

**PSYCHOLOGICAL CAPITAL TO INNOVATION FROM DIGITAL
TECHNOLOGY TO CYBERLOAFING IN PAKISTANI UNIVERSITIES**

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Abstract:

The effects of psychological capital (PsyCap) on innovative work behaviour (IWB) of university faculty: a mediated–moderation model Grounded in social cognitive theory, this research investigates the mediating role of digital technology adoption and the moderating roles of cyberloafing. Using a multi-wave survey design, data pertaining to research/teaching faculty was collected from public and private universities in Pakistan. Results show that PsyCap predicts IWB in a positive manner and mediation effect signifies the role of digital technology as an important mediator. On the contrary, and in the sense of counterbalancing the moderated mediation, cyberloafing weakens the indirect effect of PsyCap on IWB but AI intensifies it as it smooths the process of embedding digital tools into academic work. This offers significant theoretical and practical implications for the leaders in higher education in terms of streamlining psychological capital, utilizing AI, and controlling negative behaviors in promoting sustainable innovation in Pakistanis' universities.

Keywords: Psychological Capital, Innovative Work Behavior, Digital Technology, Cyberloafing, Higher Education, Pakistan.

Introduction:

In this regard, employees' innovative work behavior is essential for organizations from the perspective of both their long-term success and threat to their existence in rapidly changing environments where organizations need to continuously innovate to maintain their competitive advantage have long been recognized (Riaz et al., 2021). Such behavior and actions which has the nature of idea generation, promotion and implementation become a vital transformation in knowledge-intensive industries such as academia (Alabood & Sulphrey, 2023) As a result, the study of the predictors and the moderators of innovative work behavior has attracted interest from both researchers and practitioners (Farrukh et al., 2022) (Alabood & Sulphrey, 2023). This is especially prominent in higher education as the faculty innovation directly relates to curriculum, research output, and the overall competitive edge of

an institution (Riaz et al., 2021). Although an essential element, innovative work behaviour in universities is a relatively understudied area, particularly in relation to the proper use of resources to promote an innovative attitude among academic staff (Farrukh et al., 2022). Although innovation has been discussed and researched for decades, it has been forced onto individuals within an organization to stay relevant and competitive (Khan et al., 2012). As such, encouraging flexibility and adaptability in the organization to navigate increasingly complex globalized contexts presents a growing challenge and reinforces the importance of innovation more than ever (Stănescu et al., 2020). In such spirit, innovative work behaviour (IWB) has recently gained prominence as a salient determinant of employee endeavours in introducing and implementing new ideas or processes to improve organizational success (Farrukh et al., 2022). Within the context of the accelerating rate of changes driven by digital economy, this is even more critical, as the implementation of digital transformation requires employees to contribute with innovative work behaviors for organizational survival and sustained relevance (Zia et al., 2024). Innovation is the most active element of the current industrial age for manufacturing contemporary customer-driven competitive commodity (Li et al., 2022). In addition, employees are the main source of innovation in any given industry, therefore, their innovative work behaviour is critical for organization innovation in different forms be it workplace practices, workplace techniques or workplace environment 13. This has highlighted the importance of individual-level innovation as part of the key factors that determine the success and transition of the organization under the concept of knowledge-driven (Salam & Senin, 2022) (Baig et al., 2022). As such, to sustain the competitive advantage in the long run, that organization needs to implement an approach to facilitating innovative work behavior by their employees (Srirahayu et al., 2023) (Salam & Senin, 2022). As individual actions are essential for creating, implementing and applying beneficial novelty at every level Cascio (2023) innovative work behaviour expressed by individuals, is fundamental to organisational innovation (Salam & Senin, 2022) (Hosseini & Shirazi, 2021). Such proactive behaviour, regarding the creation and communication and implementation of new ideas, helps employees to play an impactful role on organizational success, especially in modern digitally competitive environments (Curzi et al, 2019). To be more competitive within the current global economy, organizations understand the need for innovation; the innovative work behavior of employees will help the organization achieve it (Salam & Senin, 2022). Autonomous generating, advocating, and executing of change-oriented ideas that are unique and useful to an individual, group, or organization, defines employee innovative behavior (Wu et al., 2022). This is especially true in service industries because these behavior are regarded as crucial for business development and have received considerable attention (Salam & Senin, 2022). Likewise, organizations need to understand that innovation powered by employee innovative behavior is the driving force behind market sustenance, especially in the case of volatile markets (Zhang et al., 2025). Given that innovative work behaviour is a multi-dimensional characteristic in that it is manifested in (a) idea generation (b) idea seeking and (c) idea communication activities (d) idea implementation activities (Bayram & Öztrak, 2023). It is about discovering new possibilities, creating innovations, and implementing changes for the purpose of improving the performance of individuals and organizations (Elamının et al., 2024) (Muzayyanah & Djudiyah, 2024). Such behaviors remain critical for

