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AN EMPIRICAL STUDY ON THE MEDIATING EFFECT OF TRANSFORMATIONAL LEADERSHIP ON THE RELATIONSHIP BETWEEN KNOWLEDGE SHARING AND INNOVATION

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Mediating Effect of Transformational Leadership on The Relationship Between Knowledge Sharing and Innovation

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ABSTRACT

The growing obligation for knowledge, innovation, and information has had far reaching effects in the fields of psychology, technology, economics, and society. Significant challenges, such as globalisation, the rise of knowledge-based economies, fierce rivalry, and rapid technology advancements, threaten the survival of many businesses today. The goal of this research is to learn how frequent information exchange among employees drives innovation. Furthermore, the role of transformational leadership as a mediator between these two variables will be evaluated.

Three hundred employees from all types of businesses participated in the survey. This research which used SPSS Version 28 to analyse the collected data, verifies the two-way connection between knowledge sharing and innovation in the form of a recurring cause-and-effect relationship and investigates the mediating role of transformational leadership. In order to promote knowledge sharing practises and, ultimately, increase innovation levels within their establishment, this study encourages managers to reflect on their tacit method of managing employees by employing leadership characteristics such as idealised influence, intellectual stimulation, inspirational motivation, and individualised consideration.

Keywords

Knowledge Sharing, Transformational Leadership, Employee innovation, Innovation

INTRODUCTION

In today's swift changing business climate, innovation has become the cornerstone of any enterprise. The pace of innovation, enabled by rapidly expanding technology, shorter product lifecycles, and a quicker rate of new product invention, has altered the nature of global economic growth. Businesses must constantly identify innovative opportunities and threats arising from within and outside their firm's boundaries, as well as sense and leverage knowledge about these opportunities and threats (Hock-Doepgen et al., 2021) to reduce uncertainty and improve their ability to make well-informed, innovative decisions (Phelps et al., 2012). According to empirical evidence and academic research, organisations that promote a culture of innovation and encourage personnel at all levels to be innovative have been shown to perform better in both domestic and international markets. (e.g., Yiu et al., 2020).

While knowledge tools and technology that facilitate use, sharing, and contribution are valuable and necessary enablers of innovation, the full potential of knowledge sharing to improve the innovative impact of various organisations will not be realised until the

institutional culture changes (Fayyaz et al., 2022). As a result, further research is needed to address the major drivers of innovative cultures, such as values, behaviours, and incentives that encourage individuals of an organisation to exchange knowledge with one another.

This study discusses the impact of knowledge sharing on innovation, considering that the presence of these practises is required but not sufficient condition for achieving maximum innovative effectiveness. From this current perspective, the author will examine how transformational leadership as a mediating element may affect the way an organisation that employs knowledge sharing practises can promote innovation.

LITERATURE REVIEW

To establish the context for the proposed study, this section reviews the key concepts of knowledge sharing and innovation, as well as their relationship. Additionally, the underlying mediating variable is examined, with a focus on transformational leadership.

Innovation

Innovation is a term that is taken from the Latin word *Innovare*, this meaning "into new". In business, "innovation" is a buzzword that frequently comes to represent something novel, risky, expensive, and time-consuming for firms (Vera-Baquero et al., 2015). Businesses need innovations, which may be implemented as a process, strategy, and management method (Alawamleh et al., 2018). There is no one, definitive definition of innovation, and the several definitions that exist frequently overlap. As the progenitor of the innovation theory, Schumpeter defined innovation as "the economic effect of technical progress, as the employment of novel combinations of existing productive forces to address the problems of business (Schumpeter, 1982).

Studies on promoting innovation in the workplace often see employees as a hub for new ideas (Amabile, 1996; Yuan & Woodman, 2010; Perry-Smith & Mannucci, 2017). Recent research, however, suggests that employees are not only the source of innovative ideas but also instrumental in the processes of developing innovations and implementing them in organisations, processes that frequently occur outside of innovation-specific departments (Høyrup, 2012; Li & Hsu, 2016; Johnsson, 2017). Human resource management, psychology, economics, strategy, marketing, and technology management all have extensive discussions on the topic of employee engagement in innovation. Although there have been studies on employee innovation, they have often focused on individuals who perform specialised innovation roles inside an organisation, such as researchers and developers (Smith et al., 2012). Recent studies on innovation, however, suggest that "ordinary" employees (those not in management or research and development; the existing literature refers to them as "ordinary") are important sources and drivers of innovation even though they are not formally assigned innovation tasks (Islam & Bhuiyan, 2022). Daily improvements, incremental innovation, and radical business innovation are all attributed to them (Zacher and Wilden, 2014; Sok and O'Cass, 2015). Yet, this problem has received little attention in innovation handbooks and innovation management publications (Dodgson et al., 2014).

Knowledge Management and Innovation.

Knowledge management is defined as a planned, structured approach to managing the generation, sharing, collecting, and leveraging of knowledge as an organisational asset to improve a company's ability, speed, and effectiveness in delivering products or services to consumers in accordance with its business strategy (Di Vaio et al., 2021). Knowledge

management is not only concerned with innovation; rather, it fosters an atmosphere conducive to innovation.

