تأثير مشاركة المعرفة عبر الانترنت على سلوك العمل الإبداعي: الدور المعدل لدعم الإدارة العليا

The Impact of Online Knowledge Sharing on Innovative Work Behavior in Egyptian Universities: The Moderating Role of Top Management Support

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Abstract

This study aimed to examine the relationship between online knowledge-sharing and innovative work behavior among academics in Egyptian universities. Employing a quantitative approach, the study gathered data through a self-administered questionnaire distributed to 386 academics across five Egyptian governmental universities. Data analysis and hypothesis testing were conducted with WarpPLS v.8 software specifically employing the partial least squares structural equation modeling (PLS-SEM) technique. The findings reveal a positive correlation between the two dimensions of online knowledge sharing (knowledge collecting and knowledge donating) and academic staff's innovative work behavior. Moreover, top management support was proven to partly moderate the relationship between online knowledge sharing (i.e., online knowledge collecting) and innovative work behavior. The study offers valuable insights into the factors influencing academics' online knowledge sharing and its impact on fostering innovation within Egyptian universities. By understanding this relationship, universities can develop and implement targeted strategies to promote the use of online knowledge-sharing tools and encourage academic staff's innovative work behaviors.

Keywords: Online knowledge sharing, innovative work behavior, management support, Egyptian universities

الملخص

هدفت هذه الدراسة إلى فحص العلاقة بين مشاركة المعرفة عبر الإنترنت وسلوك العمل الإبداعي لدى أعضاء هيئة التدريس في الجامعات المصرية. من خلال استخدام المنهج الكمي، جمعت الدراسة البيانات من خلال استبانة ذاتية الإدارة تم توزيعها على ٣٨٦ من أعضاء هيئة التدريس ومعاونيهم في خمس جامعات حكومية مصرية. تم إجراء تحليل البيانات واختبار الفرضيات باستخدام برنامج WarpPLS v.8 باستخدام تقنية (PLS-SEM). تكشف النتائج عن وجود علاقة إيجابية بين بعدي مشاركة المعرفة عبر الإنترنت (جمع المعرفة والتبرع بالمعرفة) وسلوك العمل الإبداعي لأعضاء هيئة التدريس ومعاونيهم. علاوة على ذلك، ثبت أن دعم الإدارة العليا يعمل جزئيًا على تعديل العلاقة بين تبادل المعرفة عبر الإنترنت (أي جمع المعرفة عبر الإنترنت) وسلوك العمل الإبداعي. تقدم الدراسة رؤى قيمة حول العوامل التي تؤثر على مشاركة المعرفة عبر الإنترنت بين أعضاء هيئة التدريس وتأثيرها على تعزيز الإبداع داخل الجامعات المصرية. من خلال فهم هذه العلاقة، يمكن للجامعات تطوير وتنفيذ استراتيجيات محددة لتعزيز استخدام أدوات مشاركة المعرفة عبر الإنترنت وتشجيع سلوكيات العمل المبتكرة لدى أعضاء هيئة التدريس ومعاونيهم.

الكلمات المفتاحية: مشاركة المعرفة عبر الانترنت، سلوك العمل الإبداعي، دعم الإدارة العليا، الجامعات المصرية.

Introduction

Innovative work behavior (IWB) is a cornerstone of organizational success in knowledge-intensive domains such as higher education (Roijen et al., 2017). IWB is a complex construct encompassing creativity, problem-solving, and implementation. It involves recognizing challenges, generating novel ideas, championing these concepts, and ultimately bringing them to fruition (Li et al., 2019). As key players in this dynamic environment, lecturers must demonstrate a strong capacity for generating novel ideas, building support for educational reforms, and effectively implementing innovative practices (Stoffers et al., 2019). To remain competitive and relevant, educational institutions must foster a culture that encourages and rewards IWB among faculty (Khan et al., 2020). A critical component of fostering innovation is knowledge sharing, defined as the exchange of knowledge between individuals, groups, or organizations (McAdam et al., 2012). By facilitating the exchange of ideas, experiences, and expertise, knowledge sharing promotes a collaborative environment conducive to creativity and problem-solving in universities (Kang & Lee, 2017; Akram et al., 2020).

The digital age has accelerated the adoption of online platforms for knowledge sharing, enabling more efficient and widespread dissemination of

information (Nguyen & Malik, 2020). Online knowledge sharing (OKS) encompasses the dissemination of opinions, experiences, skills, and expertise through digital channels to support collective problem-solving and idea development (Nguyen, 2020a; Nguyen et al., 2019a). Effective knowledge management and sharing strategies can optimize the utilization of knowledge for innovative outcomes (Chen & Pongtornkulpanich, 2024), thereby stimulating mutual learning and the emergence of new ideas (Kang & Lee, 2017). However, despite the potential benefits, universities have struggled to effectively implement knowledge sharing practices (Phung et al., 2019). Previous studies revealed that several factors such as knowledge hoarding, individualistic work cultures, and ineffective knowledge management initiatives can hinder the efficacy of knowledge sharing (Konstantinou & Fincham, 2011; Fullwood & Rowley, 2017; Davidavičienė et al., 2020). Consequently, researchers have sought to identify additional factors that may influence knowledge sharing behavior and its outcomes (Abbas et al., 2023).

Top management support (TMS), a dimension of organizational culture, emerged as a critical determinant of employees' knowledge-sharing activities (Meddour et al., 2019). Top management, as key influencers, can shape employee perceptions and engagement (Lee et al., 2016). Prior research underscores the importance of top management support in creating a conducive environment for knowledge sharing and exchange (Al Saifi et al., 2016; Rahman et al., 2017). By influencing employee commitment and providing incentives, top management can stimulate knowledge sharing and contribute to organizational success (Dewayani et al., 2020). In the context of higher education institutions, where knowledge sharing and innovation are paramount, top management support can shape organizational norms and climate, thereby impacting knowledge sharing (Lo et al., 2021). Although TMS is crucial for successful technology implementation (Ghobakhloo, 2020), the mechanisms by which TMS fosters online knowledge sharing and subsequently influences innovative work behavior remain understudied.