organizations to sustain resilience and adaptability, especially when technology is changing at a high pace, and market demands are changing (Herijanto et al., 2023).

Literature Review and Hypotheses Development

Psychological Capital and Innovative Work Behavior

Psychological Capital comprising the facets of hope, efficacy, resilience, and optimism is gaining increasing attention as a significant-indicator variable of various positive organizational behaviours including innovative work behaviour (Lan, 2019). In particular, the greater the psychological capital of employees, the more proactive, creative, and persistent they are likely to be in creating and implementing new ideas (Chen et al, 2021) (GENTE et al, 2022). The reason behind this is the combination of the positive assets brought by each of the sub-dimensions of Psychological Capital, namely, self-efficacy, hope, optimism, and resilience, which collectively provide a strong psychological resource base that enables employees to deal with risk and uncertainty associated with innovation (Slåtten et al., 2020); (Wang et al., 2021). Psychological capital also strengthens the positive psychological state of people, maintain an optimistic mental outlook towards surrounding environments, and maintain a rational expectation of success—the key factor for performing innovation (Wang et al., 2021). This reflects a positive psychological state that empowers employees to perceive challenges as ways to take new ideas and paths of action (Khan & Dukhaykh, 2022) In fact, empirical evidence indicates a direct and positive relationship between an employee scope of psychological capital and innovative work behaviors (an important construct for organizational innovation), whereby building this psychological state can enhance organizational innovation (Hsu & Chen, 2015). For example, self-efficacy enables people to step up to difficult tasks with confidence and put in the effort to succeed, and hope gives people the energy to pursue goals in the face of setbacks (Slåtten et al., 2020). Whereas optimism can enable workers to have hope about future events and their chance of achieving success in spite of setbacks (Lan, 2019). Further, in university context, PsyCap motivates the faculty to do experimentation with teaching, learn new research techniques, and come up with new ideas for institutional growth.

Hypothesis H1: There is a positive association between psychological capital and innovative work behavior amongst faculty of Pakistani universities.

The Mediating Role of Digital Technology

Given that digital tools and platforms are more and more in with us, it is important to figure out how the digital technology is mediating relationship between psychological capital and innovative job behaviors (Karimi et al., 2023). The reason for this mediating is to legitimately audit PsyCap's potential brook to convey outstanding outcomes from ideological vice into computer reality itself. Digital technologies are typically disintermediative, lending breadth and depth to users' psychological resources. They furnish magic ki for creative thinking and highly effective modi vivendi suchas co-ordinated solving of problems. Digital central networks provide ideal platforms for idea generation, knowledge sharing, and rapid prototyping. Thus, psychological capital is transformed into a tangible innovative output in

