



The effect of innovative leadership, employees' innovative knowledge and skills on the innovative work behavior of employees

Damianus Abun: Professor, School of Business and Accountancy, Divine Word College of Laoag, Philippines.

Elita B. Valdez: Professor, School of Education, Divine Word College of Vigan, Ilocos Sur, Philippines.

Fredolin P. Julian: Professor, School of Business and Accountancy, Divine Word College of Laoag.

Michael G. Calipjo: Teacher 3, Ilocos Norte College of Arts and Trade, Laoag City, Ilocos Norte, Philippines.

Libertine Gertrude R. Macaspac: Associate for Research Accreditation and Quality Assurance, Divine Word College of Laoag.

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ABSTRACT

The research aimed to investigate how the innovative leadership of administrators, as well as the innovative knowledge and skills of employees, impact their innovative work behavior. The study utilized a descriptive assessment and correlational research design, with data collected from employees at two colleges (DWCL & DWCV) using validated research questionnaires. Results showed that the innovative leadership of administrators, innovative knowledge, innovative skills, and innovative work behavior of employees were all assessed as high, and there was a significant correlation between them. These findings contribute to the discourse on innovative work behavior among employees.

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Introduction

Research studies have indicated a decline in innovation in many organizations (Gold, 2021; Aurora, 2019; Am, et al., 2021), which can be attributed to a lack of attention given by leaders to innovation. It is important to note that competition plays a vital role in driving innovation, as

* Corresponding author. ORCID ID: [0000-0001-6884-3504](https://orcid.org/0000-0001-6884-3504)

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research has shown a positive correlation between the two (Correa, 2011; Global Innovative, 2015; Moet, et al., 2019).

In the field of education, innovative and creative leadership is essential for bringing about changes, especially in light of the rapidly evolving technological landscape (Marron & Cunniff, 2014; Scardamalia & Bereiter, 2014). Therefore, employees must possess the necessary knowledge and skills to adapt to these changes (Wrahatnolo & Munoto, 2019; Ballantyne, et al., 2012). This requires effective recruitment strategies and continuous training and development programs to ensure that employees can cope with the changes in the external environment. Van Laar, et al. (2020) identified several 21st-century skills that are essential for employees, including technical, information, communication, collaboration, critical thinking, creativity, and problem-solving. Interestingly, Hero, et al. (2017) found that content knowledge and skills are predictors of innovative behavior, which can lead to increased efficiency and engagement among employees.

The present study examined the innovative leadership, knowledge, skills, and work behavior of employees at DWCL. The results of this study may help in the development of a leadership training program to enhance the innovative work behavior of employees. The study is structured into several parts, starting with the rationale, which provides the background of the study. The literature review section examines relevant literature to provide a better understanding of the research concept. The research methodology section describes the research design, population, locale, data-gathering instruments, and statistical treatment of data. The fourth part involves data presentation and analysis, followed by the fifth part, which presents the results, discussion, and conclusion.

Literature review

The purpose of the literature review is to expand and deepen the understanding of the concept of the current study which helped establish its theories that were investigated. The result of the review is presented thematically.

The concept of leadership

According to Peter Drucker (cited in Hesselbein, 2010), Lieberman & O'Connor (1972), Jing & Avery (2008), Hurduzeu (2015), and Karamat (2013), leadership plays a crucial role in organizational performance, and leaders bear significant responsibility for the survival and growth of an organization in the face of external challenges. Failure to adapt to the environment and change could lead to the closure of an organization. Therefore, leaders must be able to respond quickly to these challenges.

Stodgill (1948), Tannenbaum and Schmidt (1973), Harter (2008), Fleenor (2011), Gardner (1989, cited in Fleenor, 2011), Toegel and Barsoux (2013), O'Neil (2007), and Singh (2009) have defined leadership traits such as self-confidence, intelligence, ambition, perseverance, emotional stability, creativity, motivation, success, physical vitality, task competence, understanding of followers' needs, skills in dealing with people, need for achievement, capacity to motivate people, courage,

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resolution, trustworthiness, decisiveness, adaptability or flexibility, the need for stability, extraversion, openness, agreeableness, conscientiousness, and learning to manage self.

Leadership styles can be categorized as people-oriented and task-oriented (Lewin et al., 1939; Blake and Mouton, 1964, 1985; Kouzes and Posner, 1995), and the appropriate style depends on the situation. The situational and contingency theories of leadership suggest that a leader's behavior or action should be contingent on the situation and the environment. No single leadership style can be applied across all situations (Khan et al., 2016).

Rost (1991) defined leadership as "an influence relationship among leaders and collaborators who intend significant changes that reflect their mutual purposes" (102), while Kouzes and Posner (1995) believed that it is "the art of mobilizing others to want to struggle for shared aspirations" (30). The goal of leadership is to influence followers to achieve common desired goals. Leaders can apply the trait theories in combination with appropriate behavior and situational constraints to influence followers effectively.

Innovative leadership refers to the ability to think creatively and apply new ideas and approaches to leadership. This concept goes hand in hand with the behavioral, situational, and contingency theories of leadership, which suggest that leaders must judge the situation and apply the appropriate leadership style to achieve the desired outcome.

Innovation and innovative leadership

Suarez and Lanzolla (2007) argue that technology and market evolution requires leaders to be dynamic and adaptable, as emphasized by Lawrence (2013) and Gorbo (2022). The reason for this is that changes in market demand are aimed at adding new value to customers' needs (O'Sullivan and Dooley, 2008). As the New Oxford Dictionary of English (1998) defines it, innovation is about "making changes to something established by introducing something new". Therefore, a leader must be an innovator who can generate new ideas (Baumgartner, 2011; Mumford and Licuanan, 2004) and think outside the box (Barsh et al., 2008) to inspire employees to be creative, produce new solutions to existing problems, and improve existing products or services (Gliddon, 2006). This is where the role of creativity comes into play.