While previous research has highlighted the positive association between knowledge sharing and innovative work behavior, a significant gap in the literature remains in understanding the impact of OKS on IWB, especially in Egyptian universities. The current study aims to underscore the complex interplay between OKS and IWB in higher education institutions. To enhance

understanding of this relationship, the study aims to explore the specific mechanisms (e.g., online knowledge donating and online collecting behaviors) through which OKS influences IWBs, as well as the organizational factors (i.e., top management support) as a potential moderator in this relationship.

Literature Review and Conceptual Framework

Online Knowledge Sharing

Knowledge management is a strategic process that involves identifying, sharing, and leveraging organizational knowledge to enhance competitiveness (O'Dell & Grayson, 1998; Arsawan et al., 2022). A critical component of knowledge management, knowledge sharing is the exchange of information, skills, and expertise among individuals (Mirzaee and Ghaffari, 2018). This collaborative process fosters innovation, problem-solving, and organizational learning (Grimsdottir et al., 2019). Knowledge-sharing compromises two primary activities: knowledge collecting (acquiring information from others) and knowledge donating (sharing one's expertise) (Ouakouak et al., 2021). While knowledge sharing is beneficial across industries, its importance is particularly pronounced in higher education, where the generation and dissemination of knowledge are core functions (Charband & Jafari Navimipour, 2016). Despite the recognition of knowledge sharing's value, its implementation in higher education institutions faces challenges (Al-Kurdi et al., 2020). Factors such as individual characteristics, organizational culture, and technological infrastructure influence knowledge-sharing behaviors (Razmerita et al., 2016). The advent of technology has facilitated knowledge sharing through online platforms. Online knowledge sharing involves the digital exchange of information for learning and application (Chen & Talha, 2021). While online platforms offer new opportunities for knowledge dissemination, their effectiveness in enhancing knowledge sharing is still under investigation, especially in developing countries (Naeem, 2019).

Innovative Work Behavior

Innovative work behavior (IWB) stands as a cornerstone of organizational success, serving as the catalyst for transformative change and competitive advantage (Knezović & Drkić, 2021). It is through the intentional creation and application of novel ideas and solutions that organizations can adapt to evolving market dynamics, enhance operational efficiency, and cultivate a culture of

continuous improvement (Arshad, 2024). IWB can be defined as the intentional development and application of novel ideas or solutions to enhance individual, group, or organizational performance (Yuan & Woodman, 2010; Newman et al., 2018). IWB is a complex and multifaceted construct that encompasses a series of interconnected stages, from problem identification and idea generation to implementation and evaluation (Carmeli et al., 2006; Khan et al., 2020). This dynamic process requires a blend of creativity, critical thinking, and problem-solving skills, as well as a willingness to take risks and embrace uncertainty (De Jong & Den Hartog, 2008; Erhan et al.,2022). It is through these behaviors that employees can contribute to the development of new products, services, or processes that deliver superior value to customers and stakeholders (Chen & Talha, 2021). The significance of IWB extends across various organizational functions and industries, but it is particularly critical in knowledge-intensive sectors such as higher education, where the ability to innovate is essential for maintaining relevance and competitiveness (Lambriex-Schmitz et al., 2020). By fostering a culture that encourages and rewards IWB, organizations can unlock the full potential of their workforce and drive sustainable growth (Huang & Li, 2021).

Top Management Support

To foster innovation and achieve organizational goals, top management must cultivate a stimulating work environment that empowers employees. This involves providing essential support, optimizing processes, and fostering a culture of sharing knowledge. A steadfast commitment to development, coupled with the allocation of necessary resources, is fundamental to realizing organizational objectives (Amarni & Hachemaoui, 2019). Darma (2018) defines top management support as the provision of necessary resources by senior leadership to ensure the successful operation of an information system. This support encompasses the allocation of resources required for the organization's effective functioning. According to Amarni and Hachemaoui (2019), top management support involves inspiring employees to share knowledge and experiences through fostering a collaborative work environment.

Top management support is a multifaceted construct. Ilyas et al. (2020) linked it to organizational climate and societal goals, while Dewayani et al. (2020) and Singh et al. (2021) emphasize its role in fostering innovation and

knowledge sharing. Top management support is consistently identified as a pivotal factor in successful knowledge management implementation. Abbaszadeh et al. (2010) and Anggia et al. (2013) emphasize its crucial role in driving this process. Lin (2014) further substantiates this claim through research on SMEs, demonstrating its positive impact on knowledge adoption and implementation. Top management is instrumental in fostering a knowledge-sharing culture by allocating resources, developing strategic plans, and motivating employees (Anggia et al., 2013; Lin, 2014). In addition, management support is crucial for fostering innovation. It not only encourages employees to propose new ideas but also provides essential resources and information for their implementation. By endorsing innovative initiatives, management can galvanize support from colleagues, increasing the likelihood of success (Sulaiman et al., 2019). A supportive management culture promotes a learning environment, tolerates failures, and encourages risk-taking. This fosters a climate where employees feel empowered to innovate without fear of reprisal. Conversely, a lack of management support can deter employees from proposing new ideas due to potential career risks. Therefore, management support is a catalyst for innovative work behavior (Mishra et al., 2019; Muchiri et al., 2020).