the virtual domain. Again, digital tools together with psychological capital amplify the effects of self-efficacy, hope, optimism, and resilience on a person's capacity for innovation. The much awaited English version of this book is expected to be an important breakthrough in the research of IWB. Since knowledge generates, digital platforms also decrease the risk associated with experimentation. Moreover, the integration of digital tools allows employees with higher psychological capital to experiment with less fear of failure and more self-confidence: a premise then for greater revenue and customer engagement (Nahyan et al., 2024). This being the case, where digital transformation and human psychology come together, methods change. Productivity and heartening audiences with money will both be rewarded by the union of digital tools with written glory. Digital innovations In a final thought, then: they produce something tangible out of what could otherwise be mere daydreaming for hours on end. Meanwhile, this symbiotic relationship is particularly important for modern organizations wanting to cultivate a culture of continuous innovation and adaptability. The internal ecology is another important arena where digital transformation clearly spreads its influence (Forth UCS Innovativeness).

Looking at innovation in this way is actually an expression of the pressing need for organizations to strategically integrate digital resources with human psychological strengths. Digital tools will therefore be one of the defining features of modern work environments, both labor-saving in practice and a cute fee-collector at business meetings. For example, digital engagement is the amount of energy expended on digital platforms. The Internet, No. More business depends on strategy, so it is important for better entrepreneurs to practice driving digital thinking in a hybrid form forward: in other words, how to do away with "idea in ink debate reams written for one's eyes alone" to get more efficient sense (Zia et al., 2024). These skills are essential for guiding digital change and managing modern capabilities (2Life Book Oce Broad One-Stop:), in particular government-reform projects or industrial conglomerates that are involved with technology innovation regulations around the world are targeted by advanced methods to change. Digital Leadership is thus essential in the modern era as a precondition for fostering innovative work behavior and achieving organizational goals. design Decisive action, the capacity to persuade others Hold on To your hats, because digital leadership is the sine qua non for organizational success in this new digital era (Zia et al., 2024). Organizations don't want or need anything of the kind-they just aren't goldfish. Only by daring and grasping new technology resources oneself can one hope to go global. After all, digital technology is expected to mediate the relationship between PsyCap and IWB.

Hypothesis H2: Between psychological capital and innovative work technology, makes the mediation inspection by discussing whether digital adoption affects behavior towards innovation.

The Moderating Role of Cyberloafing

While the preceding discussion highlights the potential benefits of digital technology, it is equally important to consider factors that might attenuate its positive influence on innovative work behavior. One such factor is cyberloafing, which involves employees engaging in non-

work-related online activities during work hours, potentially diverting resources and diminishing productivity (Zia et al., 2024). This behavior can undermine the very advantages digital tools are meant to provide, as time and attention diverted to non-work activities can hinder collaborative efforts and reduce the cognitive resources available for innovative tasks. This reduction in focus and availability can consequently impede the effective utilization of digital technologies for innovative work, thereby moderating the positive relationship between psychological capital and innovation (Zia et al., 2024). Specifically, cyberloafing can deplete an individual's psychological resources, such as self-regulation and motivation, which are crucial for channeling digital engagement into constructive innovative outputs. This diversion compromises the potential for digital technologies to serve as effective mediators between psychological capital and innovative work behavior (Zia et al., 2024). This is because engaging in non-work-related online activities during work hours can diminish the focus and effort an employee allocates to innovation-related tasks, thereby weakening the positive link between their psychological capital and their innovative output (Afsar & Umrani, 2019). Moreover, cyberloafing can disrupt the flow of collaborative innovation and knowledge sharing facilitated by digital platforms, thereby directly counteracting the benefits derived from digital engagement. Furthermore, cyberloafing has been shown to produce complex workplace outcomes, including both potential positive and negative effects on employee innovation performance during disruptive periods such as the COVID-19 pandemic, by influencing job anxiety, state gratitude, and perceived meaning of work (Zhong et al., 2021). However, it is crucial to recognize that classifying cyberloafing solely as a negative behavior may not be entirely accurate, as some studies suggest it can also lead to increased productivity, stress reduction, and job satisfaction (Açıksöz et al., 2024). For instance, brief periods of cyberloafing might serve as micro-breaks, enabling employees to recover from mental fatigue and return to tasks with renewed focus and creativity (Yang et al., 2022) (Aladwan et al., 2020). In certain contexts, particularly when individuals use cyberloafing as a coping mechanism for stress or a means of mental detachment, it may even contribute positively to their psychological well-being and, indirectly, their innovative capacity (Mishra & Tageja, 2022). Thus, cyberloafing acts as a negative moderator, reducing the strength of the indirect effect of PsyCap on IWB via digital technology.