According to Amabile and Khair (2008) and Lv et al. (2021), creativity is leverage for competitive advantage. Therefore, a leader must stimulate employees' imagination to contribute ideas, tap into ideas from all ranks, encourage and enable collaboration, open the organization to diverse perspectives, foster a free flow of ideas, map the phases of creative work, minimize bureaucracy, fan the flames of motivation, provide intellectual challenge, allow people to pursue their passions, be an appreciative audience, embrace the certainty of failure, and marry research to practice. Failure to foster innovation will cause organizations to struggle to survive, as innovation is the only driver of growth (Barsh et al., 2008).

Innovative knowledge and skills

Li, et al (2009) defines innovative knowledge as "a process to utilize experimental research and

development activities and empirical practice activities to promote the knowledge that the technical innovation and the system innovation need". Paavola, et al (2004) identified three models of innovative knowledge along this line, namely knowledge-creation, expansive learning, and knowledge-building. These three models emphasize innovative knowledge as a dynamic process for transforming prevailing knowledge and practices.

Karen and Lucia (2006) believed that knowledge is dynamic due to research. Price, et al. found a significant correlation between knowledge and innovation and Maceika and Janciauskas (2012) agreeably stated that successful innovation activities can only happen when the employees have the knowledge and skills. Hence, employees must always be updated with new knowledge and technologies to change existing practices. Subsequently, Singh and Power, Lee et al., (2013) and Castaneda and Cuellar (2020) propose a knowledge- sharing strategy that poses a particular challenge for all kinds of industries including higher education, to innovate and create knowledge enterprise (Sarvi & Hitendra, 2015). The ability to innovate and create new knowledge products and services are crucial for the knowledge economy to thrive, as further stated by Sarvi and Hitendra in 2015. In today's rapidly changing and competitive landscape, where there is high market uncertainty, intense competition, and rapid technological advancement, knowledge has become a strategic asset for organizations, according to Ginting et al (2019). To remain competitive and succeed in this environment, members of organizations must possess the requisite innovation knowledge. Ginting et al (2019) emphasize that creativity and innovation are only possible through innovative people. Furthermore, Wu et al's study in 2019 found that innovative knowledge has a positive impact on sustainability.

Leiponen (2005) made an important observation that human capital plays a crucial role in promoting innovation. It is not enough to possess innovative knowledge alone; it must be accompanied by innovative skills in practices, product handling, and service delivery. According to Ogunjimi (2020), innovative skills refer to the new skills that are introduced into a profession. The Australian Government (2022) describes these skills as a combination of cognitive (creative and critical thinking), behavioral (problem-solving and risk management), functional (writing, reading, oral communication, and numeracy), and technical skills (getting the job done). Leiponen (2005) aptly recognized the importance of skills development in enhancing existing practices, services, and products.

Innovative work behavior

The performance of employees is a critical factor in the survival and success of an organization. Achieving this, however, is a challenging task due to the ever-changing external environment and competitive landscape. This boils down to achieving innovative leadership and employees. The works of Hon and Lui (2016), Nödl (n.d), Mihaela, 2021, and Gil, et al, 2018, proved that a creative and innovative organizational environment generates innovative work behavior in employees.

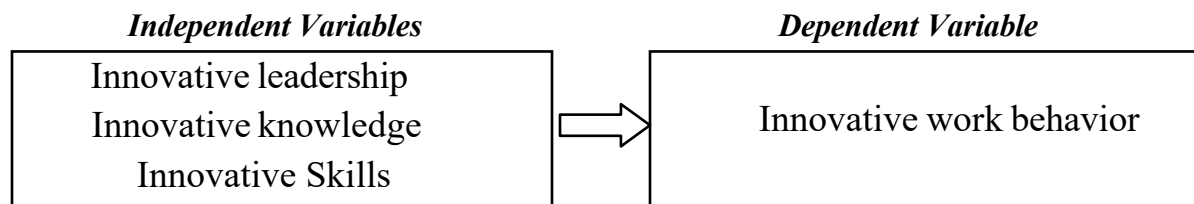
This paper based its definition of innovative work behavior on West and Farr (1990), Spreitzer (1995, p. 1449), Janssen (2000, p. 288), and Alessa and Durugbo (2021) zeroes on new ideas,

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processes, products, and procedures for the benefit of individuals, organizations, and society. The recent definition provided by Alessa and Durugbo (2021) is “a complex behavior of employees that generates, introduces, and applies innovative ideas.”.

Studies have shown the benefits of innovative work behavior, organizational competitiveness, and organizational performance. For example, Elidemir, et al. (2020), Aitbar and Saeed (2016), (Susilo (2019), (Chan & Rasli, 2014, Jankelová, et al. 2021, Abdullah & Shamsuddin, 2019) found that innovative work behavior significantly influences the company's competitive advantage, organizational performance, and individual work performance.

These findings reveal that innovative work behavior is caused by leadership styles (Contreras, et al. 2017) which makes it a one-dimensional construct according to de Jong and den Hartog(2008). There is a need for management to look into the enhancement issues surrounding innovative work behavior. Hence, this study.

Conceptual framework



Source: Australian Government (2022), Park and Kim (2008), de Jong and den Hartog (2008).

Figure 1: The conceptual framework depicts the relationship between independent variables and dependent variables. It shows that innovative leadership, innovative knowledge, and skills affect innovative work behavior.

