will frustrate leaders in leading innovation (Łukowski, 2017). Recent studies showed that leadership theories such as transformation are appropriate to motivate and inspire followers, as well as to have a positive impact on the idea-making phase, and to drive innovation.

Innovation leadership needs to evolve as a discipline that embraces diversity within the team (Somech, 2006), creates new cultures, and drives synergies through institutions and organizations in ways that create new possibilities, find ways to solve problems. Extensive knowledge should be instilled in this leadership that requires a variety of approaches, questions and conceptual fundamentals. It is up to the innovation leaders to apply a variety of disciplines, theories of success, tools and techniques in their efforts to bridge the gap between desired and future goals (Banerjee et al., 2016). Innovation leaders will inspire members of the organization by giving meaning and challenge to their work, and emotionally engaging them with the vision discussed in the group (Xenikou, 2017). There is no standard or comprehensive model of innovation leadership that can be absorbed in the organization and no specific leadership style is available for all organizations to generate and manage the idea-making process, investigate problems, and develop solutions before commercialization (Zuraik, 2017).

## Methodology

This study used integrative review to summarize the earlier literature to understand the concept of leadership in innovation. Torraco (2005) stated that this review will be used to assess, critique and synthesize the literature based on the specific research topics. Thus, enables a new theoretical frameworks or perspectives to emerge. There are four stages involved; (1) designing the review, (2) conducting the review, (3) analysis and (4) writing the review (Liberati et al., 2009; Tranfield et al., 2003). In the first phase, researcher developed a research questions; defined the literature context; formed a keyword used to search databases. Three databases were chosen in this study which are Scopus, Emerald and Google scholar. However, only the indexed and research paper from 2009 until 2019 were selected. Next, a content analysis was performed to study all the selected paper in depth. The findings from this study as discussed below.

## Results and Discussion

### Transformational and Transactional Leadership

The concept of transformational leadership was first introduced by James MacGregor Burns (1978) in the context of political science and later developed into the theory of leadership in organizations by Bass (1985). Burns is trying to connect the roles of leaders and followers. Leaders are the people who motivate followers in their quest to achieve the goals of their leaders and followers (Northouse, 2013). There are two types of leadership, according to Burns: transactional and transformational leadership. Transactional leadership refers to several leadership models that focus on ongoing exchanges between leaders and followers. Transformational leadership, however, is a process by which people interact with others and create relationships that enhance the level of motivation and morale within leaders and followers. These types of leaders are more concerned with the needs and motives of their followers and try to help their followers to reach their full potential.

According to Hasan, Younesi, and Zohoori (2017), leaders who practice transformational leadership will increase innovation within the organization and thus make organizations more inclined to innovate. This leadership plays a vital role in fostering innovation (Chen et al., 2016). According to Elkins and Keller (2003), transformational leadership behaviors are similar to behavioral determinants of innovation and creativity in the workplace, in part, vision, support for innovation, autonomy, encouragement, recognition and challenge. Gumusluoglu and Ilsev (2009) stated that transformational leaders would stimulate their followers' intellect, champion innovation, and voice exciting visions through their organizations, helping employees feel challenged and energized to find innovative approaches in their work. The charisma of a leader will act as a driving force for creativity; individual consideration in return for followers' recognition and encouragement; intellectual stimulation used to reinforce exploratory thinking by providing support for innovation, autonomy and challenge; inspiration motivates the process of generating ideas by encouraging followers to work towards organizational vision (Bass and Avolio, 1994).

Through the literature review, transformative and transactional leadership theories dominate the leadership theory in leading innovation. Studies by Al-Husseini et al. (2019), Al-Husseini and Elbeltagi (2016), Cortes and Herrmann (2019) and Le and Lei (2019) use transformation leadership as a single leadership theory in leading product and process innovation. The results of their study show that transformational leadership has a positive impact on product and process innovation. Other reviews of transformational leadership theory provide positive and significant relationships to a various type of innovations (Al-Husseini et al., 2019; Al-Husseini & Elbeltagi,

2016; Chung & Li, 2018; Cortes & Herrmann, 2019; Le & Lei, 2019; Xie et al., 2018) but the results of the transactional leadership study yielded varying results.

A study conducted by Yaseen et al. (2018) found that both transformational and transactional leadership theories have a significant relationship with organizational innovation. However, the findings of this study not supported by Sethibe (2018). They found that transformational leadership influenced innovation but not transactional leadership. Subsequently, in leading exploratory and exploitative innovations, studies shown varying results. Studies conducted by Berraies and Zine El Abidine (2019) and Chen et al. (2019) show that transformational leadership has more impact on exploratory innovation. Transactional leadership theory seems to impact more on exploitation innovation. This study is in line with a survey conducted by Prasad and Junni (2016). However, a study conducted by Berraies and Bchini (2019) found that transformational leadership is related to both exploratory and exploitative innovations. The study of Zuraik and Kelly (2019) found that transformational leadership has more impact on exploitation innovation than exploration.