H3: Cyberloafing negatively moderates the indirect relationship between psychological capital and innovative work behavior through digital technology.

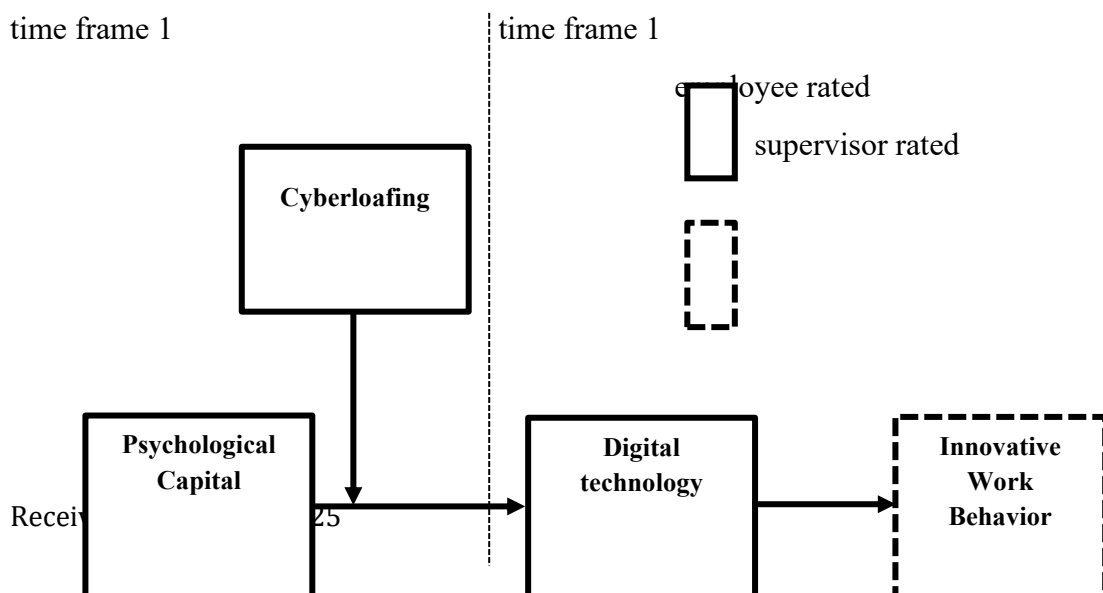


Figure 1. The conceptual framework

METHODS

Sample and Procedure

This study used a diverse sample of full-time employees from various universities across Pakistan for its data. The business of enterprise Employees were recruited using stratified random sampling, to reflect the needs of numerous academic disciplines and administrative units across Pakistan's higher education sector, making it easier in turn for research results to be exported into other regions. This study was reviewed by the institutional review board and everyone taking part gave their formal consent. Online surveys using a secure platform were done in such ways as to make data collection both anonymous and confidential.b) The data collection tool was designed to measure psychological capital, innovative work behavior, digital technology uptake and cyberslacking. Scales adapted from established questionnaires were used for this tool. We organized a small working group as a pilot test of the questionnaire, then adjusted it for clarity, cultural suitability and question validity.c) A modified instrument was then circulated to a larger sample: as a result it only took four weeks to get several responses, which guaranteed that there would be enough data for statistical analysis. (Zia et al., 2024) A total of 350 responses was received and after excluding incomplete or partial responses 331 of these were taken as good. This procedure is in keeping with practices used elsewhere for all such studies on organizational behaviours(e.g., Jo & Hong, 2022). So our overall effective survey rate was around 42%, which tends to be more or less the same as those of comparable works in a similar environment (e.g., Afsar & Umrani, 2019). The sample was made up of a cross section from various age groups, sexes and experience levels, further ensuring that generalizable conclusions can be drawn from this study. **Table 1** summarizes respondents' demographic characteristics in detail.d) As the study is situated within Pakistan and given the country's relatively low boundaries for entering the labor force, such a demographic alliance is important to ensure that its findings are pertinent to more generalizable peoples throughout Pakistan. (Zia et al., 2024) The mean age of those who responded to our study was 31.86 years, and their mean length of time in organization 4.9 years. 41.1% of the respondents held at least a bachelor's degree (Al-Ghazali & Afsar, 2022)e. The data collection instrument was a questionnaire given on the Internet, a practice in keeping with current research (Khan & Dukhaykh, 2022). Public platforms (such as Google Forms and WhatsApp) were indispensable for getting this workload done quick and well, especially considering the sometimes sensitive nature of some research themes (e.g., Waheed et al., 2024Javed et al., 2023). This method provided for both an extensive reach and data harvest, enabling participants' comfortableness and candour. (Altın & YILMAZ, 2021)f. The