Statement of the problem

The study aims to determine the effect of innovative leadership, innovative knowledge, and skills of employees on innovative work behavior. It specifically seeks to answer the following questions:

- 1. What is the innovative leadership of administrators?**
- 2. What is the innovative knowledge of employees?**
- 3. What is the innovative skill of employees?**
- 4. What is the innovative work behavior of employees?**
- 5. Is there a relationship between innovative leadership, innovative knowledge, innovative skills, and innovative work behavior?**

Assumption

The study assumes that innovative leadership, innovative knowledge, and skills can influence innovative work behavior and they can be measured.

Hypothesis

Contreras et al. (2017) established a correlation between the leadership styles adopted by an organization and the innovative work behavior of its employees. Additionally, Nguyen et al. (2019) found that both innovative knowledge and knowledge sharing influence the innovative work behavior of employees. Therefore, the current study hypothesizes that the innovative work behavior of employees is influenced by innovative leadership, innovative knowledge, and innovative skills.

Scope and delimitation of the study

The scope of the study delimits its investigation on innovative leadership, innovative knowledge and skills, and innovative work behavior. Its respondents were limited to the Divine Word College of Laoag, Ilocos Norte, and Divine Word College of Vigan, Ilocos Sur, Philippines.

Research methodology

Scientific research needs to adhere to established procedures or research methodology (Wilkinson, 2000; Leedy, 1974). Thus, the current research utilized a specific method of investigation. This involves explaining the research design, data collecting instruments, the population of study participants, the locale of the study, data gathering procedures, and statistical treatment of data.

Research design of the study

Ariola (2006) proposed that a descriptive correlational study aims to explain the correlation between variables without attempting to establish a causal link. Descriptive research is used to portray a population, circumstance, or phenomenon which additionally encompasses profiles, frequency distribution, and describing characteristics of individuals, circumstances, or phenomena (McCombes, 2020). In capsule form, it answers questions of what, when, how, and where; however, not why.

The locale of the study

The locale of the study was Divine Word College of Laoag which is located in Laoag City, the capital of Ilocos Norte; and Divine Word College of Vigan which is located in Ilocos Sur.

Population

The two colleges' staff comprised the respondents of the study, the number was obtained via total enumeration sampling.

Data gathering instruments

The present study gathered data by employing validated questionnaires from the Australian Government (2022) on innovative leadership and innovative skills, Park and Kim (2008) on

Data gathering procedures

Data collection was done with the approval of the college Presidents to ensure adherence to ethical standards

Ethical considerations

The research conducted in this study was approved by the ethics committee, ensuring it was done by ethical standards, without causing any harm to human life or the environment.

Statistical treatment of data

Descriptive and inferential statistical methods were then utilized for data analysis, such as weighted mean to determine the levels of innovative leadership style, knowledge, skills, and work behavior of employees, as well as multi-r correlation to measure any links between these factors. A range of values was considered with their corresponding descriptive interpretations:

<i>Statistical Range</i>	<i>Descriptive Interpretation</i>
4.21-5.00	Strongly Agree/ Very High
3.41-4.20	Agree / High
2.61-3.40	Somewhat Agree/ Moderate
1.81-2.60	Disagree/Low
1.00-1.80	Strongly Disagree/Very Low

Data presentation and analysis

This section presents the data obtained from research questionnaires, presented in tables, and organized according to the stated problems.

Problem 1: What is the innovative leadership of administrators?

Table 1: Innovative leadership of administrators

No	Innovative leadership indicators	Mean	DI
1	Make innovation an integral part of leadership and management activities.	4.10	A/H
2	Demonstrate positive reception of ideas from others and provide constructive advice.	4.08	A/H
3	Establish and maintain a relationship based on mutual respect and trust	4.12	A/H
4	Takes considered risks to open up opportunities for innovation	4.10	A/H
5	Consult on and establish working conditions that reflect and encourage innovative practice	4.06	A/H
6	Introduce and maintain workplace procedures that foster innovation and allow for rigorous evaluation of innovative ideas	4.06	A/H
7	Build and lead teams to work in ways that maximize opportunities for innovation	4.04	A/H
8	Acknowledge suggestions, improvements, and innovations from subordinates	4.05	A/H
9	Find appropriate ways of celebrating and promoting innovations/changes	4.08	A/H
10	Pro-actively share relevant information, knowledge, and skills with the subordinates	3.98	A/H
	Composite Mean	4.06	A/H

Source: Australian Government (2022)

Legend:

Statistical Range	Descriptive Interpretation
4.21-5.00	Strongly Agree/ Very High
3.41-4.20	Agree / High
2.61-3.40	Somewhat Agree/ Moderate
1.81-2.60	Disagree/Low
1.00-1.80	Strongly Disagree/Very Low

Problem 2: What is the innovative knowledge of employees?

Leadership is known to play a key role in the success of organizations (Purwadita et al., 2018). Data from two academic institutions revealed that administrators had a composite mean score of 4.06 in terms of innovative leadership, which is interpreted as "agree/high". The single indicators were also all rated within that same level, indicating agreement that innovation is an integral part of leadership and management activities (4.10); processes such as providing constructive advice (4.08), establishing trustful relationships (4.12), and taking opportunities for innovation (4.10) are seen as being necessary for successful leadership. Furthermore, workplace procedures must also encourage innovation (4.06) and leaders should empower their teams to maximize opportunities for innovation (4.04) and recognize suggestions from subordinates (4.05); celebration and promotion of innovative ideas are also considered essential elements of effective leadership (4.08).

Research has consistently shown that innovative leadership leads to improved organizational performance (Johannessen and Skaalsvik, 2014; Mubrak, 2014; Aragon-Correa et al., 2007). Aman-Ullah et al. (2022) have revealed the importance of human capital in organizational performance; they believe that innovative leadership promotes the development of human capital capacity, knowledge, and skills which are fundamental to organizational success.