Research Problem

The Egyptian society is suffering from the persistent issue of labor market mismatch between industry demands and educational output (Badawy et al., 2015). Innovation at the workplace is also crucial for maintaining and sustaining educational organizational development as well as the success of any educational institution. Much of the innovation in any given organization "depends on people's behavior" (Thurlings et al., 2015, p. 1). Innovation depends on individualistic behavior which reflects the manner and quality of work productivity. Innovative individuals who create new ideas form and shape the core element of the innovation process.

1. To what extent does online knowledge donating enhance the innovative workplace behavior of academic staff at the Egyptian universities under investigation?
2. To what extent does online knowledge collecting enhance the innovative workplace behavior of academic staff at the Egyptian universities under investigation?

3. To what extent does top management support work as a moderator in the relationship between online knowledge donating and innovative work behavior of academic staff at the Egyptian universities under investigation?

4. To what extent does top management support work as a moderator in the relationship between online knowledge collecting and innovative work behavior of academic staff at the Egyptian universities under investigation?

Research Objectives

1. Examine the relationship between academics' online knowledge donating and their innovative work behavior.

2. Clarify the nexus between academics' online knowledge collecting and their innovative work behavior.

3. Illustrate the moderating role of top management support on the relationship between online knowledge donating and innovative work behavior of academics at Egyptian universities.

4. Explore the moderating role of top management support on the relationship between online knowledge collecting and innovative work behavior of academics at Egyptian universities.

Online Knowledge Sharing and Innovative Work Behavior

Knowledge is widely recognized as the cornerstone of innovation (Akram et al., 2018). Extensive research in knowledge management has solidified the link between knowledge sharing and enhanced organizational performance, encompassing innovation capability, absorptive capacity, and overall innovativeness (Liao et al., 2007; Liua & Phillips, 2011; Hau et al., 2013; Yesil & Dereli, 2013). Given the critical role of innovation in fostering competitiveness and differentiation, understanding the mechanisms through which knowledge sharing drives innovation is essential (Akram et al., 2018). Innovation is fundamentally a knowledge-based process involving the creation, diffusion, and transformation of knowledge into novel products, processes, or services (Raykov, 2014). Expert knowledge, including insights from past experiences, serves as a wellspring of inspiration for new solutions. By sharing knowledge, individuals expand the collective knowledge base, stimulating the generation of innovative ideas (Kmieciak, 2021). Moreover, the implementation

of innovative ideas often necessitates collaboration and diverse perspectives, making knowledge sharing indispensable (Liua & Phillips, 2011).

The acquisition of new knowledge is essential for developing innovative solutions. Cognitive psychology emphasizes the importance of cognitive restructuring and elaboration for effective knowledge absorption (Slavin, 1996; Hannen et al., 2019). Knowledge sharing triggers these processes by compelling individuals to integrate new information with existing knowledge, leading to reflection, verification, and reinterpretation. This knowledge recombination and re-elaboration process fuels idea generation and application as described by Radaelli et al. (2014). Research has consistently demonstrated a positive correlation between knowledge sharing and both individual creativity (Lee, 2018) and innovative work behavior (Asurakkody & Kim, 2020). Islam et al. (2022) posit that knowledge sharing is a primary driver of innovative work behavior, enabling individuals to assess and integrate new information effectively. By sharing their expertise, employees empower colleagues to develop the necessary skills and capabilities for innovative pursuits (648nswer et al., 2021). Numerous studies have empirically supported a strong causal relationship between knowledge sharing and innovative work behavior (e.g., Kmieciak, 2021; Islam et al., 2022; Wang et al., 2023). Based on this evidence, the study hypothesized that:

H: Online knowledge donation positively impacts academic members' IWB.

H2: Online knowledge collecting positively impacts academic members' IWB.

The Moderating Role of Management Support

Top management support is a critical component of workplace social support (Mazzetti et al., 2019), reflecting employees' perceptions of managerial encouragement and care (Gagnon & Michael, 2004). As an extension of organizational support, it encompasses managerial recognition of employee contributions and perceived concern for employee well-being (Rhoades & Eisenberger, 2002). Effective knowledge sharing requires strong leadership and managerial support. Management plays a pivotal role in inspiring employees, creating equal opportunities, and establishing performance metrics and rewards for knowledge-sharing behaviors (Abbaszadeh et al., 2010). By articulating a clear organizational vision and fostering a shared language, senior management can cultivate a knowledge-sharing culture (Lin, 2014). Additionally, creating an

environment that empowers employees to exchange knowledge and expand the organization's knowledge base is crucial. This involves a shift from controlling information to facilitating its flow among all employees (Lee et al., 2016). Managers act as knowledge-sharing enablers, cultivating a supportive environment for knowledge utilization (Guldberg et al., 2013). According to Al Saifi et al. (2016), managers can effectively demonstrate support for organizational knowledge sharing in three ways: first, fostering a knowledge-sharing culture and establishing an organizational climate that values and encourages the exchange of knowledge. Second, aligning knowledge management with strategic objectives through integrating knowledge management initiatives with the organization's overall goals and mission. Third, strategically committing to fostering knowledge sharing by allocating necessary resources and consistently supporting knowledge-sharing initiatives. Meddour et al. (2019) further illustrated the role of top management support in promoting knowledge creation and innovation by encouraging and supporting learning initiatives, such as workshops, discussion forums, and training programs, which facilitate knowledge sharing and transfer.