This theory of leadership, however, has been criticized by several researchers in leading innovation. This theory is unclear on how leaders act in groups and organizational processes, while little attention given to task-oriented behaviors and processes such as how leaders explain their expectations, define goals and monitor their employees' performance (Yukl, 2009; Burke et al., 2006). This theory has also criticized for ignoring the importance of situational and contextual influences on leader behavior (Hunt, 2005) and the role of followers (or team members) in shaping transformational behavior (Dvir & Shamir, 2003). Rosing et al. (2011) state that this theory of leadership can foster innovation but at the same time, prevent innovation. Leaders who express their vision can inspire followers to innovate but at the same time, followers who are overly concerned with the vision and ideas of leaders will stop thinking outside the box.

Although criticized, transformational leadership still seen as one of the essential leadership theories in leading innovation. As suggested in various conceptual frameworks, transformational leadership and innovation are related (Bass & Avolio, 1994; Bass & Riggio, 2006; Garcia-Morales et al., 2008). Transformational leadership theory (Bass, 1990) suggests that transformational leaders will exhibit creative behavior and serve as a model for innovation. In addition, they provide intellectual simulations that encourage their followers to think beyond the norm (Jung et al., 2003), and challenge their followers to question existing expectations and work practices that will lead to team innovation.

### **Ambidextrous Leadership**

Ambidextrous refers to the ability to use both right and left hand to write at the same time (Zacher et al., 2014; Zuraik, 2017). Through the literature review, the term "ambidexterity" refers to an organization's ability to explore new possibilities and, at the same time, exploit existing competencies (Zacher et al., 2014). Anderson et al. (2004) noted that recent studies had shown the need to develop alternative approaches to leadership innovation. Rosing et al. (2011) created a new concept of ambidextrous leadership that defines leaders as one who can accelerate exploration using open-ended behavior and exploit by closing behaviors. This theory developed using Bledow, Frese and Mueller's (2009) theoretical framework. Ambidextrous leadership theory for innovation states that leaders must demonstrate a combination of two behaviors to improve employee innovation performance, namely open and closing behaviors. Alghamdi (2018) proposes leaders' opening and closing behaviors as positive predictors of exploitation and exploration behaviors within an organization (Zacher et al., 2016).



Rosing et al. (2011) argue that leaders in the context of innovation need to support subordinates in their quest to be ambidextrous, that is, with ambidextrous leadership. According to them, the fundamental components of innovation leadership are to foster exploratory attitudes through enhancing the diversity of followers and to foster exploitation through reductions in the variety of followers' attitudes. This based on the fact that increasing variation is a key component of exploration and that reduction in variation is considered the core of exploitation (Gupta, Smith & Shalley, 2006). Therefore Rosing et al. (2011) hypothesized that open-ended behavior is positively associated with follower exploitation activity. As a result, fostering a diversity of followers' attitudes through opening behaviors should be appropriate in situations where innovation requires exploration, and when employees are required to be creative to generate new ideas. Thus, closing behavior expected to be necessary for a situation where followers needed to exploit and implement their ideas in innovation (Rosing et al., 2011).

Opening behaviors will encourage exploration in the workforce, such as promoting alternative methods of completing tasks, independent thinking and allowing mistakes. Meanwhile, closing behaviors are related to the exploitation of ideas, such as setting routines and overseeing the achievement of goals, and ensuring rules to be followed (Zacher & Wilden, 2014). This theory holds the openness and closure of leaders to predict workers' exploration and exploitation attitudes (Kremer et al., 2018). The interaction between the nature of exploration and exploitation will influence the employee's innovative performance, the employee's innovative performance is high when both the exploitation and the exploration are high.

Researchers have argued that ambidextrous organizations are more successful because of their large capacity for innovation (Benner & Tushman, 2003). They categorize open-ended behaviors in support of exploration and closure behaviors as supporting exploitative behavior. Innovation leaders must be flexible to switch between the two behaviors based on the phase and task assigned (Zuraik, 2017). Opening behaviors include different ways to perform tasks, encourage risk-taking, create space for new ideas, allow for mistakes and learning. Meanwhile, closing behaviors include mentoring and achieving control goals, establishing routines, correcting actions, committing to rules, limiting errors and adhering to existing plans.

The emergence of ambidextrous leadership theory changes the way we understand leadership innovation. It describes the process of innovation as two directions, namely the forward as exploration and the reverse as exploitation. It proposes two sets of behaviors that can represent both phases. However, empirical studies are still needed to prove the effectiveness and application of this theory in industry. Further studies are required to measure the efficiency of using this theory to separate teams into different functions such as R&D as exploration and production as exploitation or to combine both activities into one role. Further studies need to be conducted to measure the impact of ambidexterity leadership on organizational culture and innovation (Zuraik, 2017).