Knowledge management plays an important role in innovation by facilitating the exchange and preservation of tacit knowledge. Tacit knowledge exchange is crucial for an organisation's ability to innovate (Cavusgil et al., 2003). According to the authors, organisations with high innovation potential use a learn by doing approach that makes it challenging for rivals to acquire and reproduce this know how in the market. Another crucial role of knowledge management in innovation is the facilitation of teamwork. Collaboration, both inside and outside of the organisation, is notably important in the transmission of tacit knowledge and the development of collective know-how (Ganguly et al., 2019; Hutahayan, 2020; Chung et al., 2018). The greater the strength of the relationship between collaboration partners, higher the level of tacit knowledge transmission. Gathering tacit knowledge from collaboration partners can decrease risk and expense in innovation by assuring a first-time right approach, hence reducing development cycles, and ensuring successful innovation (Cavusgil et al., 2003).

Furthermore, through managing numerous activities in the knowledge management lifecycle, knowledge management influences the innovation process. According to Chen et al. (2021), knowledge integration indicates that timely insights may be made accessible to be pulled at the correct juncture for sense making, i.e., knowledge can be exchanged, shared, evolved, refined, and made available at the moment of need. Without appropriate information and knowledge management to support knowledge integration, the organisation risks using knowledge inefficiently as a resource for innovation. Knowledge integration is required to realise the potential advantages of knowledge, as information without integration hardly delivers insight or comprehensive representation (Zafar et al., 2019).

Knowledge Sharing

Knowledge sharing, which is defined as the individual action of including the exchange of information with others and the generation of new knowledge in tandem with others, is essential in achieving organisational and personal objectives (Abukhait et al., 2019; Le & Lei, 2019). Employees benefit from knowledge sharing because it communicates a lack of competitiveness, promotes expectations of reciprocity and reputation impacts, and motivates others to develop (Bogers et al., 2017). An open information-sharing system that is supported and promoted by top management is advantageous for innovation (Mahi et al., 2022), according to Vera and Crossan (2005), increased levels of innovative work behaviour engagement are expected if employees believe that information about the organisation's goals and objectives is being shared. Open knowledge sharing is essential to mitigating the inherent risks of an innovative and spontaneous process. This is because personnel who are aware with the organisation's aims will be more driven to contribute to its success.

The openness of organisational components when it comes to organisational information may be rewarded by employees' innovative approaches to achieving the organisation's goals. Kianto et al., (2017) found that ineffective communication and a failure to foster knowledge sharing among staff members led to unfavourable outcomes. Sharing knowledge and experience may enhance people's perceptions of fairness, support, and trust (Keskes, 2014). If workers think their employer trusts and supports them and treats them properly, they may show their appreciation through innovative actions. By sharing and making available what is already known, sharing this knowledge increases its power.

Obeidat et al., (2016) stated that it is critical to have effective management control mechanisms in place, such as having reportable timeframes for knowledge sharing and concentrating on the necessity of knowledge sharing. This motivates employees to share their

knowledge in a manner that lessens the impact of turnover, stale information, and knowledge depreciation on the firm's relational capital. Muhammed and Zaim (2020) argue that to fully appreciate knowledge sharing, it must be understood as a collaborative process of knowledge generation in which all involved participants actively participate by making sense of and assigning meaning to a variety of occurrences. Hence, it is not merely a process of transmitting knowledge from one person to another. The act of sharing one's knowledge is affected by a variety of elements, including chances to share, the incentive to share factor, the nature of the knowledge itself, the character of the person, and the velocity of the organisation.

Transformational Leadership

Transformational leaders encourage and motivate their staff to interact effectively with each other in the interest of helping the organisation thrive (Bass, 1985; AL-Abrow et al., 2021). Burns' (1978) theory of transformative leadership at the individual and organisational levels which has been improved upon and validated by Bass (1985, 2002) stated that leaders have four primary traits that both attract and influence employees. To be genuinely transformative, a manager must focus significant emphasis on the individual interests, needs and potential (Bass et al., 2003). There are three main phases of leadership, according to the theory of leadership. People-oriented duties such as encouraging, appraising, and motivating others come under this category. Second, there is group-level leadership, which focuses on team dynamics and incorporates things like team building and dispute resolution. Organisational leaders are accountable for developing a business culture that is shared by all workers (Huber, 2006).

Transformative leaders foster a positive work environment by engaging with their employees, learning about their priorities, and providing them with the resources they need to succeed (Slatten & Mehmetolu, 2015). A transformational leader does this through influencing their team members' needs, beliefs, and values to bring about the essential shifts and improvements. Evidently, Bass (1985, 1990) described transformational leadership with four characteristics: idealised influence (providing a vision and perception of mission, instilling pride, gaining respect and trust), intellectual stimulation (focusing on promoting intelligence, rationality and careful problem solving), inspirational motivation (referring to activities like communicating high expectations, using symbols to focus efforts, expressing important purposes in simple ways) and individualised consideration (giving personal attention, treating each employee individually, coaching and advising) (giving personal attention, treating each employee individually, coaching and advising). Earlier research has demonstrated the transformational leadership's considerable effect on innovation capabilities at both individual and organisational level (e.g., Anderson et al., 2014; Chen et al., 2014; Schuckert et al., 2018; Le and Lei, 2019). According to Jung et al. (2003), transformational leadership has a considerable and favourable impact on an individual's capacity to innovate since it is mediated by an environment that encourages innovative thinking and experimentation.