Research consistently demonstrates a positive relationship between managerial support and employee innovation (Bos-Nehles et al., 2017; Doğru, 2018; Bos-Nehles & Veenendaal, 2019; Contreras et al., 2021). Employees are more likely to exhibit innovative work behaviors when they perceive strong support from management and supervisors. This support manifests in various ways, including providing autonomy, resources, and opportunities for idea sharing. Additionally, it encourages individual behaviors such as loyalty, flexibility, risk-taking, and courage (Afsar & Badir, 2017). Management support fosters a sense of obligation among employees through social exchange principles. This perceived obligation motivates employees to engage in extra-role behaviors like innovative work behaviors, ultimately contributing to organizational goals (Sulaiman et al., 2019). Several factors such as role expectations, leader-member exchange, organizational learning capabilities, and knowledge sharing also impact an individual's propensity for innovation (Park et al., 2014). Knowledge sharing, in particular, catalyzes generating new ideas (Almulhim, 2020). By empowering employees to apply their knowledge and expertise, management support fosters innovation and improvements across all organizational aspects, including tasks, products, work environment, and

overall structure (Jaruwanakul, 2021). Therefore, the following hypotheses were proposed:

H3: TMS moderates the relationship between OKC and IWB.

H4: TMS moderates the relationship between OKD and IWB.

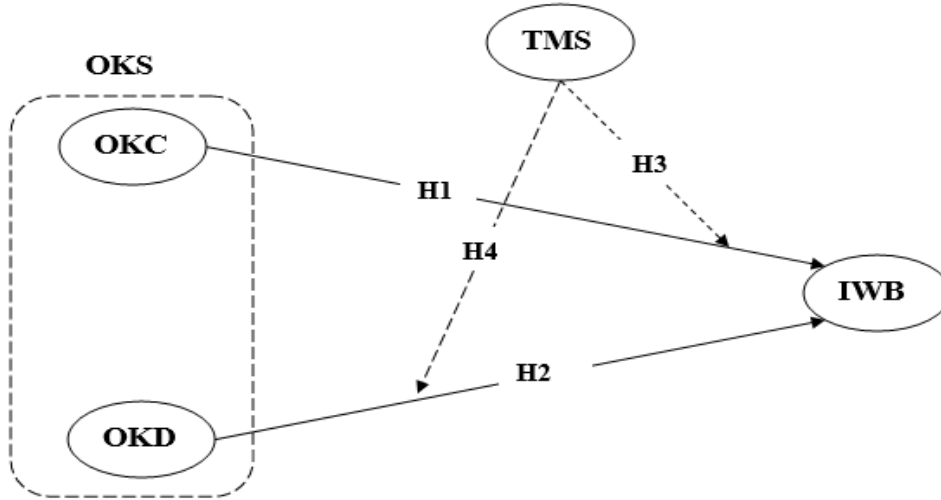The following figure (1) indicates the conceptual framework of the study.

Figure 1. Study's conceptual framework

Materials and Methods

Measures and Instrument Development

The survey instrument was divided into two sections. The first section comprised 16 items designed to measure latent variables (6 items for OKS, 6 items for TMS, and IWB 4 items). The second section collected demographic data, including faculty type, academic designation, work experience, work employer, and internet usage, through five questions. Multiple-item scales were used to measure research constructs. These scales were selected based on their established reliability and validity in prior studies. To guarantee conceptual equivalence, all scales were initially developed in English and subsequently translated into Arabic through a rigorous back-translation process. All items were adapted from previous research and assessed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Online knowledge sharing (OKS): was measured using a six-item scale adapted from Akhavan et al. (2015). Sample items include "*My colleagues share their*

skills with me when I ask them to." and "*When I have learned something new, I tell my colleagues about it*".

Top management support (TMS): was assessed with a six-item scale based on Islam and Hasan (2015). Example items are "*In my organization, management supports the role of knowledge in the university's success.*" and "*In my organization, management rewards innovative ideas that work*".

Innovative work behavior (IWB): was measured using a four-item scale adapted from Akhavan et al. (2015). Sample items include "*I often develop new procedures to improve my everyday practice.*" and "*I often develop new solutions to solve problems*".

Sampling and Data Collection

The study population comprised academic staff at public universities in Egypt. Based on 2022 data from the Central Agency for Public Mobilization and Statistics (CAPMS), the target population consisted of approximately 34,713 faculty members and assistants in Greater Cairo and the Middle Delta. Given resource constraints, a purposive sample of five universities with the highest international rankings was selected: Cairo, Ain Shams, Mansoura, Menoufia, and Kafr El-Sheikh. Academic staff were chosen for their pivotal role in driving innovation. As knowledge creators and disseminators, they are essential to universities (Osama et al., 2019).

Data were collected between January and June 2024 through a self-administered questionnaire distributed electronically and on paper. A purposive sampling strategy was employed to select universities (Barratt et al., 2015), followed by convenience sampling within these institutions (ElAdawi et al., 2024). The sample size was determined using the Thompson et al. (2012) formula, resulting in a minimum target of 379 participants. Of the 500 distributed questionnaires, 403 were returned, yielding a response rate of 80.6%. After data cleaning, 386 valid responses were included in the final analysis, comprising 259 electronic submissions and 127 paper-based questionnaires.

Data Analysis

Data analysis was performed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with WarpPLS 8.0 (Kock, 2022). Given the model's complexity and the need to analyze multiple latent variables, PLS-SEM

was selected as the most appropriate method due to its flexibility and widespread use in management research (ElAdawi et al., 2024).

Results

Participant's Profile

The questionnaire used in this study included five items related to respondents' demographic variables, as well as information about their use of the Internet for knowledge sharing. Respondents provided details about their academic designation, experience, university, faculty type, and Internet usage. This demographic information was essential for understanding the respondents' backgrounds. The detailed results are presented in Table 1.

The data from Table (1) reveals a strong focus on online knowledge sharing. A significant majority (379 respondents, representing 98.2% of the sample) reported using the Internet for this purpose. Conversely, a minimal number (only 7 respondents, or 1.8% of the sample) indicated they don't. Given the study's aim to analyze online knowledge sharing, all the subsequent analyses will primarily focus on the data from participants who answered yes (n=379).