Table 2: Innovative knowledge

No	Innovative knowledge indicators	Mean	DI
1	I will actively seek to obtain knowledge related to my work	4.24	A/H
2	If someone were to ask me, I would be able to provide advice on the problems they are encountering	4.13	A/H
3	Compared with other people, I believe I have richer knowledge and experience of the work we are doing	3.94	A/H
4	I am familiar with the methods and procedures of the work I am doing	4.13	A/H
5	I have mastered the knowledge of the work I am doing	4.09	A/H
6	I would be willing to show my work to others.	4.20	A/H
7	I would be willing to discuss my work with others.	4.12	A/H
8	I would be willing to recommend my method of teaching/ work to friends.	4.13	A/H
	Composite Mean	4.12	A/H

Source: Park and Kim (2008)

Innovation is essential for gaining a competitive advantage, as highlighted by Sarvi & Pillay (2015). Price et al. (2013) propose that knowledge can increase such advantage, and this assertion is evidenced by the data which showed that innovative knowledge had a composite mean rating of

4.12, classified as "agree/high". On further analysis of individual indicators, the same level of mean rating was found with regards to actively seeking knowledge related to their work (4.24), helping provide advice on encountered problems (4.13), believing they had sufficient knowledge and experience on their work (3.94), knowing the methods and procedure of their work (4.13), mastering the knowledge of their work (4.09), showing their work to others (4.20), discussing the work with others (4.12), and willingly recommending methods of teaching to friends (4.13).

Gluck et al. (1980) note that having a competitive edge over rivals is paramount for success in competition, as it opens up opportunities for obtaining bigger market shares. Strategic management or strategic planning, therefore, must aim to identify competitive advantages over competitors for achieving this goal according to Hana (2013). Achieving this can be done by employing knowledgeable workers who can solve problems innovatively and use the relevant knowledge effectively in the innovation process.

Problem 3: What are the innovative skills of employees?

Table 3: Innovative skills

No	Innovative skills indicators	Mean	DI
1	I can interpret and evaluate information that may deal with complex ideas related to issues both within and outside a given workplace context	4.04	A/H
2	I can write communication for others using language to suit the context and audience	4.02	A/H
3	I can present ideas and concepts to a range of audiences using language to suit the audience	4.10	A/H
4	I listen, question, discuss and clarify information and confirm understanding	4.16	A/H
5	I take responsibility for implementing practices and procedures to achieve organizational objectives in innovation according to role requirements	4.16	A/H
6	I stay up to date with the professional development options to provide relevant information to my work and co-workers	4.08	A/H
7	I use appropriate communication techniques to build rapport and foster a strong relationship with co-workers in a range of work contexts	4.06	A/H
8	I develop new and innovative ideas through exploration, evaluation, analysis, and critical thinking	4.10	A/H
9	I facilitate a climate where people feel comfortable suggesting and discussing improvements or new ideas	4.12	A/H
10	I can interpret and evaluate information that may deal with complex ideas related to issues both within and outside a given workplace context	4.12	A/H
	Composite Mean	4.10	A/H

Source: Australian Government (2022)

Employee innovative skills have been assessed to have a mean rating of 4.10, indicating agreement on a high level. This rating is consistent across each indicator, such as the ability to evaluate and interpret complex ideas (4.04), written communication that fits the context and audience (4.02), presenting ideas in a way that suits the audience (4.10), taking responsibility for achieving objectives through practices and procedures (4.16), stay up to date with work-related information and skills (4.08), build rapport through appropriate communication techniques (4.06)

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and create an atmosphere where ideas can be freely presented (4.12). Studies suggest that developing these innovative skills is crucial for business success since they are associated with performance outcomes (Kim, 2022; Jin et al., 2022).

Problem 4: What is the innovative work behavior of the employees?

Table 4: Innovative work behavior

No	Innovative work behavior indicators	Mean	DI
1	I pay attention to issues that are not part of my daily work	3.76	A/H
2	I wonder how things can be improved	4.16	A/H
3	I search out new working methods, techniques, or instruments	4.22	A/H
4	I generate original solutions for problems	4.14	A/H
5	I find new approaches to executing tasks	4.24	A/H
6	I make important organizational members enthusiastic about innovative ideas	4.13	A/H
7	I attempt to convince people to support an innovative idea	4.14	A/H
8	I systematically introduce innovative ideas into work practices	4.08	A/H
9	I contribute to the implementation of new ideas	4.15	A/H
10	I put effort into the development of new things	4.12	A/H
	Composite Mean	4.12	A/H

Source: de Jong and Den Hartog (2008)

Investing in training and development is necessary to produce knowledge workers and innovative workers. Studies have shown that innovative work behavior is significantly associated with a company's competitive advantage and performance (Firdaus, & Sakinah, 2023, Li, et al., 2022, Susilo, 2019, Musneh, et al. 2021). Employees agree that they pay attention to work-related issues (3.76) and find ways to improve things (4.16), search for new working methods (4.22), generate original solutions to existing problems (4.14), find a new approach to execute the task (4.24), convince other organizational members to accept new innovative ideas (4.14), convince people to support innovative ideas (4.14), introduce innovative ideas into work practices (4.13), implement new ideas (4.15) and exert effort to develop new things (4.12). Management must nurture workplace learning to nurture innovative work behavior and ensure competitiveness in the market (Shah, et al., 2022).