### **Multiple Combination of Leadership Theories**

Elrehail's (2018) study combines transformational leadership theory and authentic leadership theory in leading product and process innovation. Authentic leadership theory used because of its inherent characteristics of calmness and tolerance, which are two of the qualities needed in controlling the situation. This trait makes it effective in leading innovation (Yaverbaum & Sherman, 2008). According to Zhou et al. (2014), the higher the authentic leadership, the higher the employee innovation. But their findings show that only the theory of transformational leadership affects innovation. The theory of authentic leadership does not affect innovation in the public higher education sector in Jordan. This study is contrary to the research conducted by

Ahmed et al. (2018) that found the authentic leadership theory has an impact and influence on open service innovation.

Existing empirical studies provide inconsistent findings between leadership and innovative behavior (Chen, Li & Leung, 2016). Their research has led researchers to question the effectiveness of general leadership styles (transformational and transactional leadership theory) in promoting innovative behavior (Rosing et al., 2011). Hermann and Felfe (2014) state that general leadership theory not explicitly designed to encourage positive behavior towards innovation; it cannot explain leaders' actual behaviors in leading idea generation and ideas implementation. Therefore, Bagheri et al. (2017) study propose an entrepreneurial leadership theory in leading innovation. Entrepreneurial leadership has long been considered effective in facilitating innovation and change in behavior (Ballein, 1998). The findings of the Bagheri et al. (2017) study show that entrepreneurial leadership has a significant and positive impact on workers' innovative behaviors in the dimensions of idea exploration, idea generation, idea implementation and idea championing.

In addition to entrepreneurial leadership theory, paternalistic leadership theory used to seek leadership theory besides transformational and transactional leadership theory in leading innovation. The study of innovation leadership in China using a paternalistic leadership approach sees something new in the field of innovation leadership. The study of Hou et al. (2019) uses the paternalistic leadership theory of authoritarian leadership, benevolence and morality in leading innovation. Dorfman, Hanges and Brodbeck (2004) argue that this theory is best used by developing countries that are more concerned with the power of leaders. The results of their study show that paternalistic leadership theory influences exploration and exploitation innovation in a variety of ways. The theory of welfare and authoritarian leadership expected to influence exploratory innovation, while moral leadership theory will influence exploratory innovation. However, the results of their study indicate that these three theories influence innovation. This study is in line with a study conducted by Ahmed et al. (2018) on open service innovation in public services in Malaysia. Ahmed et al. (2018) apply paternalistic leadership theory, democratic leadership theory and authentic leadership theory in leading open service innovation. They found that paternalistic leadership theories, democratic leadership and authentic leadership have a positive and significant relationship with open service innovation.

Other research used three different leadership theories, namely domain theory of leader behavior, insightful innovation leadership theory and ethical leadership theory in three different studies. The study by Ye et al. (2018) using leadership habitual domain theory in leading innovation finds that leader habit domain theory influences both exploration and exploitation innovation. Meanwhile, Caridi-Zahavi et al. (2016) used the visionary innovation leadership theory to guide product innovation associated with knowledge integration. They believe that visionary innovation leadership is related to connectivity and positively related to the capacity of knowledge integration within the organization. Indirectly, it will enhance organizational innovation in terms of product quality, also to speed development and product innovation. The study conducted by Shafique et al. (2019) applied the theory of ethical leadership in looking at the success of innovative products, finding that it has a direct connection with organizational innovation.

A study performed by Tung (2016), looks at innovation leadership from an integrated perspective. They propose that innovation leadership dimensions comprise from participatory leadership theory, supportive leadership theory, and instrumental leadership theory. Their study found that participatory leadership theory and supportive leadership theory have a positive and direct relation to employee creativity. The most significant influence on employee creativity is through supportive leadership theory, followed by participatory leadership theory. Meanwhile,

instrumental leadership theory has little impact on employee creativity. A study by Berraies and Bchini (2019) applied transformative, transactional and ambidextrous leadership theories in leading innovation. The combination of transformational and transactional leadership in the ambidextrous leadership perspective will encourage exploratory innovation, exploitation innovation and will give rise to ambidextrous organizations (Luo, Shanshan, Hongmei & Liang, 2018). The results of their study found that ambidextrous leadership influences ambidexterity innovation. Lukoschek et al. (2018) agree with this and introduced a dual innovation leadership theory based on the ambidextrous leadership theory. There are two dimensions in their leadership theory, namely fostering idea generation and fostering idea realization. The results of their study found that only dimensions of fostering idea generation are related to organizational unit innovation.

Yukl (2009) argues that a comprehensive model is necessary for studying the impact of leadership on creativity and innovative behavior. Rosing et al. (2011) agree that complex processes of innovation consist of creativity (creative ideas creation) and innovative behavior (implementation of new ideas). Neither of these processes is linear (Anderson, DeDreu & Nijstad, 2004). Researchers suggest that one of the ways to deal with this complexity is to develop a comprehensive model of how leaders influence creativity and innovation (Mumford & Licuanan, 2004). Therefore, Khalili (2017) develops creative and innovative leadership through five leadership styles, transformation leadership, change-oriented leadership, innovation champion leadership, leadership-follower leadership (LMX) and authentic leadership in leading innovation. The results of this study found that creative and innovative behavior influences creativity and innovative behavior.