Table 1. Participants' profile (N=386)

		Frequency	Percent
Faculty type	Practical	148	38.3%
	Non-practical	238	61.7%
Academic designations	Demonstrator	74	19.1%
	Assistant lecturer	118	30.6%
	Lecturer	101	26.2%
	Assistant professor	51	13.2%
	Professor	42	10.9%
Work employer	Cairo university	98	25.4%
	Ain Shams university	84	21.7%
	Mansoura university	69	17.9%
	Kafr Elsheikh university	61	15.8%
	Menoufia university	74	19.2%
Work experience	Less than 5 years	82	21.2%
	5 to less than 10 years	119	30.8%
	10 to less than 15 years	94	24.4%
	15 to less than 20 years	56	14.5%
	More than 20 years	35	9.1%

Internet usage	Yes	379	98.2%
	No	7	1.8%

Structural Equation Modeling (SEM)

This study employed Partial Least Squares Structural Equation Modeling, a variance-based SEM technique, to evaluate the proposed research model. Warp-PLS software V.8.0 was utilized for this analysis. PLS-SEM offers distinct advantages in assessing the psychometric properties of the measurement model "outer model" and estimating the path coefficients within the structural model "inner model" (Kock, 2022).

The Measurement Model (Outer Model)

To assess the quality of the measurement instrument, the study evaluated the following aspects for all latent variables: internal consistency reliability, indicator reliability, convergent validity, common method bias (CMB), and discriminant validity.

Indicators reliability reflects the strength of the association between individual items (indicators) and the latent constructs they represent (Kock, 2014). Ideally, these outer loadings should be greater than the 0.5 cut-off (Sarstedt et al., 2021). Table (2) reveals satisfactory indicator reliability for the measurement model. All indicators' outer loadings range from 0.653 to 0.877, exceeding the recommended threshold of 0.5.

Convergent validity was assessed using Warp-PLS 8. Convergent validity evaluates how well a measure correlates with other measures of the same construct. The average variance extracted (AVE) serves as the primary metric for evaluating convergent validity within each construct. It was recommended that an AVE value of 0.5 or higher is indicative of adequate convergent validity (Hair et al., 2021). An examination of Table (2) reveals satisfactory convergent validity for the measurement model. All constructs exhibit an AVE exceeding 0.5, ranging from 0.579 to 0.737. This result aligns with the recommended threshold of 0.5 or higher.

Internal consistency reliability ensures that the items designed to measure a particular construct consistently reflect the underlying latent variable (Vaske et al., 2017). The current study adopted a two-pronged approach to assess internal consistency reliability for each construct. The first was composite reliability (CR), the CR value for each construct should be at least 0.7,

indicating a high level of internal consistency among the items. The second was Cronbach's Alpha (CA) which is typically lower than CR, Cronbach's alpha should also ideally exceed 0.7 for each construct (Kock, 2022). As shown in Table (2), the CR values for all constructs in this study range from 0.845 to 0.913, exceeding the recommended threshold and demonstrating excellent internal consistency. In addition, CA yielded slightly similar values to CR, which also ideally surpasses 0.7 for each construct. The CA values range from 0.724 to 0.885, exceeding the generally accepted threshold of 0.7 in most cases. Overall, the findings provide strong evidence for satisfactory internal consistency reliability across all constructs in the measurement model.

Discriminant validity refers to the extent to which constructs differ from one another empirically. It can be evaluated using cross-loading of indicators, the Fornell-Larcker criterion, and the HTMT ratio of correlation (Hair et al., 2017). The current study assessed discriminant validity by employing two established criteria: the Fornell-Larcker criterion and the HTMT ratio. According to Table (3), the square root of AVE for each latent variable (written in bold and italics) is higher than any of its correlations with other latent variables (Franke & Sarstedt, 2019). Additionally, as shown in Table (4), all HTMT ratios are below 0.85, confirming strong discriminant validity (Hair et al., 2017). Therefore, discriminant validity can be accepted for this measurement model, supporting the distinctiveness of the constructs.

Self-administered surveys are a cornerstone of management research, allowing researchers to collect data from large populations. However, this method carries the potential risk of common method bias (Kock et al., 2021). CMB arises when both the independent and dependent variables are measured within the same survey, using the same response format. This shared method variance can distort the true relationships between the variables and lead to inaccurate results (Jakobsen & Jensen, 2015). To address CMB concerns, this study has employed full collinearity variance inflation factors (VIFs) as a more conservative and potentially superior approach compared to traditional factor analysis methods (Kock, 2022). Here, VIFs below 3.3 suggest minimal multicollinearity and a low likelihood of CMB (Kock, 2015). According to Table (2), the study findings were further bolstered by the absence of multicollinearity and common method bias. This is evidenced by variance

inflation factors for all latent variables falling below the recommended threshold of 3.3.

Table 2. Factor loadings, CA, CR, AVE, and VIF.