Mediating role of Transformational leadership

According to Srivastava et al. (2006), leadership may not directly contribute to the formulation and attainment of organisational goals; but leadership's contribution to how knowledge management process, such as knowledge sharing may impact organisational performance. A competent leader would have the ability to persuade team members to begin a knowledge management process, which includes creating and sharing new information. When a leader can inspire their team to utilise the organisation's knowledge in accordance with the vision, they may increase the value and quality of the organisation's knowledge and better realise its goals and aspirations (Landis et al., 2015).

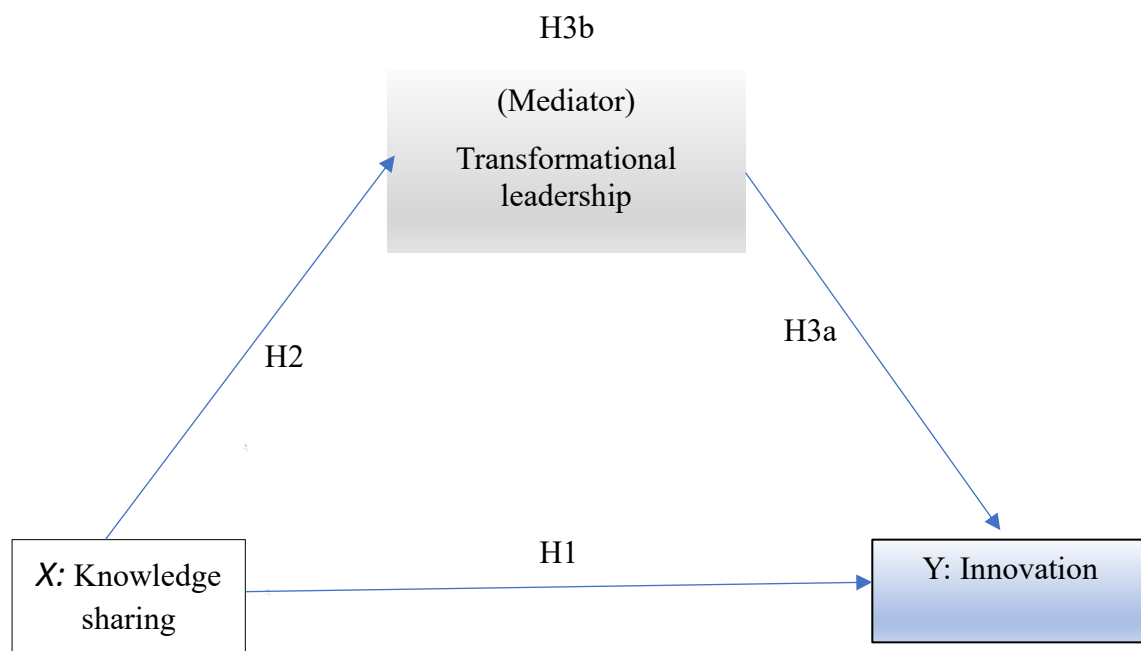
Transformational leadership may foster an atmosphere conducive to the generation and implementation of novel ideas that fuel the growth of an organisation's capacity for innovation (Van De Ven, 1986). Because leaders are responsible for providing support, encouragement, and guidance in knowledge management to achieve organisational objectives, Pellegrini et al., (2020) argued that the influence by transformational leadership characteristics, from the motivation and communication aspects, on knowledge management practises could improve an organisation's performance when delivering innovations.

Meanwhile, businesses may improve their competitiveness via innovations by combining innovative activities with knowledge sharing (Naqshbandi & Jasimuddin, 2018). The innovative efforts of employees engaged in the organisation's structure of sharing knowledge may benefit from the orientation provided by leaders who can bring about change. A leader that exhibits the qualities of idealised influence would have the ability to sway the followers of their organisation. In addition, a leader who can inspire others may encourage team members to be more innovative in how they use the organisation's resources to accomplish its goals. Transformative leaders' use of mental stimulation may encourage original thought and the exploration of novel ideas (Day et al., 2014).

THEORETICAL FRAMEWORK AND HYPOTHESES

Drawing on important data from earlier research, we provide a theoretical framework (Figure 1) that analyses the knowledge sharing process's effect on innovation more broadly. Our model is based on research by Al-Husseini et al. (2019) that found that transformational leadership qualities like idealised influence, inspirational motivation, intellectual stimulation, and individual consideration play a significant role in knowledge sharing and innovation systems in a variety of industries.

Figure 1. Theoretical framework: Knowledge sharing process and its influence on innovation.



Sharing knowledge and information inside and across firms is useful since it may encourage improvements in others, may result in a favourable standard, indicates low competition circumstances, and leads to expectations of reciprocity and reputation impacts

(Lichtenthaler, 2011). It has been discovered that an open system of information sharing is advantageous for innovation, particularly when it is supported and encouraged by top management (Bos-Nehles & Veenendaal, 2019). According to Van Wijk et al., (2008), open information sharing is an important feature of participating in innovation processes since the risks of engaging in innovative and spontaneous processes are high. There is a correlation between the extent to which employees believe knowledge is being shared and their willingness to take risks and contribute innovatively to the success of the company.