## Conclusion

This paper aims to review various leadership skills associated with innovations and to study their advantages and disadvantages in the innovations. Through the literature review conducted above, the existing studies cannot explain and determine the right kind of leadership in leading innovation. In general, transformational leadership is the only theory that has a positive impact regardless of the type of innovation, the level of innovation and the phase of innovation that occurs. The different theories of leadership depend on the type of innovation, the level of innovation and the phase of innovation. Therefore, in studying innovation in organizations, the researchers agree with the opinion expressed by Zuraik et al. (2017) and Haapaniemi (2017), that innovation leadership must consist of a variety of leadership skills depending on the type of innovation, the level of innovation and the phase of innovation studied in organizations.

## References

- Adjei, D. (2013). Innovation Leadership Management. *International Journal of ICT and Management*. 1(2). 120-144.
- Ahmed, F., Naqshbandi, M. M., Kaur, S., & Ng, B. K. (2018). Roles of Leadership Styles and Relationship-based Employee Governance in Open Service Innovation: Evidence from Malaysian Service Sector. *Leadership and Organization Development Journal*, 39(3), 353–374. <https://doi.org/10.1108/LODJ-08-2017-0225>.
- Alghamdi, F. (2018). Ambidextrous leadership, Ambidextrous Employee, and The Interaction Between Ambidextrous Leadership and Employee Innovative Performance. *Journal of Innovation and Entrepreneurship*, 1–14. <https://doi.org/10.1186/s13731-018-0081-8>
- Al-Husseini, S., El Beltagi, I., & Moizer, J. (2019). Transformational Leadership and Innovation: The Mediating Role of Knowledge Sharing Amongst Higher Education Faculty. *International Journal of Leadership in Education*, 00(00), 1–24. <https://doi.org/10.1080/13603124.2019.1588381>

- Al-Husseini, S., & Elbeltagi, I. (2016). Transformational Leadership and Innovation: A Comparison Study Between Iraq's Public and Private Higher Education. *Studies in Higher Education*. <https://doi.org/10.1080/03075079.2014.927848>.
- Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the Work Environment for Creativity. *The Academy of Management Journal* (Vol. 39).
- Aragon-Correa, J. & García-Morales, Víctor & Córdón-Pozo, E. (2007). Leadership and organizational learning's role on innovation and performance: Lessons from Spain. *Industrial Marketing Management*, 36, 349-359. <https://doi.org/10.1016/j.indmarman.2005.09.006>.
- Alsolami, H. A., Cheng, G. K. T., & Twalh, A. A. M. I. (2016). Revisiting Innovation Leadership. *Open Journal of Leadership*, 05(02), 31–38. <https://doi.org/10.4236/ojl.2016.52004>.
- Anand, P., & Saraswati, A. K. (2014). Innovative Leadership: A Paradigm in Modern HR Practices. *Global Journal of Finance and Management* (Vol. 6).
- Anderson, N., DeDreu, C. K., & Nijstad, B. A. (2004). The Routinization of Innovation research: A constructively Critical Review of The State- of- the- science. *Journal of Organizational Behavior*, 25(2), 147-173.
- Bagheri, Afsaneh & Monireh, A. (2018). The Impact of Entrepreneurial Leadership on Nurses' Innovation Behavior. *Journal of nursing scholarship: an official publication of Sigma Theta Tau International Honor Society of Nursing*. 50(1). 28-35.
- Ballein, K. (1998). Entrepreneurial Leadership Characteristics of SMEs Emerge as Their Role Develops. *Nursing administration quarterly*, 22, 60-9. <https://doi.org/10.1097/00006216-199802220-00010>.
- Banerjee, B., Ceri, S., & Leonardi, C. (2016). *Innovation Leadership: A New Kind of Leadership*. In *Innovation Leadership: A new kind of leadership* (pp. 53–80). [https://doi.org/10.1007/978-3-319-20520-5\\_3](https://doi.org/10.1007/978-3-319-20520-5_3).
- Bass, B. M. (1985). *Leadership and Performance Beyond Expectations*. New York: Free Press.
- Bass, B. M. (1990). From Transactional to Transformational Leadership: Learning to Share the Vision. *Organizational Dynamics*. 18 (3), pp. 19-31. [http://dx.doi.org/10.1016/0090-2616\(90\)90061-S](http://dx.doi.org/10.1016/0090-2616(90)90061-S).
- Bass, B.M. dan Avolio, B.J. (1994). *Improving Organizational Effectiveness through Transformational Leadership*. Thousand Oaks, CA: Sage.
- Bass, B. M., & Riggio, R. E. (2006). *Transformational Leadership*, Second Edition. Lawrence Erlbaum Associates Publishers (2nd Edition).
- Benner, M. J., & Tushman, M. L. (2003). Exploitation, Exploration and Process Management: The Productivity Dilemma Revisited. *Academy of Management Review*, 28(2), 1238–1256. <https://doi.org/10.5465/AMR.2003.9416096>.
- Berraies, S., & Bhini, B. (2018). Effect of Leadership Styles on Financial Performance: Mediating Roles of Exploitative and Exploratory Innovations Case of Knowledge-Intensive Firms. *International Journal of Innovation Management*, 23(03), 1950020. <https://doi.org/10.1142/s1363919619500208>
- Berraies, S., & Zine El Abidine, S. (2019). Do Leadership Styles Promote Ambidextrous Innovation? Case of Knowledge-intensive Firms. *Journal of Knowledge Management, JKM-09-2018-0566*. <https://doi.org/10.1108/JKM-09-2018-0566>.
- Bledow, R., Frese, M., Anderson, N., Erez, M., & Farr, J. (2009). A dialectic perspective on innovation: Conflicting demands, multiple pathways, and ambidexterity. *Industrial and Organizational Psychology*. 2(3). 305-337.
- Bossink, B. A. G. (2004). Effectiveness of Innovation Leadership Styles: A Manager's Influence on Ecological Innovation in Construction Projects. *Organization Development Journal*, 4(4), 211–228.
- Burke, C. S., Stagl, K. C., Klein, C., Goodwin, G. F., Salas, E., & Halpin, S. M. (2006). What type of leadership behaviors are functional in teams? A meta-analysis. *The Leadership Quarterly*, 17, 288-307. <https://doi:10.1016/j.leaqua.2006.02.007>.