	Item Loading	CR	CA	AVE	VIF
Online Knowledge Collecting (OKC)	-				
OKC.1	0.770	0.845	0.724	0.645	1.607
OKC.2	0.822				
OKC.3	0.817				
Online Knowledge Donating (OKD)	-				
OKD.1	0.865	0.894	0.821	0.737	1.324
OKD.2	0.877				
OKD.3	0.832				
Top Management Support (TMS)	-				
TMS.1	0.770				
TMS.2	0.810				
TMS.3	0.769	0.913	0.885	0.635	1.223
TMS.4	0.828				
TMS.5	0.821				
TMS.6	0.782				
Innovative Work Behavior (IWB)	-				
IWB.1	0.762				
IWB.2	0.867	0.845	0.754	0.579	1.624
IWB.3	0.747				
IWB.4	0.653				

Table 3. Discriminant validity results

	TMS	IWB	OKC	OKD
TMS	*0.797*	0.268	0.281	0.383
IWB	0.268	*0.761*	0.588	0.337
OKC	0.281	0.588	*0.803*	0.315
OKD	0.383	0.337	0.315	*0.858*

Table 4. HTMT ratios

(good if < 0.90, best if < 0.85)	TMS	IWB	OKC	OKD
TMS				
IWB	0.330			
OKC	0.351	0.803		
OKD	0.447	0.430	0.408	

Assessment of the Structural Model

The evaluation of the structural model constitutes the second stage of PLS-SEM analysis. This stage focuses on assessing the hypothesized relationships between the latent constructs within the model framework. The current study employed five key criteria to achieve a comprehensive understanding of the model's efficacy: significance of path coefficient, coefficient of determination (R^2), Effect size (F^2), predictive Relevance (Q^2), and finally model fit (Hair et al., 2017).

Path coefficients quantify the hypothesized relationships between latent variables within a structural model's framework (Kock, 2015). Standardized coefficients are crucial for assessing the inner model's quality. Values closer to 1 indicate strong positive relationships, while those closer to -1 suggest strong negative relationships (Hair et al., 2017). According to Figure (2), results demonstrate that online knowledge collecting was positively linked to academic staff's innovative work behaviors (β= 0.53, p<0.001). As well as online knowledge donating was positively linked to innovative work behavior (β= 0.15, p<0.001). Moreover, top management support played a positive moderating role (β= 0.10, p= 0.03) in the relationship between OKC and IWB. This means that TMS amplifies the positive correlation between OKC and IWB. Interestingly, the moderating effect of TMS on the relationship between OKD and IWB was not significant (β= -0.00, p= 0.50).
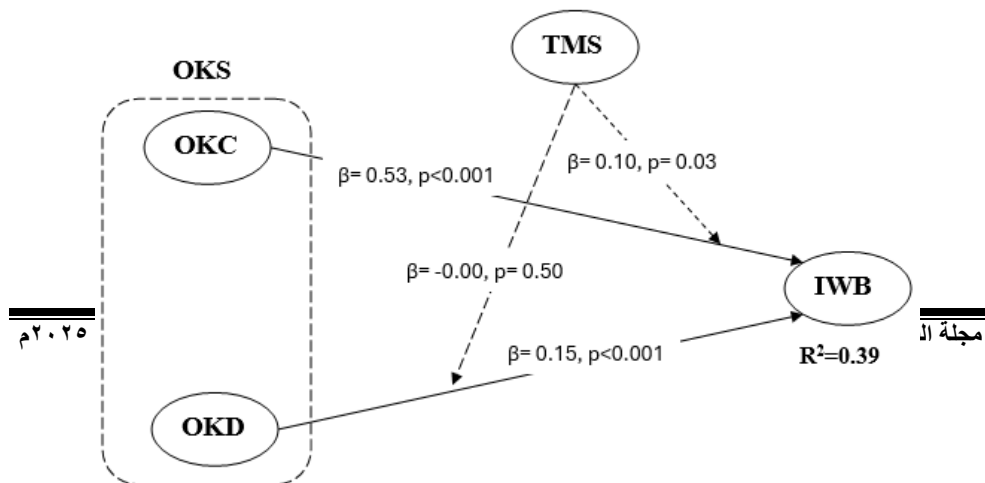
Figure (2): Final model of the study

The coefficient of determination (R^2) serves as a crucial metric for evaluating the model's explanatory power. R^2 quantifies the proportion of variance in the endogenous constructs attributable to the included exogenous variables. In simpler terms, it reflects the percentage of variation in the dependent variable explained by the independent factors within the model (Hair et al. 2017). R^2 values range between 0 and 1, with higher values signifying a stronger explanatory power. Chin (1998) classifies R^2 values above 0.67 as high, 0.33-0.67 as moderate, and 0.19-0.33 as weak, with values below 0.19 considered unacceptable. Based on Figure (2) and Table (5), both two dimensions of online knowledge sharing (OKC, OKD) have a moderate effect (39%) on academic staff's innovative work behaviors. This finding highlights the importance of fostering academic staff's positive behaviors of knowledge sharing to encourage innovative work behaviors.

The F^2 effect size metric serves as a valuable complement to R^2. It delves deeper by elucidating the magnitude of an exogenous latent variable's "e.g., OKC and OKD" influence on the variance exhibited by the endogenous latent variable "e.g., IWB" (Hair et al., 2017). Hair et al. (2021) established conventions for interpreting F^2 values as large/strong effect: $F^2 > 0.35$, medium effect: $0.15 \le F^2 \le 0.35$, small effect: $0.02 \le F^2 \le 0.15$, and no effect: $F^2 < 0.02$. According to data presented in Table (5), online knowledge collecting ($f^2 = 0.320$) and online knowledge donating ($f^2 = 0.052$) demonstrated a medium and a small positive effect respectively on academic staff's innovative work behaviors. This underscores the potential of online knowledge sharing as a stimulant for innovation among academic staff. Further, the analysis revealed a small effect of top management support on the relationship between online knowledge collecting and innovative work behavior ($f^2 = 0.021$) and no effect on online knowledge donating and innovative work behavior ($f^2 = 0.000$). While

top management support undoubtedly plays a role in shaping academic practices, its effect in the current study was less pronounced.

Q^2 furnishes an additional metric for gauging the inner model's predictive relevance (Kock, 2015). This non-parametric measure assesses the model's capacity to predict the endogenous latent variable within each specific latent variable block (Kock, 2022). As a general guideline, Q^2 values exceeding 0 can be considered indicative of acceptable predictive accuracy for the model. Sarstedt et al. (2021) proposed the following interpretations for Q^2 effect size: small ($Q^2 < 0.02$), medium ($0.15 \leq Q^2 \leq 0.35$), and large ($Q^2 > 0.35$). According to Table 5 the reflective measurement model of the study, analyzed using PLS-SEM, demonstrated moderate predictive relevance (Q^2 values) obtained via the blindfolding procedure.