Problem 5 Is there a relationship between innovative leadership of the administration, innovative knowledge, innovative skills of employees, and innovative work

Table 5. Correlation coefficients obtained on the test of relationships between innovative leadership of the administration, innovative knowledge of employees, innovative skills, and innovative work behavior (n=180)

Factors	Innovative work behavior
Innovative leadership of the administration	r .566**
	(Sig. 2 - tailed) .000
Innovative knowledge of employees	r .733**

	(Sig. 2-tailed)	.000
Innovative skills	r	.837**
	(Sig. 2-tailed)	.000

* Significant at .05 level of significance (2-tailed)

** Significant at .01 level of significance (2-tailed)

Innovative leadership of administration and innovative work behavior

The study found a significant positive correlation (.566) between the innovative leadership of the administration and the innovative work behavior of employees. This means that when the administration shows more innovative leadership, employees tend to exhibit more innovative work behavior.

Innovative knowledge of employees and innovative work behavior

The obtained correlation coefficient of .733 on the test of the relationship between the innovative knowledge of employees and their innovative work behavior indicates that they are strongly and positively related.

This denotes that variations in the innovative knowledge of the employees result in corresponding variations in their innovative work behavior. This result implies that when there is a highly innovative knowledge of the employees, they will also exhibit highly innovative work behavior.

Innovative skills and innovative work behavior

A strong positive relationship exists between the innovative skills of employees and their innovative work behavior as shown by the obtained correlation coefficient of .837 which is significant at a .01 level of significance.

The direct relationship implies that when the employees possess a high level of innovative skills, they will also manifest a high level of innovative work behavior and vice versa.

Results and discussions

The study found that innovative leadership (Shah, et al., 2022), knowledge (Maruta, 2012, Allwood, et al., 2004), and skills (Eich, 2022) are significantly related to innovative work behavior of employees. This suggests that employees' innovative behavior is not just their desire, but it is also influenced by leadership and knowledge (Allwood, et al., 2004). Therefore, leaders should prioritize creating an innovative workplace by encouraging new ideas, taking risks, introducing policies, establishing work conditions, and recognizing innovative ideas from employees (Shah, et al., 2022). Additionally, knowledge workers should possess the necessary knowledge to perform their job (Drucker, 1959), but should also be transformed into innovative knowledge workers by creating a creative knowledge environment that motivates them to engage in creative and innovative work (Maruta, 2012). Lastly, employees should possess innovative skills like critical thinking, problem-solving, leadership, and emotional intelligence, which are essential for an organization to flourish in a competitive world (World Economic Forum, 2018, as cited in Eich,

Conclusion

The study aimed to investigate the relationship between innovative leadership, knowledge, and skills of employees and their effect on innovative work behavior. The study found that all of these factors were rated high and were significantly related to innovative work behavior according to the Pearson r correlation. The study concluded that increasing innovative leadership, knowledge, and skills would lead to an increase in innovative work behavior among employees. However, the study acknowledges its limitations due to its limited population and variables. Further research is needed to include a larger population and more variables to explore innovative dimensions and work behaviors.

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All authors have read and agreed to the published final version of the manuscript.

Institutional review board statement: Ethical review and approval were waived for this study, and the research does not deal with vulnerable groups or sensitive issues.

Data availability statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy.

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References

- Abdullah, N.H, Wahab, E. & Shamsuddin, A. (2019). *Creative Self-Efficacy, Innovative Work Behavior and Job Performance Among Selected Manufacturing Employees*. The Journal of Social Sciences Research, 5(2), 291-297. <https://doi.org/10.32861/jssr.52.291.297>
- Aitbar, I. & Saeed, I. (2016). *Impact of Innovative Work Behavior on Strategic Management in Competitive Sector: Role of social media*. Proceedings. Pakistan: MDSRC.
- AlEsa, H.S., Durugbo, C.M. (2021). *A systematic review of innovative work behavior concepts and contributions*. Management Review Quarterly, 72, 1171-1208. <https://doi.org/10.1007/s11301-021-00224-x>
- Allwood, C.M., Hemlin, S., & Martin, B.R. (2004). *What is a creative knowledge environment?* In:

Hemlin, S., Allwood, C.M, & Martin, B.R, editors. Creative knowledge environments. Cheltenham: Edward Elgar, 1–28.

Amabile, T.M. & Khaire, M. (2008). *Creativity and the Role of the Leader*. Harvard Business Review. Retrieved from <https://hbr.org/2008/10/creativity-and-the-role-of-the-leader>

Am, J.B., Jorge, F., Furstenthal, L. & Roth, E. (2021). *Innovation in a Crisis: Why It is More Critical than Ever*. McKinsey & Company. Retrieved from <https://www.mckinsey.com>

Aman-Ullah, A., Mehmood, W., Amin, S., & Abbas, Y.A. (2022). *Human capital and organizational performance: A moderation study through innovative leadership*. Journal of Innovation & Knowledge, 7(4). <https://doi.org/10.1016/j.jik.2022.100261>

Aragon-Correa, J.A., Garcia-Morales, V.J. & Cordon-Pozo, E. (2007). *Leadership and organizational learning's role on innovation and performance: Lessons from Spain*. Industrial Marketing Management, 36(3), 349-359. <https://doi.org/10.1016/j.indmarman.2005.09.006>

Ariola, M.M. (2006). *Principles and Methods of Research*. Manila: National Bookstore

Aurora, A., Belenzon, S., Pataconi, A. & Suh, J. (2019). *Why the U.S. Innovation Ecosystem is Slowing Down?* Harvard Business Review. Retrieved from <https://hbr.org/2019/11/why-the-u-s-innovation-ecosystem-is-slowing-down>

Australian Government (2022). *Build and Sustain an Innovative Work Environment*. Retrieved from https://training.gov.au/TrainingComponentFiles/BSB/BSBINN502_R1.pdf

Ballantyne, R., McLean, S.V., Macpherson, I. (2012). *Knowledge and skills required for creating a culture of innovation: Supporting innovative teaching and learning practices: A review of teaching and teacher education*. Canberra ACT: Australia. Department. of Education, Employment and Workplace Relations

Barsh, J., Capozzi, M.M. & Davidson, J. (2008). *Leadership and Innovation*. The McKinsey Quarterly, 1. 1-47.