Employees may respond positively to the openness of organisational actors regarding sharing knowledge about the organisation, which might lead to the development of novel approaches to attaining the organisation's objectives. Employees may see an organisation as being procedurally unfair if it fails to communicate its objectives and encourages workers to share knowledge (Boxall & Purcell, 2022). By disseminating facts and figures, people are more likely to feel that they have a shared sense of justice, support, and trust (Pinder, 2014). This kind of discussion is most effective during the idea's championing phase, but it may benefit at any point (Qin et al., 2012). Employees may feel obligated to "pay it forward" (McElroy, 2001) through innovative actions if they are trusted, supported, and treated properly by their organisation. The above discussion leads to our first hypothesis.

Hypothesis 1: a) There is a significant relationship between team knowledge sharing and innovation, where increase in team knowledge sharing increases value creations and achievements in innovation.

Employees' knowledge sharing process is critical to the growth of a company's knowledge capital, but it does not happen by chance. Evidence from the past studies suggests that leaderships influence and backing may significantly affect employees' openness to sharing what they know and how much they are willing to share it (Le & Lei, 2017; Lei et al., 2019; Srivastava et al., 2006). Transformational leaders, as shown by Gui & Le (2022), expands a set of values and expectations related to knowledge and information sharing, so creating a good culture for fostering knowledge sharing. Leaders that are transformational emphasize on issuing a vision and a sense of purpose or on developing a culture of trust and organisational fairness (Le & Lei, 2017; Masa'deh et al., 2016) to create an environment where workers feel comfortable sharing what they've learned. Under transformational leadership, employees are more likely to proactively share and acquire information from their co-workers to foster innovation, as noted by Choi et al. (2016), they are also, are more likely to take risks and share their specialised knowledge with colleagues (Xiao et al., 2017).

Masood and Afsar (2017) postulate that transformational leaders have an impact on their followers' affinity for and implementation of innovative actions, which in turn helps the organisation achieve its goals. To reach its greatest potential, this type of leadership aims to raise the bar for the personnel it leads and the standards and inspiration it offers to those who follow it (Mokhber, 2015). The idealised impact of transformational leaders allows them to inspire a shared commitment to the organisation's vision and goals, as well as the trust and respect of their subordinates (Sharma & Kirkman, 2015). These traits inspire others under one's leadership to work hard and think innovatively. Leaders may inspire their teams to meet performance goals by fostering an environment that encourages open communication and mutual support. They mould the future, rally enthusiastic support for that future, and create a setting conducive for innovation. Transformational leaders inspire their people to question long-held notions and traditional methods by presenting them with opportunities for critical analysis and ingenuity (Northouse, 2021). People are more likely to come up with novel solutions to problems if they are given the opportunity to reflect and feel that their input is appreciated (Zhang & Bartol, 2010). Transformational leaders develop interpersonal

connections with their followers and examine their needs, skills, and goals in a manner that fosters innovation by employing individualised consideration. A leader's ability to inspire and guide his or her people to try new things greatly increases the likelihood of successful innovations being implemented (Kelloway et al., 2012). The arguments above highlight the significance of transformative leadership effect on knowledge sharing. Nevertheless, Le and Lei (2017b) argue that there is still a lack of depth and breadth in the relationship between transformative leadership and certain aspects of knowledge sharing. So, we conduct this research to bolster and further explain the impact of transformative leadership on knowledge acquisition and dissemination. The above discussion leads to the second hypothesis.

Hypothesis 2: knowledge sharing is significantly related to transformational leadership in innovation, where increases in leaders' recognitions of team value and achievements leads to an increase knowledge sharing.

Higher productivity was cited as an advantage of team knowledge sharing by Kirkman and Rosen (1999), while Parker (2014) cited work satisfaction and organisational commitment as additional benefits. Even while these benefits may be responsible for the growing popularity of teamwork, the trend may be rationalised from a knowledge management standpoint as well. One of the classic benefits of teamwork is that individuals' skills and expertise may complement one another when organised in this manner (Hamilton et al., 2003). When members of a group share information that is both unique to them and useful to the group, a synergy results, and new, more expert knowledge is created (Kianto et al., 2017b). What happens in such a team is that a type of collective knowledge is developed, which necessitates the transfer and integration of the individuals' knowledge (Al-Omouh et al., 2020), and while it ultimately resides in the individuals, it is more than the sum of what everyone knows or can do (Becker and Murphy, 1992). It is impossible for one person to take on all the tasks required to enhance and innovate the group's operations. Only through bringing together people with diverse and complementary talents and viewpoints, as well as creating cooperation among them, can this process be completed and improvements and innovations implemented (Ode & Ayavoo, 2020).

According to research by Liu and Li (2018), transformational leaders have a crucial role in establishing and maintaining an environment conducive to innovation inside an organisation. To improve an organisation's innovation capability and performance, scholars have argued that leaders should put an emphasis on transformational leadership practises (Le and Lei, 2018; Hui et al., 2018). This is because such practises foster a climate of trust among employees (Naqshbandi & Jasimuddin, 2018; Naqshbandi et al., 2019). It has recently been shown by Le and Lei (2019) that transformational leaders are effective in creating a conducive environment for knowledge sharing among team members and workers, which in turn increases the organisation's direct and indirect innovation capacity. This leads to our third hypothesis.