approach is particularly effective when dealing with the different geographical settings and large sample sizes required in relation to prior research (e.g., Susomrith & Amankwaa, 2019) (Liu et al., 2024). The furtherings instrument's appearance and ease of use were validated rigorously by active researchers in the field of management. Their comments led us to change the wording and length of our questions before distribution (Hooi, 2019). This extensive pre-testing could only have improved the credibility and validity of all research indicators, especially with regard to structuring human resources development processes designed for this study g) In the end, the final questionnaire elicited 188 usable responses, giving an 88.26% response rate. Of these responders 82% were male, averaged 32 years old in age and had spent 7.5 years in the organization on average. (Binyamin & Carmeli, 2010) **See Table 1.**

Table 1. Demographic details

Variable	Category	N	Percentage (%)
Gender	Male	180	52.05
	Female	185	47.95
		365	100
Age	30-39	100	27.4
	40-50	210	57.53
	51-60	55	15.07
		365	100
Education	14 years of education	60	16.44
	16 years of education	251	68.77
	18 years of education	54	14.79
		365	100
Province (Punjab)	Lahore	90	24.66
	Faisalabad	75	20.55
	Multan	70	19.18
	Rawalpindi	65	17.81
	Gujranwala	65	17.81
		365	100
Marital Status	Married	260	71.23
	Single	105	28.77

Total 365 100

Note: N (sample), source: authors' work**Measures:**

In the study all the constructs were measured using established scales that had been adapted to the Pakistani context, guaranteeing both reliability and cultural relevance. Specifically, these adaptations consisted of small linguistic changes and contextual alterations to ensure that the staff from Pakistan's various universities understood and considered them both in a clear way and relevant to their particular situation (Waheed et al., 2024). For example, the demographic analysis showed that 53.7% of the respondents were male, while a large number fell into the younger workforce demographic of 18-25 years old (Khwaja et al., 2023). Furthermore, 47.9% of the participants had completed a bachelor's degree, showing that it was a relatively educated sample; although 61.1% of them had been employed for 1-5 years indicated both practical experience as well as adventure within your own organization's system (Bayram & Öztirak, 2023) (Alabood & Sulphrey, 2023). The instruments for the variables of interest such as performance or knowledge sharing, explicit and implicit coordination as well as the moderating effect of generative AI 's impact on the system were taken from well established studies. Thus it ensured confront clearance and scientific investigations by way of common fora for valid questions (Rasheed et al., 2024). The survey questions were translated into Urdu, Pakistan's official language, and then back-translated into English by independent bilingual experts. This meticulous process of translation enhanced internal (Rasheed et al., 2024) validity, ensuring that nuances across languages could accurately capture each construct (Rasheed et al., 2024). Pilot studies were undertaken with a small group of staff - 62 employees--to verify the reliability and validity of research measures, especially in relation to the structuring of HRM processes (Binyamin & Carmeli 2010). This initial testing confirmed the robustness of the scales and their suitability for collecting primary data, giving confidence for subsequent analysis (Binyamin & Carmeli 2010). It had 5-point Likert scale items, from "strongly agree" to "strongly disagree" which had been a popular choice in behavioral research to squeeze out subtle responses (Hussain et al., 2024). Psychometrically, this approach guaranteed that our measurements were consistent across the board and opened the door as ever-more statistical analysis becomes viable.