Baumgartner, J. (2011). *What is Innovative Leadership?* In Innovation Management. Retrieved from <https://innovationmanagement.se/2011/08/17/what-is-innovative-leadership/>

Blake, R.R. & Mouton, J.S. (1964a) *The managerial grid*. Houston, TX: Gulf
Blake, R.R. & Mouton, J.S. (1985b). *The managerial grid III*. Houston, TX: Gulf.

Castaneda, D.I. & Cuellar, S. (2020). *Knowledge sharing and innovation: A systematic review*. Knowledge and Process Management, 27(3). 159-173. <https://doi.org/10.1002/kpm.1637>

- Chan, T.L. & Rasli, A. (2014). *The Relationship between Innovative Work Behavior on Work Role Performance: An Empirical Study*. Procedia-Social and Behavioral Sciences, 129, 592-600. <https://doi.org/10.1016/j.sbspro.2014.03.717>.
- Contreras, F., Espinosa, J.C., Dornberger, U. & Acosta, Y.A.C. (2017). *Leadership and Employees' Innovative Work Behavior: Test of a Mediation and Moderation Model*. Asian Social Science, 13(9). <https://doi.org/10.5539/ass.v13n9p9>.
- Corbo, G. (2022). *Shaping the Culture at Your Tech Company*. Retrieved from <https://www.forbes.com>.
- Correa, J.A. (2011). *Innovation and competition: An unstable relationship*. Journal of Applied Econometrics, 1, 160-166. <http://www.jstor.org/stable/41337224> RePEc: wly: jammed: v:27: y:2012:i:1:p:160-166.
- de Jong, J. & den Hartog, D. (2008). *Measuring Innovative Work Behavior*. Creativity and Innovation Management, 19(1). <https://doi.org/10.1111/j.1467-8691.2010.00547.x>.
- Drucker, P. (1959). *Landmarks of Tomorrow*. New York: Routledge.
- Eich, D.J. (2022). *Innovation Skills for the Future: Insights from Research Reports*. Innovation Training. Retrieved from <https://www.innovationtraining.org>
- Elidemir, S.N., Ozturen, A., & Bayighomog, S.W. (2020). *Innovative Behaviors, Employee Creativity, and Sustainable Competitive Advantage: A Moderated Mediation*. Sustainability, 12, 3295. <https://doi.org/10.3390/su12083295>.
- Firdaus, A. & Sakinah, S. (2023). *Relationship between Innovative Work Behavior, Competitive Advantage and Business Performance*. Jurnal Manajemen dan Sains, 7(2), 1386. <https://doi.org/10.33087/jmas.v7i2.982>
- Fleenor, J.W. (2011). *Trait Approach to Leadership*. In *Encyclopedia in Industrial and Organizational Psychology*. California: SAGE Publications.
- Gardner, J. W. (1989). *On leadership*. New York: Free Press.
- 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 & Organizational Development Journal, 39(6), 694-711. <https://doi.org/10.1108/LODJ-12-2017-0399>.
- Ginting, Y.M., Effendi, Rahman, H. & Devianto, D. (2019). *Innovation and Knowledge*

- Gliddon, D.G. (2006). *Forecasting a Competency Model for Innovation Leaders Using a Modified Delphi Technique*. Unpublished Dissertation. Pennsylvania: The Pennsylvania State University.
- Global Innovative (2015). *Competition and Innovation*. Rotterdam: Erasmus.
- Gold, E.R. (2021). *The Fall of Innovation Empire and Its Possible Rise Through Open Science*. *Research Policy*, 50(5). <https://doi.org/10.1016/j.respol.2021.104226>
- Gluck, F.W., Kaufman, S.P., & Waleck, S. (1980). *Strategic Management for Competitive Advantage*. *Harvard Business Review*. Retrieved from <https://hbr.org>
- Hana, U. (2013). *Competitive Advantage Achievement through Innovation and Knowledge*. *Journal of Competitiveness*, 5 (1), 82-96. <https://doi.org/10.7441/joc.2013.01.06>
- Harter, N. (2008). *Great man theory*. In: Marturano, A. & Gosling, J. (eds.) *Leadership: the key concepts*. London: Routledge, pp. 67-71.
- Hero, L.M., Lindfors, E., & Taatila, V. (2017). *Individual Innovation Competence: A Systematic Review and Future Research Agenda*. *International Journal of Higher Education*, 6(5). <https://doi.org/10.5430/ijhe.v6n5p103>
- Hesselbein, F. (2010). *How Did Peter Drucker See Corporate Responsibility?* *Harvard Business Review*. Retrieved from <https://hbr.org/2010/06/>
- Hon, A.H.Y. & Lui, S.S. (2016). *Employee Creativity and Innovation in Organizations: Review, Integration, and Future Directions for Hospitality Research*. *International Journal of Contemporary Hospitality Management*, 28(5). 862-885. <https://doi.org/10.1108/IJCHM-092014-0454>
- Hurduzeu, R.E. (2015). *The Impact of Leadership on Organizational Performance*. *SEA-Practical Application of Science*, 1(7). <https://doi.org/10.1177/21582440211061530> RePEc:cmj:seapas:y:2015:i:7:p:289-294
- Jankelová, N., Joniaková, Z., & Mišún, J. (2021). *Innovative work behavior: A key factor in business performance?* The role of team cognitive diversity and teamwork climate in this relationship, *Journal of Risk and Financial Management*. MDPI, Basel, 14(4), 1-16, <https://doi.org/10.3390/jrfm14040185>.
- Janssen, O. (2000). *Job demands, perceptions of effort-reward fairness and innovative work*