Hypothesis 3: a) Transformational leadership is significantly related to innovation, where increases in leaders' employee motivation and recognitions of team value leads to an increase innovation. b) Transformational leadership mediates the relationship between Knowledge sharing and innovation.

The current study lays the framework for future research into the relationship between knowledge sharing and innovation in a more comprehensive way by examining the reliability of the proposed theoretical model and the high order hypothesis surrounding the sets of variables.

METHODS

Study Instruments and Measures

Data for this quantitative study was gathered primarily via the use of a closed-ended questionnaire survey. To determine the research constructs, an extensive literature analysis on transformational leadership, knowledge management, and innovation was done to develop the questionnaire. This research attempts to shed light on how managers use transformational leadership principles to promote the adoption of knowledge sharing techniques among staff members for the purpose of fostering innovation.

Using Bass and Avolio's multifactor leadership questionnaire (MLQ), we derived 20 items related to transformational leadership. Tyagi (2013) highlighted MLQ as one of the most extensively used leadership-related questionnaires, we were confident that all selected questions from the MLQ would be applicable to the current research. Furthermore, the knowledge sharing items were organised along two dimensions: knowledge sharing among workers and knowledge sharing between managers and employees. The two domains of knowledge sharing practise served as the basis for the development of a total of 10 items. The innovation scale (dependant variable) used in this research, however, was adapted from Prajogo and Sohal (2004) and Wang et al. (2011).

The instruments used for data gathering are five-point Likert scales with 1 = Strongly Disagree and 5 = Strongly Agree scoring. In the databases, the data sets are represented as ratio data. The dependent variable, turnover intentions, was measured using scales (Jex et al., 2006). The data measurements of the other sets vary depending on the nature of the data. Demographics, for example, are identified by nominal values, experience by scale values, and nations by strings such as 1 for the United Kingdom, 2 for EU countries, and so on. In addition to the independent and dependent variables, descriptive analysis was performed to describe the characteristics of the sample and the respondents to the questionnaires. The study hypotheses were also tested using multiple regression analysis.

Data Collection

We distributed questionnaires to a specific group of individuals who are currently working in organisations in the UK, these organisations are either be big, medium, or small, while some were privately owned, public institutions, or large multinational corporations. There was a total of 300 questionnaires collected from respondents for analysis.

Considering this study does not focus on a specific type of employment or business, a cluster sampling technique was utilised to collect data from managers, supervisors, team leaders, and regular employees. Due to its suitability for large population research, this sampling approach was adopted, with the total sample population separated into clusters depending on the role employees held within their organisation. A link to the Internet questionnaire was emailed to each organisation's management, and other staff members agreed to distribute the survey to their colleagues.

Reliability and validity

A reliability test is used to confirm the internal consistency of items measuring the same concept. Cronbach's Alpha is a commonly used measure to assess dependability, and a value of more than 0.6 is considered appropriate for any scale (Drost, 2011). The average Cronbach's alpha coefficient for all variables assessed in this study is 0.9, indicating that the composite measure is reliable. Moreover, the items used to assess the independent and dependent variables

were verified and reused from prior studies. As a result, the researchers relied on a pre-existing scale produced by other academics to improve the validity of the scale.

In this study, three main stages have been proposed for the data analysis. First, the content and the relevance of the multi-item scales were refined. Second, scales were validated using confirmatory factor analysis (CFA) via structural equation modelling (SEM). Finally, hypotheses were tested using Hierarchical Multiple Regression.

RESULTS

Test Results of the Direct Relationship

First, the study tested the Direct Relationship between team (info-knowledge) sharing and innovation orientations, where it was found that team motivation for knowledge sharing is significantly related to innovation that was oriented towards: tasks ($b = 0.187$, $e = 0.069$, $p < 0.007$); goals and value ($b = 0.22$, $e = 0.067$, $p < 0.001$); motivation for changes ($b = 0.214$, $e = 0.07$, $p < 0.002$); and achievements with recognitions ($b = 0.18$, $e = 0.071$, $p < 0.012$). However, team motivation had no significance on the variables of developing attitude, spirit, flexibility, and follower behaviour. The findings support the first Hypothesis 1: *a) There is a significant relationship between team knowledge sharing and innovation, where increase in team knowledge sharing increases value creations and achievements in innovation.*

Test Results of the Mediation Effect

Second, the study tested the *mediation effect* of the transformational leadership on the direct relationship between team sharing and outcome variables related to innovations. The results revealed that once the mediator of transformational leaders is in place, several changes incurred, where innovation orientations towards goals and changes became insignificant, and the transformational leaders, explained by decision orientation towards encouraging sense of team and collective effort, in effect, negatively related to the variable of team attitude and spirit development (though it is marginally significant, $b = -0.186$, $e = 0.103$, $p = 0.073$), possibly due to a gap in the leadership area. However, continually, the variables of achievement and creativity orientation ($b = 0.34$, $e = 0.111$, $p = 0.003$) remain positive and significant, where transformational leadership is positively related to moral ethical decisions ($b = 0.227$, $e = 0.085$, $p = 0.009$) and, more importantly, positively related to the independent variable of team sharing (information or knowledge) ($b = 0.26$, $e = 0.09$, $p = 0.005$). The findings support the second hypothesis.