Table 5. R^2, F^2, and Q^2

Dimension/Relationship	R^2	F^2	Q^2	Result
IWB	0.393	-	0.393	Medium
OKC ⟶ IWB	-	0.320	-	Medium
OKD ⟶ IWB	-	0.052	-	Small
TMS*OKC	-	0.021	-	Small
TMS*OKD	-	0.000	-	No effect

While the meticulous evaluation of inner model components is paramount, a comprehensive assessment necessitates incorporating robust overall model fit measures. The results in Table 6 indicate a good overall fit for the study's model. This conclusion is supported by several goodness of fit indicators, including the average path coefficient (APC), average r-squared (ARS), the standardized root mean square residual (SRMR), and nonlinear bivariate causality direction ratio (NLBCDR), besides other significant indices according to Kock (2022).

Table 6. Model fit results

	Assessment	Criterion	Result
Average path coefficient (APC)	0.196, P<0.001	P<0.05	Supported
Average R-squared (ARS)	0.393, P<0.001	P<0.05	Supported
Average adjusted R-squared (AARS)	0.386, P<0.001	P<0.05	Supported
Average block VIF (AVIF)	1.290	acceptable if <= 5, ideally <= 3.3	Supported
Average full collinearity VIF (AFVIF)	1.374	acceptable if <= 5, ideally <= 3.3	Supported
Tenenhaus GoF (GoF)	0.548	small >= 0.1, medium >= 0.25, large >= 0.36	Supported
Sympson's paradox ratio (SPR)	1.000	acceptable if >= 0.7, ideally = 1	Supported
R-squared contribution ratio (RSCR)	1.000	acceptable if >= 0.9, ideally = 1	Supported
Statistical suppression ratio (SSR)	1.000	acceptable if >= 0.7	Supported
Nonlinear bivariate causality direction ratio (NLBCDR)	0.750	acceptable if >= 0.7	Supported

Discussion

This study aimed to explore the relationship between OKS and IWB in Egyptian universities. It further investigated the moderating role of TMS in this relationship. The current study revealed a positive correlation between online knowledge sharing (OKC and OKD) and academic staff's innovative work behaviors (Supporting H.1 & 2). In simpler terms, academics who actively participate in online knowledge-sharing activities (collecting and donating) are more likely to exhibit innovative behaviors in their work. This finding aligns with previous research demonstrating a positive impact of knowledge sharing within universities on faculty innovation (Kim & Lee, 2013; Lee & Hong, 2014; Ye et al., 2021). Interestingly, studies suggest that knowledge collecting might hold a stronger influence on innovative work behaviors than knowledge donating (Kim & Lee, 2013; Lee & Hong, 2014). This could be attributed to the collaborative spirit fostered through online knowledge sharing. When academics readily share and acquire knowledge, a mutually beneficial network is created. This network facilitates the exchange of valuable resources like information, technology, and practical experience. Frequent and high-quality knowledge exchange fosters a robust sense of community characterized by trust and support. This enriched intellectual environment fuels innovative work

behaviors through enhanced cognitive resources as continuous knowledge acquisition broadens an academic's knowledge base, providing a solid foundation for innovative thinking. Facilitated knowledge recombination where online knowledge-sharing platforms enable academics to integrate diverse knowledge sets, leading to the generation of novel ideas and solutions Boosted problem-solving skills as exposure to various perspectives and experiences through online knowledge-sharing equips academics with more effective tools to tackle complex challenges in innovative ways (Kim & Lee, 2013).

These benefits are further supported by research conducted by Radaelli et al. (2014) in healthcare organizations and Akhavan et al. (2015) in high-tech companies. Both studies highlight the positive impact of knowledge sharing on generating, promoting, and implementing innovative ideas. Additionally, knowledge sharing fosters a sense of job satisfaction (Zhang & Jiang, 2015), which can further motivate academics to engage in innovative work behaviors (Kang et al., 2017). By improving access to fresh data, resources, and insights, online knowledge sharing empowers individuals to translate their knowledge and skills into innovative behaviors (Ly et al., 2023; Yasir et al., 2023). The positive correlation between online knowledge sharing and innovative work behavior has been reaffirmed by recent studies (e.g., Phung et al., 2019; Almulhim, 2020; Binsaeed et al., 2023). This underscores the importance of fostering a culture of knowledge sharing within academic institutions. By facilitating and encouraging online knowledge sharing, universities can cultivate a more innovative and dynamic environment for their academic staff.

The current study revealed that top management support positively moderates the relationship between online knowledge collecting and innovative work behavior of academic staff (Supporting H.3). While top management support did not moderate the relationship between online knowledge donating and innovative work behavior (H.4 rejected). This means that supportive management characterized by collaboration, fairness in learning and development opportunities, and providing support fosters a stronger relationship between online knowledge sharing (I.e., OKC) and innovative work behaviors among academic staff. This result aligns with previous research by Tan & Noor (2013) highlights the impact of top management support. When leaders actively endorse knowledge-sharing initiatives and demonstrate a commitment to open collaboration, it motivates influential faculty members to

publicly share their expertise. This, in turn, acts as a catalyst for innovative work behaviors (Mokhber et al., 2018). Furthermore, studies demonstrated that knowledge-sharing fuels innovation at both individual and organizational levels (Rese et al., 2020; Zhao et al., 2020). A supportive management, particularly one that emphasizes collaboration, plays a crucial role in this process. Studies by Alyouzbaky et al. (2022) and Binsaeed et al. (2023) show that when academics feel a sense of collaboration, support, and knowledge exchange among colleagues, they are more likely to actively participate in online knowledge sharing. This, in turn, fosters a vibrant environment that stimulates innovative work behaviors.