- Burpitt, W. J., & Bigoness, W. J. (1997). Leadership and Innovation among Teams. The Impact of Empowerment. *Small-Group Research*, 28(3), 414–423.
- Burns, J.M. (1978). *Leadership*. New York. Harper & Row.
- Caridi-Zahavi, O., Carmeli, A., & Arazy, O. (2016). The Influence of CEOs' Visionary Innovation Leadership on the Performance of High-Technology Ventures: The Mediating Roles of Connectivity and Knowledge Integration. *Journal of Product Innovation Management*, 33(3), 356–376. <https://doi.org/10.1111/jpim.12275>.
- Carmeli, A., Gelbard, R., & Gefen, D. (2010). The Importance of Innovation Leadership in Cultivating Strategic Fit and Enhancing Firm Performance. *The Leadership Quarterly*, 21, 339-349. <http://dx.doi.org/10.1016/j.leaqua.2010.03.001>.
- Chang, Y. Y. (2018). Charismatic leadership in IT firms in Taiwan: An Empirical Study. *Asia Pacific Business Review*, 24(1), 53–71. <https://doi.org/10.1080/13602381.2017.1334416>.
- Chen, T., Li, F., & Leung, K.K. (2016). When does supervisor support encourage innovative behavior? Opposite moderating effects of general self-efficacy and internal locus of control. *Personnel Psychology*. 69 (1). 123-158.
- Chen, J. X., Sharma, P., Zhan, W., & Liu, L. (2019). Demystifying the Impact of CEO Transformational Leadership on Firm Performance: Interactive Roles of Exploratory Innovation and Environmental Uncertainty. *Journal of Business Research*, 96(October 2018), 85–96. <https://doi.org/10.1016/j.jbusres.2018.10.061>.
- Chongcharoen, K. (2018). Innovative Leadership: Developing School Principals for Thailand 4.0. *Proceedings of 183th The IJIER International Conference. Helsinki, Finland*. 22-26.
- Chung, D. S., & Li, J. M. (2018). Curvilinear Effect of Transformational Leadership on Innovative Behavior Among R&D Teams in South Korea: Moderating Role of Team Learning. *Journal of Organizational Change Management*. <https://doi.org/10.1108/JOCM-01-2017-0017>.
- Cooper, J., & Brady, D.W. (1981). Institutional Context and Leadership Style: The House from Cannon to Rayburn. <https://doi.org/10.2307/1961374>.
- Cortes, A. F., & Herrmann, P. (2019). CEO Transformational Leadership and SME Innovation: The Mediating Role of Social Capital and Employee Participation. *International Journal of Innovation Management*, 2050024. <https://doi.org/10.1142/S1363919620500243>.
- Damanpour, F. (1991). Organizational Innovation: A Meta-Analysis of Effects of Determinants and Moderators. *Academy of Management Journal*, 34(3), 555–590. <https://doi.org/10.2307/256406>.
- Deschamps, J. (2005). Different leadership skills for different innovation strategies. *Strategy & Leadership*. 33. 31-38. <https://doi.org/10.1108/10878570510616861>.
- Dubey, K. & Pawar, S. (2016). Leadership through Innovation. *International Journal of Recent Trends in Engineering and Research*.
- Dorfman, P. W., Hanges, P. J., & Brodbeck, F. (2004). *Leadership and Cultural Variation: The Identification of Culturally Endorsed Leadership Profiles*. (pp. 669-720). In R. J. House, P. J. Hanges, M. Javidan, P.W. Dorfman, & V. Gupta (Eds.), *Leadership, Culture, and Organizations: The GLOBE Study of 62 Societies*. Thousand Oaks, CA: SAGE.
- Dosi, G. (1982). Technological Paradigms and Technological Trajectories: A Suggested Interpretation of the Determinants and Directions of Technical Change. *Research Policy*. 2(3): 147-162.
- Dvir, T., & Shamir, B. (2003). Follower developmental characteristics as predicting transformational leadership: A longitudinal field study. *The Leadership Quarterly*, 14(3), 327-344. [http://dx.doi.org/10.1016/S1048-9843\(03\)00018-3](http://dx.doi.org/10.1016/S1048-9843(03)00018-3).
- Eisenbach, R., Watson, K. dan Pillai, R. (1999). Transformational Leadership in the Context of Organizational Change. *Journal of Organizational Change*, 12, 80-88.