Hypothesis 2: *knowledge sharing is significantly related to transformational leadership in innovation, where increases in leaders' recognitions of team value and achievements leads to an increase knowledge sharing.*

Table 3: The Model and Hypotheses Test Results

	Model 1 (Direct effect)			Model 2 (Mediation effect)			Model 3 (Model effect)		
	B	Std. Error	Sig	B	Std. Error	Sig	B	Std. Error	Sig
(Constant)	1.155	(0.246)	[0.000]	0.137	(0.439)	[0.756]	3.15	(0.884)	[0.001]
Task value oriented	0.187	(0.069)	[0.007]	0.076	(0.103)	[0.46]			
Develop attitude/spirit	0.019	(0.063)	[0.767]	-	(0.103)	[0.073]			
Goal driven	0.22	(0.067)	[0.001]	0.186	(0.115)	[0.618]			
Flexible follower	-0.089	(0.071)	[0.209]	0.058	(0.114)	[0.106]			
Motivation changes	0.214	(0.07)	[0.002]	0.186	(0.099)	[0.251]			
Achievement recognition	0.18	(0.071)	[0.012]	0.114	(0.111)	[0.003]			
Moral, ethical decision				0.340	(0.085)	[0.009]			
Sharing info/knowledge				0.227	(0.09)	[0.005]			
Leader innovation driven							0.26	(0.123)	[0.001]
Leader team driven							0.196	(0.099)	[0.05]
Sharing*Knowledge giving							0.284	(0.117)	[0.02]
Staff growth * Staff activity							0.45	(0.127)	[0.001]
Innovation procedures							0.362	(0.130)	[0.008]
Overall company support							0.546	(0.162)	[0.002]
F-value	28.14			12.07			30.81		
Adj R ²	0.401			0.488			0.662		
Model Sig.	0.001			0.001			0.001		
N	243			267			300		

Note: Model 3 analysis used aggregated values of data variables, and interaction items as marked by*. Parentheses are standard error, whilst square brackets are statistical significance.

Model Test Results of Main Effect and Mediation Effect

Third, the study tested Model 3: *the main effect* between team sharing and innovation productivity and the *mediation effect* of the transformational leader. The model outcomes show, first, team sharing (IV) did not significantly relate to innovation productivity growth, but the interaction item of team sharing*team knowledge giving to the company significantly relates to innovation productivity growth ($b = 0.284$, $e = 0.012$, $p < 0.02$). Second, the interaction item of staff growth*staff activity significantly relates to innovation productivity growth ($= 0.362$, $e = 0.013$, $p < 0.008$). Third, both overall organisational support ($= 0.45$, $e = 0.012$, $p < 0.001$), and innovation procedures ($= 0.546$, $e = 0.016$, $p < 0.002$) played a major role in increasing innovation. The findings support Hypothesis 3: *a) Transformational leadership is significantly related to innovation, where increases in leaders' employee motivation and recognitions of team value leads to an increase innovation. b) Transformational leadership mediates the relationship between Knowledge sharing and innovation.*