- Abun et al., *Divine Word International Journal of Management and Humanities* 2(2)(2023) 416-435
behavior. Journal of Occupational and Organizational Psychology, 73(3), 287–302.
<https://doi.org/10.1348/096317900167038>
- Jing, F.F. & Avery, G.C. (2008). *Missing Links in Understanding the Relationship Between Leadership and Organizational Performance*. *International Business & Economics Research Journal*, 7(5). <https://doi.org/10.19030/iber.v7i5.3256>
- Jin, S, Li, Y, & Xiao, S. (2022). *What Drives Employees' Innovative Behaviors in Emerging-Market Multinationals? An Integrated Approach*. *Frontier in Psychology*, 12, 803681. <https://doi.org/10.3389/fpsyg.2021.803681>
- Johannessen, J.A. & Skaalsvik, H. (2014). *Innovative leadership in organizations: The road to innovation performance*. *Problems and Perspectives in Management* 12(2), 139-152. <https://doi.org/>
- Karamat, A.U. (2013). *Impact of Leadership on Organizational Performance*. Unpublished Thesis. The Open University and Jisc
- Khan, Z.A, Nawaz, A. & Khan I.U. (2016). *Leadership theories and styles: A literature review*. *Journal of Resources Development and Management*, 16, 1-7.
- Kim, M.D. (2023). *Investigating the Relationships between Innovation Skills and Business Performance*. *International Journal of Advance Innovation, Thoughts & Ideas*, 12(1), 200.
- Kouzes, J. and Posner, B. (1995). *The leadership challenges*. San Francisco, CA: Jossey-Bass
- Lawrence, N.I. (2013). *Environmental Dynamics, Organizational Adaptation, and Business Effectiveness in Nigeria*. *An International Journal of Arts and Humanities*, 2(2), 316-338.
- Lewin, K., Lippitt, R. & White, R. (1939). *Patterns of aggressive behavior in experimentally created social climates*. *Journal of Social Psychology*: 271–301. <https://doi.org/10.1080/00224545.1939.9713366>
- Leedy, P.D. (1974). *Practical research: planning and design*. New York: Macmillan
- Leiponen, A. (2005). *Skills and Innovation*. *International Journal of Industrial Organization*, 23(5-6), 303-323. <https://doi.org/10.1016/j.ijindorg.2005.03.005>
- Lieberson, S. & O'Connor, J.F. (1972). *Leadership and Organizational Performance: A Study of Large Corporations*. *American Sociological Review*, 37(2), 117-130. <https://doi.org/10.2307/2094020>
- Li, Z., Xiao, Y. & Qiong, J. (2009). *Network Effects of Knowledge Diffusion in Network Economy*. In *Encyclopedia of Information Science and Technology* (Second edition). Pennsylvania:

- Li, W., Gill, S. A., Wang, Y., Safdar, M. A., & Sheikh, M. R. (2022). *Proactive Personality and Innovative Work Behavior: Through the Juxtapose of Schumpeter's Theory of Innovation and Broaden-And-Build Theory*. *Frontiers in Psychology*, 13, 927458. <https://doi.org/10.3389/fpsyg.2022.927458>
- Lv J, Chen W and Ruan Y (2021). *The Impact of Calling on Employee Creativity: Evidence from Internet Companies*. *Frontier in Psychology*, 12, 773667. <https://doi.org/10.3389/fpsyg.2021.773667>
- Maruta, R. (2012). *Transforming knowledge workers into innovation workers to improve corporate productivity*. *Knowledge-Based System*, 30, 35-47. <https://doi.org/10.1016/j.knosys.2011.06.017>
- Mihaela, T. (2021). *The Impact of Leadership on Innovation in Organizations*. Austria: ICR Management
- Mubarak, E. (2014). *Innovative leaders and their effects on an organization's performance*. *International Journal of Scientific & Engineering Research*, 5(11).
- Murphy, P. K., & Mason, L. (2006). *Changing Knowledge and Beliefs*. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology* (pp. 305–324). Lawrence Erlbaum Associates Publishers.
- Musneh, S.N., Ambad, N.A., & Roslin, R.M. (2021). *The Effect of Innovative Work Behavior on the Performance of Service Sector SMEs in Sabah*. *Journal of International Business, Economics and Entrepreneurship*, 6(1).
- Maceika, A. & Janciauskas, B. (2012). *Innovative knowledge: The importance and functionality in the present and future enterprises*. Retrieved from <https://www.researchgate.net>
- Marron, J.M. & Cunniff, D. (2014). *What is an Innovative Education Leader?* *Contemporary Issues in Education Research*, 7(2). <https://doi.org/10.19030/cier.v7i2.8485>
- McCombes, S. (2020). *Descriptive Research*. Scibbr. Retrieved from <https://www.scribbr.com/methodology/descriptive-research/>
- Merriam-Webster. (n.d.). Innovation. In *the Merriam-Webster.com dictionary*. Retrieved May 1, 2022, from <https://www.merriam-webster.com/dictionary/innovation>
- Moen, Q., Tvedten, T. & Wold, A. (2019). *Exploring the relationship between competition and innovation in Norwegian SMEs*. *Cogent Business and Management*, 5, 1564167.