- Elkins, T., & Keller, R. T. (2003). Leadership in Research and Development Organizations: A Literature Review and Conceptual Framework. *The Leadership Quarterly*, 14, 587–606. [https://doi.org/10.1016/S1048-9843\(03\)00053-5](https://doi.org/10.1016/S1048-9843(03)00053-5).
- Elrehail, H., Emeagwali, O. L., Alsaad, A., & Alzghoul, A. (2018). The impact of Transformational and Authentic leadership on Innovation in Higher Education: The contingent Role of Knowledge Sharing. *Telematics and Informatics*, 35(1), 55–67. <https://doi.org/10.1016/j.tele.2017.09.018>.
- García-Morales, V.J., Iloréns-Montes, Francisco, J. & Verdú-Jover, A.J. (2008). The effects of transformational leadership on organizational performance through knowledge and innovation. *British Journal of Management*, 19(4).299-319.
- Gil, A. J., Rodrigo-Moya, B., & Morcillo-Bellido, J. (2018). The Effect of Leadership in The Development of Innovation Capacity: A Learning Organization Perspective. *Leadership and Organization Development Journal*, 39(6), 694–711. <https://doi.org/10.1108/LODJ-12-2017-0399>.
- Gliddon, D. G. (2006). *Forecasting A Competency Model for Innovation Leaders Using a Modified Delphi Technique*. (Ph.D. dissertation). The Pennsylvania State University.
- Gliddon, D. G., & Rothwell, W. J. (2018). *Innovation Leadership*. Taylor and Francis. <https://doi.org/10.4324/9781315178219>.
- Gumusluoglu, L., & Ilsev, A. (2009). Transformational Leadership, Creativity, and Organizational Innovation. *Journal of Business Research*. <https://doi.org/10.1016/j.jbusres.2007.07.032>.
- Gupta, A. K., Smith, K. G., & Shalley, C. E. (2006). The Interplay Between Exploration and Exploitation. *Academy of Management Journal*, 49(4), 693–706.
- Haapaniemi, P. (2017). *Leadership in Innovations of Finnish Household Goods Producing Companies*. Ph.D. dissertation Helsinki Metropolia University of Applied Sciences.
- Harmsen, H., Grunert, K.G., Declerck, F., 2000. Why did we make that cheese? An empirically-based framework for understanding what drives innovation activity. *R&D Management*, 30(2), 151-166.
- Hasan, A. M., Younesi, G., & Zohoori, M. (2017). Relationship Between Transformational Leadership and Innovation. *International Journal of Science and Engineering Applications*, 6(8), 194–200. <https://doi.org/10.7753/ijsea0608.1002>.
- Hermann, D. & Felfe, J. (2012). Effects of Leadership Style, Creativity Technique and Personal Initiative on Employee Creativity. *British Journal of Management*, 25(2), 209-227.
- Hou, B., Hong, J., Zhu, K., & Zhou, Y. (2019). Paternalistic Leadership and Innovation: the Moderating Effect of Environmental Dynamism. *European Journal of Innovation Management*, 22(3), 562–582. <https://doi.org/10.1108/EJIM-07-2018-0141>.
- Hunt, J. G. (2005). Explosion of the Leadership Field and LQ's changing of the Editorial Guard. *The Leadership Quarterly*, 16: 1-8.
- Hunter, S. T., & Cushenbery, L. (2011). Leading for Innovation: Direct and Indirect Influences. *Advances in Developing Human Resources*, 13(3), 248. <https://doi.org/10.1177/1523422311424263>
- Hussein, H. A., & Mohammed, S. I. (2016). *Transformasi Pendidikan Nasional Antara Inspirasi dan Anjakan*. Penerbit Universiti Malaya.
- Jung, D. I., Chow, C., & Wu, A. (2003). The role of transformational leadership in enhancing organizational innovation: Hypotheses and some preliminary findings. *The Leadership Quarterly*, 14. 525–544.
- Jones, & Bartlett. (2015). *Nurse's Drug Handbook*. Jones and Bartlett Learning.
- Kaume- Mwinzi, R. K. (2016). Administrative and Leadership Innovation in the 21st Century: A Secondary School Sub- Sector Perspective in Kenya. *Research in Pedagogy*, 6(2), 85–94. <https://doi.org/10.17810/2015.37>