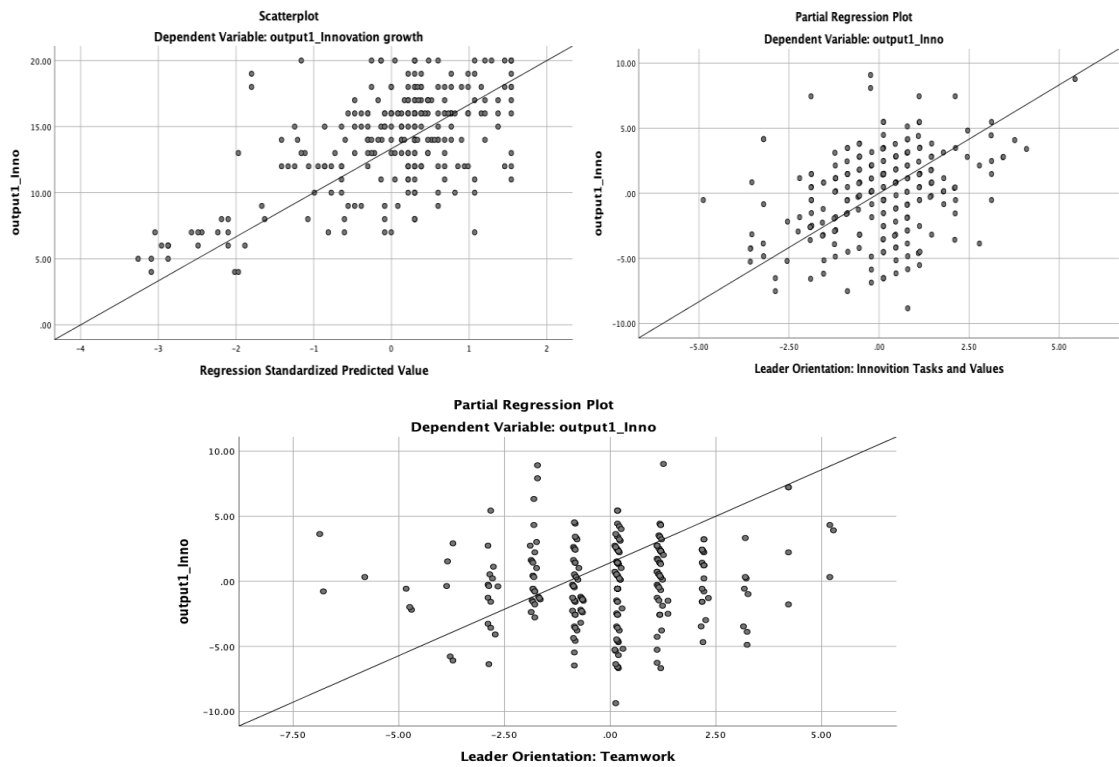


Figure 2. (a) Innovation productivity growth with (b) mediation effect of leadership as task/creativity orientation, and with (c) team information sharing.

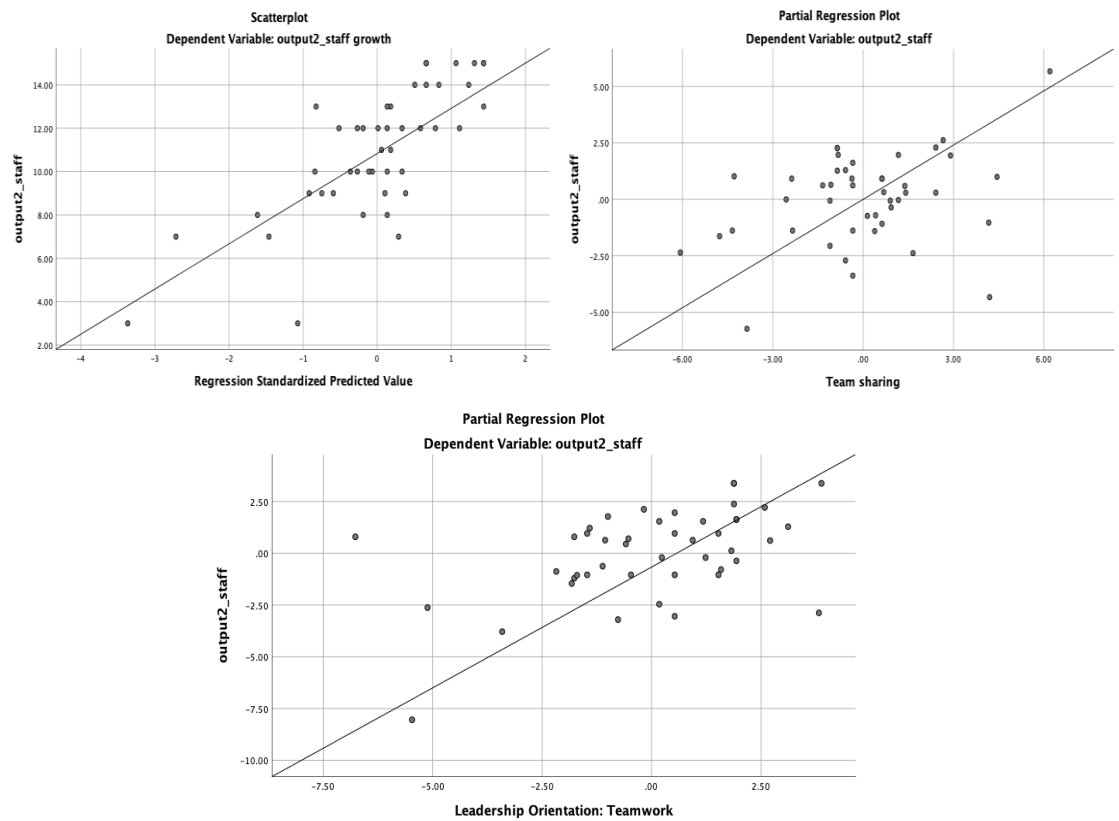


Figure 3. (a) Staff activity growth with (b) mediation effect of leadership as teamwork orientation, and with (c) team information sharing.

The study finally tested the probability and slopes of distributions. The findings show first, the probabilistic distributions of both Output 1 (Fig. 2A): and Output 2 (Fig. 3A) were significant. And Output 1 (Model 1), innovation activity and value growth (DV), was a stronger model, given both slopes and density of scarred data values, where innovation tasks and creative driven (Fig. 2B) were also high with transformational leadership significant, and team contributions (Fig. 2C) were significant. Second, overall company support and innovation procedures played the major significant role (see, Model 3 in Table 3). Third, in Model 1, team sharing initially was insignificant, but nevertheless, by aggregating both team sharing and team knowledge giving to the company, the aggregated interaction item becomes highly significant (see, Model 3, in Table 3). In comparison, as indicated earlier, team sharing and leadership orientation towards team support initially were insignificant, but now they both became significant for Output 2 (Model 2), when the dependent variable used staff growth and team activity growth, other than innovation growth, under which, both team sharing (IV) and leadership orientation towards team support (mediation) were significant. However, it appeared that Model 1 (Innovation productivity growth) outputs outperform Model 2 (staff activity growth) outputs.