In conclusion, fostering a supportive work environment is crucial to maximizing the positive impact of online knowledge sharing on academic staff's innovative work behaviors. This requires a multifaceted approach that goes beyond simply encouraging online knowledge sharing. By prioritizing collaboration, fairness in development opportunities, and administrative support, universities can cultivate an environment where academics feel empowered to share their expertise, ultimately leading to a more innovative and dynamic academic community.

Theoretical and Practical Implications

The study's findings significantly contribute to the literature about online knowledge sharing in two primary aspects. First, while prior research has significantly contributed to our understanding of online knowledge sharing, it has often treated online knowledge sharing as a single construct (e.g., Hsu, 2015; Alyouzbaky et al., 2022; Le et al., 2024). This approach overlooks the inherent duality of this behavior – the act of contributing knowledge (donating) and seeking knowledge (collecting). This study addresses this gap by distinguishing between these two aspects, providing a more nuanced understanding of university online knowledge sharing. The findings reveal significant differences in how the intention to share knowledge translates to actual donating and collecting behaviors. This highlights the importance of examining these dimensions within the same study context. Consequently, the research underscores the need for future studies to delve deeper into the unique drivers of knowledge donating and collecting behaviors in online academic communities. Second, the study transcends the mere identification of a correlation between online knowledge sharing and innovative work behavior

within universities. By introducing top management support as a moderating variable and employing a robust framework of experimental data and statistical analysis, the study sheds light on a more intricate interplay. The findings provide compelling empirical evidence that top management support plays a pivotal role in moderating the relationship between academics' online knowledge sharing (i.e., OKC) and exhibiting innovative work behaviors. This emphasizes the critical role of fostering a supportive and collaborative environment within universities. Such an environment empowers academic staff to leverage online knowledge-sharing platforms as conduits for scholarly exchange, ultimately fostering a more innovative academic workforce.

The current study offers practical guidance for universities seeking to foster academic staff's innovative work behaviors by optimizing online knowledge-sharing practices in universities. First, online knowledge sharing serves as a critical catalyst for propelling innovative work behaviors amongst academic staff. However, fostering such practices falls heavily on the shoulders of university management. Universities must align institutional goals with individual faculty aspirations. Universities can explore alternative solutions to address annual research targets, particularly those that incentivize academics to actively share their knowledge through online platforms. Developing a special rubric within the performance evaluation system that recognizes and rewards knowledge-sharing activities can serve as a powerful motivator (Fauzi et al., 2018). Universities can also bolster academics' online knowledge-sharing by offering workshops and seminars specifically focused on effective online knowledge-sharing techniques. These programs can equip academics with the skills and knowledge necessary to confidently leverage online platforms for knowledge sharing. Second, the current study not only highlights the positive influence of online knowledge sharing on academics' innovative work behaviors but also reveals a crucial moderating factor: management support. The study demonstrates that a supportive culture strengthens the relationship between online knowledge sharing and innovative work behavior. Universities can leverage this finding by implementing strategies that foster a positive academic culture. Universities should foster a culture that values and encourages open communication, collaboration, and support. This includes establishing feedback channels for academics to voice their concerns and suggestions fostering a sense of open communication and shared purpose and

strengthening the cultural environment. Besides, university leaders who actively demonstrate and promote collaboration, knowledge exchange, and open communication set the tone for a more supportive cultural environment. By fostering such a supportive environment, universities can empower academics to freely share their expertise, ultimately accelerating innovation and contributing to broader educational goals. Third, universities can provide support that encourages academics to actively seek connections between online knowledge-sharing insights and their daily work (teaching, research, publication). This could involve workshops or seminars focused on translating theoretical knowledge into practical applications. Beyond knowledge acquisition, universities can support academics in implementing their innovative ideas. This could involve facilitating access to resources like research grants, seed funding, or mentorship programs that can help academics refine and implement their innovative projects (Phung et al., 2019).

Limitations and Further Research

This study successfully investigated the influence of online knowledge sharing on innovative work behavior within Egyptian universities, while considering top management support as a potential moderating variable. While the findings provide valuable insights specific to this context, acknowledging certain limitations is crucial to guide future research endeavors. The first limitation was regarding sample and generalizability. The study's focus on a select sample of five Egyptian governmental universities restricts its generalizability to broader populations and settings. Future research should aim to replicate the findings in a more diverse range of organizational contexts, including other types of Egyptian universities (e.g., Azhar University), private/governmental higher institutions, and local/foreign private universities. Additionally, expanding the geographical scope, particularly across the Middle East and Africa, would enhance the external validity of the research and contribute to a more comprehensive understanding of the relationships examined. The second limitation was outcome variables. This study primarily focused on innovative work behavior as the key dependent variable. To gain a more holistic perspective on the effectiveness of online knowledge sharing, future investigations could examine its impact on a broader range of academic outcomes, including academic performance, staff creativity, dynamic capabilities, work engagement, and institutional excellence. Analyzing online

knowledge sharing influence on these additional areas would offer valuable insights into how online knowledge sharing translates into tangible institutional-level outcomes. The Final limitation concerns the moderating factor. The current study investigated the moderating role of top management support in the relationship between online knowledge sharing and innovative work behavior. Future research could explore the potential influence of other factors as moderators or mediators, such as leadership styles, academic identification, workplace friendship, workplace envy, intellectual capital disclosure, etc. Examining these factors could provide a more nuanced understanding of the complex relationships between online knowledge sharing and innovative work behavior.

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