- Kementerian Pendidikan Malaysia. (2015). *Ringkasan Eksekutif Pelan Pembangunan Pendidikan Malaysia 2015-2015 (Pendidikan Tinggi)*. Kementerian Pendidikan Malaysia (Vol. 2025).
- Khalili, A. (2017). Creative and Innovative Leadership: Measurement Development and Validation. *Management Research Review*. Vol. 40 No. 10, pp. 1117-1138.
- Kremer, H., Villamor, I., & Aguinis, H. (2018). Innovation Leadership: Best-Practice Recommendations for Promoting Employee Creativity, Voice, and Knowledge Sharing. *Business Horizons*, 1527, forthcoming. <https://doi.org/10.1016/j.bushor.2018.08.010>
- Le, P. B., & Lei, H. (2019). Determinants of Innovation Capability: The Roles of Transformational Leadership, Knowledge Sharing and Perceived Organizational Support. *Journal of Knowledge Management*. 23(3). 527–547. <https://doi.org/10.1108/JKM-09-2018-0568>.
- Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P., ... & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *Annals of internal medicine*, 151(4), W-65.
- Luo, B., Shanshan, Z., & Hongmei, J., & Liang, L. (2016). Ambidextrous leadership and TMT-member ambidextrous behavior: the role of TMT behavioral integration and TMT risk propensity. *The International Journal of Human Resource Management*. 29. 1-22. [10.1080/09585192.2016.1194871](https://doi.org/10.1080/09585192.2016.1194871).
- Lukoschek, C. S., Gerlach, G., Stock, R. M., & Xin, K. (2018). Leading to Sustainable Organizational Unit Performance: Antecedents and Outcomes of Executives' Dual Innovation Leadership. *Journal of Business Research*, 91, 266–276. <https://doi.org/10.1016/j.jbusres.2018.07.003>
- Lukowski, W. (2017). The Impact of Leadership Styles on Innovation Management. *Marketing of Scientific and Research Organisations*. 24(2), 105–136. <https://doi.org/10.14611/minib.24.06.2017.12>
- Marron, J. M., & Cunniff, D. (2014). What Is an Innovative Educational Leader? *Contemporary Issues in Education Research-Second Quarter* (Vol. 7). <https://files.eric.ed.gov/fulltext/EJ1073268.pdf>
- Mumford, M. D., & Licuanan, B. (2004). Leading for Innovation: Conclusions, Issues, and Directions. *Leadership Quarterly*, 15(1), 163–171. <https://doi.org/10.1016/j.leaqua.2003.12.010>.
- Northouse, P. G. (2013). *Leadership: Theory and practice*. Thousand Oaks, CA: SAGE Publications.
- OECD. (2008). *Education at a Glance 2008: OECD Indicators*. OECD Publishing, Paris.
- OECD. (2016). *Innovating Education and Educating for Innovation: The Power of Digital Technologies and Skills*. OECD Publishing, Paris. <https://doi.org/10.1787/9789264265097-en>.
- Prasad, B., & Junni, P. (2016). CEO Transformational and Transactional Leadership and Organizational Innovation: The Moderating Role of Environmental Dynamism. *Management Decision*, 54(7), 1542–1568. <https://doi.org/10.1108/MD-11-2014-0651>.
- Rogers, Everett, M. (1962). *Diffusion of Innovations*. Glencoe: Free Press. ISBN 0612628434.
- Rosing, K., Frese, M., & Rosenbusch, N. (2010). *Ambidextrous Leadership in the Innovation Process*. [10.1007/978-3-642-10823-5\\_12](https://doi.org/10.1007/978-3-642-10823-5_12).
- Rosing, K., Frese, M., & Bausch, A. (2011). Explaining the Heterogeneity of The Leadership-innovation Relationship: Ambidextrous leadership. *Leadership Quarterly*, 22(5), 956–974. <https://doi.org/10.1016/j.leaqua.2011.07.014>.
- Sagir, M. (2017). *Innovational Leadership in School Management*. Üniversitepark Bülden, 6(1), 45–55. <https://doi.org/10.22521/unibulletin.2017.61.4>