- Mumford, M. D, & Licuanan, B. (2004). *Leading for innovation: Conclusions, issues, and directions*. The Leadership Quarterly, 15, 163-171.
<https://doi.org/10.1016/j.leaqua.2003.12.010>
- Nguyen, T.P.L., Nguyen, K.N., Doa, T.D. & Nguyen, T.T.M. (2019). *Knowledge sharing and innovative work behavior: The case of Vietnam*. Uncertain Supply Chain Management, 7, 619-634. <https://doi.org/10.5267/j.uscm.2019.5.001>
- Nödl, B. (n.d). *The Influence of Leadership Behavior on Innovative Work Behavior: The Case of Pharmaceutical Company in Germany*. Unpublished Master Thesis. Germany: University Twente.
- Ogunjim, A.O. (2020). *Innovative Thinking Skills for 21st Century Librarians*. In Managing and Adapting Library Information Services for Future Users. Pennsylvania: IGI Global Publisher of Timely Knowledge
- O'Neil, D.P. (2007). *Predicting Leader Effectiveness: Personality Traits and Character Strengths*. Dissertation, Duke University. Retrieved from <https://hdl.handle.net/10161/385>
- O'Sullivan, D. & Dooley, L. (2008). *Applying Innovation*. New York: SAGE Publishing.
- Paavola, S., Lipponen, L. & Hakkarainen, K. (2004). *Models of Innovative Knowledge Communities and Three Metaphors of Learning*. Review of Educational Research, 74(4), 557–576. <https://doi.org/10.3102/00346543074004557>
- Park D. H., Kim S. (2008). *The effects of consumer knowledge on message processing of electronic Word-of- Mouth via online consumer reviews*. Electronic Communication Research Application, 7, 399–410. <https://doi.org/10.1016/j.elerap.2007.12.001>
- Price, D.P., Stoica, M. & Boncella, R. (2013). *The Relationship between Innovation, Knowledge and Performance in Family and non-Family Firms: An Analysis of SMEs*. Journal of Innovation and Entrepreneurship, 2(14). <https://doi.org/10.1186/2192-5372-2-14>
- Purwadita, C.P., Sudiro, A., Mugiono, M., Idris, I. (2018). *Innovation in Leadership and Team Performance: Evidence from Indonesia Property Agent Industry*. Management and Economics Journal (MECJ), 2(2). <https://doi.org/10.18860/mec-j.v0i1.5221>
- Rost, J. (1991). *Leadership for the twenty-first century*. Westport, CT: Praeger
- Sarvi, J.E. & Hitendra, P. (2015). *Innovations in Knowledge and Learning for Competitive Higher Education in Asia and the Pacific*. Mandaluyong City: Asian Development Bank.

- Scardamalia, M. & Bereiter, C. (2014). *Education for Innovation: Beyond '21st Century Skills'*. Educational Technology, 54(1), 61-63. <https://www.jstor.org/stable/44430243>
- Shah, S.T.H., Shah, S.M.A. & El-Gohary, H. (2022). *Nurturing Innovative Work Behavior through Workplace Learning among Knowledge Workers of Small and Medium Businesses*. Journal of the Knowledge Economy, 13(4). <https://doi.org/10.1007/s13132-022-01019-5>
- Singh, P.J. & Power, D. (2013). *Innovative Knowledge Sharing, Supply Change Integration, and Firm Performance of Australian Manufacturing Firms*. International Journal of Production Research, 52(21). <https://doi.org/10.1080/00207543.2013.859760>
- Singh, A.P. (2009). *Personality Traits as Predictor of Leadership Effectiveness among IT Professionals*. Indian Journal of Social Science Research, 6(2), 57-62.
- Spreitzer, G. (1995). *Psychological Empowerment in the Workplace: Dimensions, Measurement and Validation*. Academy of Management Journal, 38(5), 1442-1465. <https://doi.org/10.2307/256865>
- Stogdill, R.M. (1948). *Personal factors associated with leadership: a survey of the literature*. Journal of Psychology, 25, 35-71. <https://doi.org/10.1080/00223980.1948.9917362>
- Suarez, F.F. & Lanzolla, G. (2007). *The Role of Environmental Dynamics in Building a First Mover Advantage Theory*. The Academy of Management Review, 32(2), 377-392. <https://doi.org/10.2307/20159307> <https://www.jstor.org/stable/20159307>
- Susilo, H. (2019). *Improving Innovative Work Behavior and Organizational Performance through Workplace Spirituality and Perceived Organizational Support*. Proceedings of the Annual International Conference of Business and Public Administration. Amsterdam: Atlantis Press. <https://doi.org/10.2991/aicobpa-18.2019.24>
- Tannenbaum, R. & Schmidt, W.H., (1973). *How to choose a leadership pattern*. Harvard Business Review, May-June.
- The New Oxford Dictionary of English (1998). *Innovation*. United Kingdom: Oxford University Press
- Toegel, G. & Jean-Louis Barsoux, J.L. (2013). *How Personality Plays a Role in Effective Leadership*. Switzerland: IMD
- van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M., & de Haan, J. (2020). *Determinants of 21st- Century Skills and 21st-Century Digital Skills for Workers: A Systematic*

- West, M. A., & Farr, J. L. (1990). *Innovation and Creativity at Work*. Oxford: John Wiley & Sons
- Wilkinson, D. (2000). *The Researcher's Toolkit: The Complete Guide to Practitioner Research*. London: Routledge.
- World Economic Forum (2018). *The Future of Job Reports*. Retrieved from <https://www.weforum.org/reports/global-risks-report>
- Wrahatnolo, T. and Munoto (2019). *21st-century skill implication on the educational system*. Surabaya: IOP Publishing. <https://doi.org/10.1088/1757-899X/296/1/012036>
- Wu, W., Liu, Y., Zhang, Q. & Yu, B. (2019). *How innovative knowledge assets and firm transparency affect sustainability-friendly practices*. Journal of Cleaner Production, 229, 32-43. <https://doi.org/10.1016/j.jclepro.2019.05.007>

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