DISCUSSION

This study aims to investigate how transformational leadership functions as a mediator between innovation and knowledge sharing. A two-step process was employed to accomplish this, with the first stage focused on identifying whether knowledge sharing had a direct, unmediated impact on innovation. By integrating transformational leadership as a mediator variable in the model, we examined the mediating impact of transformational leadership on knowledge sharing and innovation in the second phase. We concluded that transformational leaders ensure their teams' innovative abilities develops by enabling their members to learn from one another. This result supports the idea that a transformational leader's followers are more willing to share and take in information from one another, which enhances the group's ability for innovative problem-solving (Mittal & Dhar, 2015; Afsar et al., 2019). These results are supported by empirical research that has been done in a range of sectors (Choi et al., 2016; Le & Lei, 2019).

Furthermore, a study by Cheung and Wong (2011) further supports our result of the critical role leadership plays in workplace creativity and innovation where in a sample of 182 supervisor and follower coalitions from a restaurant, hotel, retail store, travel agency, and bank discovered a positive relationship between transformative leadership and employee innovation. They maintained that employees are loyal and rely greatly on a transformative leader to encourage and motivate them. In other words, they discovered that the characteristics of a transformational leader may be modified to meet the demands of innovative followers. Qu et al. (2015) found that transformative leadership was a major facilitator of employee innovation in a study of 420 leader-follower dyads in a Chinese energy industry. Mohamed (2016) discovered that transformational leadership had a beneficial influence on workers' innovative behaviour in a research of 500 employees and 150 supervisors working in five-star hotels in Egypt. Choi et al. (2016) demonstrated that transformational leadership positively promotes employee creativity in a study of 356 people working in South Korean manufacturing organisations. They asserted that leaders with transformational behaviours boost employee creativity by cognitively inspiring people to solve issues, which invigorates their invention.

Based on the findings of this study, it appears that knowledge sharing promotes innovation at both the individual and organisational levels. Employees who reported higher levels of knowledge sharing also indicated higher levels of innovative behaviour. This finding suggests that knowledge sharing among employees who are open to learning and exhibit behaviours that permit them to learn facilitates the acquisition of new skills necessary for innovation. Knowledge sharing in this study was found to be positively associated with innovation, in contrast to the findings of Kang and Lee (2017). The results expand upon the few existing studies on transformation leadership (e.g., Hoch & Kozlowski, 2014) by highlighting the fact that relationships exist on both the individual and team levels. Our findings corroborate Hoch and Kozlowski's (2014) anticipation, that transformational leadership may have a good impact on team innovation and may lead to greater quality of shared information leading to higher quality idea production, subsequent promotion of new ideas among members.

In summary, our research demonstrates that knowledge sharing is beneficial not only to organisations but also to the individuals who participate in them. Secondly, research shows that knowledge sharing most significantly affects innovation, creativity, and performance. Finally, a mediating component like transformational leadership allows knowledge exchange to have effects beyond those often related to work environments. Team morale is boosted, and other benefits accrue as a result. As an interaction-intensive practice transformational leadership promotes socialisation, fosters trust, encourages reciprocity, and aids in the recognition and appreciation of difference.

Conclusion and implications

Knowledge sharing is an essential component of knowledge management, which in turn plays a vital role in the effective achievement of innovative objectives. We conducted a systematic literature study in this research to gain a thorough grasp of knowledge-sharing outcomes. Based on our analysis of the literature, we suggest a theoretical framework for research on the effects of knowledge sharing on innovation, which provides an overview of the present state of the subject and highlights emergent theoretical and methodological difficulties as addressed in the prior sections.

This research's key conclusions may be summarised as follows. First, our analysis reveals that the impact of knowledge sharing is multifaceted and may be divided into two categories: individual and team. It demonstrates that knowledge sharing benefits not just organisations but also individuals. Second, transformational leadership is critical in bridging the gap between knowledge sharing and innovation. Third, knowledge sharing has certain non-traditional work-related effects, for example it helps improve team atmosphere, as an interaction-intensive activity, it improves socialisation, creates trust, stimulates reciprocity, and aids in the recognition and utilisation of diversity. Furthermore, it enhances job and life happiness, though the evidence is weak and further research is needed. Fourth, quantitative studies dominate research on the effects of knowledge sharing, with just one qualitative study discovered in our review. Overall, this study demonstrates that knowledge sharing is an essential organisation activity with potential impacts at all organisational levels.

Limitations and suggestions for further research

This research was conducted on organisations in the United Kingdom, which makes the scope of study limited and confined to a single region. As a result, its conclusions cannot be applied to other sectors or nations. Furthermore, the core data for this study was gathered through a survey, there research therefore assumes that participants' responses to the questions are genuine and reflect their real attitude and behaviour. Because this study used a survey method, combination with more qualitative research would be beneficial to learn about how leaders' behaviours foster and increase innovation, as well as employees' perceptions of the leader's approach to promoting innovation.

We recommend the development of an extensive theoretical framework that considers crucial variables such as shared vision, collaborative thinking, personal mastery, and learning. The researcher also suggests performing longitudinal research rather than a cross-sectional study, which may provide different results when investigating the impact of transformational leadership on the impact of knowledge sharing and innovation.

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