- Sarminah, S. (2012). The Influences of Transformational Leadership on Team Innovation Climate and Team Innovation Performance. *International Journal on Advances in Information Sciences and Service Sciences*, 4(21), 132–140. <https://doi.org/10.4156/aiss.vol4.issue21.17>.
- Schorck, S. (2018). The Application of the Effective Innovation Leadership Model in ICT Practice. *Springer International Publishing*. [https://doi.org/10.1007/978-3-319-73509-2\\_5](https://doi.org/10.1007/978-3-319-73509-2_5).
- Schumpeter, J.A. (1934). *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle* translated from the German by Redvers Opie New Brunswick (U.S.A) and London (U.K). Transaction Publishers.
- Serdyukov, P. (2017). Innovation in Education: What Works, What Doesn't, and What To Do About It? *Journal of Research in Innovative Teaching & Learning*. <https://doi.org/10.1108/JRIT-10-2016-0007>.
- Sethibe, G. T. (2018). Towards a Comprehensive Model on the Relationship Between Leadership Styles, Organisational Climate, Innovation and Organisational Performance. *International Journal of Innovation Management*. Vol.22, No.2. 1850021
- Shadiya, Mohamed, B., Norhashima, J., Hazizi, O., & Dania, H. P. (2018). Leadership Framework Intensifies Innovation Culture in an Organization. *Journal of Advanced Research in Social and Behavioural Sciences*. 10 (1). 33-49.
- Shafique, I., Ahmad, B., & Kalyar, M. N. (2019). How Ethical Leadership Influences Creativity and Organizational Innovation. *European Journal of Innovation Management*. <https://doi.org/10.1108/ejim-12-2018-0269>.
- Sitthisomjin, J., Somprach, K., & Phuseeorn, S. (2018). The Effects of Innovation Management on School Performance of Secondary Schools in Thailand. *Kasetsart Journal of Social Sciences*. <https://doi.org/10.1016/j.kjss.2018.02.007>.
- Stoker, J. I., Looise, J. C., Fisscher, O. A. M., & DeJong, R. D. (2001). Leadership and innovation: Relations between Leadership, Individual Characteristics and The Functioning of R&D Teams. *International Journal of Human Resource Management*, 12(7), 1141–1151. <https://doi.org/10.1080/09585190110068359>.
- Somech, A. (2006). The Effects of Leadership Style and Team Process on Performance and Innovation in Functionally Heterogeneous Teams. *Journal of Management*. <https://doi.org/10.1177/0149206305277799>.
- Tranfield, D., Denyer, D. & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14 (2003), 207-222. <https://doi.org/10.1111/1467-8551.00375>.
- Torraco, R. J. (2005). Writing integrative literature reviews: Guidelines and examples. *Human Resources Development Review*, 4(2005), 356-367. <https://doi.org/10.1111/1534484305278283>.
- Tung. (2016). Does transformational, ambidextrous, transactional leadership promote employee creativity? Mediating effects of empowerment and promotion focus. *International Journal of Manpower*. 37 (8). 1250-1263. <https://doi.org/10.1108/IJM-09-2014-0177>.
- Tushman, M., & Nadler, D. (1986). Organizing for Innovation. *California Management Review*. <https://doi.org/10.2307/41165203>.
- Vlok, A. (2012). A Leadership Competency Profile for Innovation Leaders in a Science-based Research and Innovation Organization in South Africa. *Procedia - Social and Behavioral Sciences*, 41, 209–226. <https://doi.org/10.1016/j.sbspro.2012.04.025>
- Waters, J. (2000). Achieving innovation or the holy grail: managing knowledge or managing commitment? *International Journal of Technology Management*. 20(5-8), 819- 838.
- Xie, Y., Xue, W., Li, L., Wang, A., Chen, Y., Zheng, Q., Li, X. (2018). Leadership Style and Innovation Atmosphere in Enterprises: An Empirical Study. *Technological Forecasting and Social Change*, 135(May), 257–265. <https://doi.org/10.1016/j.techfore.2018.05.017>.
- Xenikou, A. (2017). Transformational Leadership, Transactional Contingent Reward, and Organizational Identification: The Mediating Effect of Perceived Innovation and Goal Culture



- Orientations. *Frontiers in Psychology* | www.Frontiersin.Org, 8, 1754. <https://doi.org/10.3389/fpsyg.2017.01754>.
- Yaseen, S. G., Al-Janaydab, S., & Alc, N. A. (2018). Leadership Styles, Absorptive Capacity and Firm's Innovation. *International Journal of Knowledge Management*, 14(3), 82–100. <https://doi.org/10.4018/ijkm.2018070106>.
- Yaverbaum, E., & Sherman, E. (2008). *The Everything Leadership Book* (2nd Edition). Avon, MA: F+W Publications, Inc.
- Ye, X., Feng, J., Ma, L., & Huang, X. (2018). Impact of Team Leadership Habitual Domains on Ambidextrous Innovation. *Social Behavior and Personality: An International Journal*, 46(12), 1955–1966. <https://doi.org/10.2224/sbp.7323>.
- Yukl, G. (2009). Leading organizational learning: Reflections on theory and research. *The Leadership Quarterly*, 20, 49-53. DOI: 10.1016/j.leaqua.2008.11.006.
- Zacher, H. & Wilden, G. R. (2014). A daily diary study on ambidextrous leadership and self-reported employee innovation. *Journal of Occupational and Organizational Psychology*. 87. 10.1111/joop.12070.
- Zacher, H., Robinson, A. J., & Rosing, K. (2014). Ambidextrous Leadership and Employees' Self-Reported Innovative Performance: The Role of Exploration and Exploitation Behaviors. *Journal of Creative Behavior*. <https://doi.org/10.1002/jocb.66>
- Zuraik, A. (2017). *The Effective Leadership for Innovation* (Doctoral Thesis). Alliant International University.
- Zuraik, A., & Kelly, L. (2019). The role of CEO Transformational Leadership and Innovation Climate in Exploration and Exploitation. *European Journal of Innovation Management*, 22(1), 84–104. <https://doi.org/10.1108/EJIM-10-2017-0142>.