RESULTS

The data has been gathered, using structural equation modeling to examine it and easy check hypotheses such as this smart new algebra table really enables us do so. Specifically version 3.3.7 of SmartPLS was used for its comparative effectiveness in dealing with both simple and sophisticated procedures, providing reliable results without an absolute need to meet normal distribution tests that covariance-based techniques (Mohammed et al., 2022). This technique enabled us to look into all the direct and indirect effects within the model. It was a powerful tool for hypothesis testing (Binyamin & Carmeli 2010). This form of analysis is highly suitable for complex models dealing with mediating and moderating variables, such as exploring how knowledge-sharing and generative AI impact on organizational performance (Rasheed et al., 2024). The first stage of this process entailed confirming factor structure,

reliability and validity of the measurement model by means confirmatory factor analysis before going on to synthesis (Binyamin & Carmeli 2010).

Table 2. Composite Reliability, Convergent and Discriminant Validity

Variabe	CR	AVE	MSV	MaxR H	cyborloafin g	PsyCa p	DT	IWB
cyborloafing	0.911	0.72 5	0.00 2	0.990	0.852			
PsyCap	0.959	0.66 8	0.16 9	0.993	-0.047	0.817		
Digital Technology	0.888	0.61 4	0.17 6	0.993	-0.014	0.338	0.78 4	
IWB	0.926	0.67 7	0.17 6	0.994	-0.039	0.411	0.41 9	0.82 3

Note: CR = composite reliability, AVE = average variance extracted, MSV = maximum shared variance, MaxR(H) = maximum reliability or H reliability, DT = Digital Technology, PsyCap = psychological capital, IWB = innovative work behavior

Factor loading:

In a measurement model, factor loadings determine construct validity. A loading of above 0.70 can be considered satisfactory, indicating that the indicators faithfully represent their underlying constructs (Gusti et al., 2024). All factor loadings in this study were found higher than 0.70. Table 2 lists the specific figures. Their availability confirms the convergent validity of measurement instruments (Olomiyete, 2024). And items with factor loadings between 0.4 and 0.7 were slowly eliminated: this could serve to enhance internal consistency reliability for the constructs (Mujalli et al., 2024). In this way, the selection process can assure that only measurement items of robust psychometric qualification contributes to each composite score for a construct (Huy et al., 2024). The internal consistency of the latent variables (as measured by their composite reliability) always surpassed the minimum threshold level of 0.60, further supporting the reliability of measurement instruments (Türkeş et al., 2024). The average variance extracted values for all constructs were higher than 0.50, showing that more than half of the variance in these indicators is attributable to their respective latent constructs and so meeting criteria of convergent validity (Rasheed et al., 2024). Given this rigorous evaluation, we can be confident that the measurement items are closely tied to their latent constructs--in keeping with established psychometric norms (Almogren et al., 2024; Peng, 2024; Shore et al., 2024).

As all constructs gained consistent high factor loadings, composite reliability values and average variance extracted, the robustness and validity of the measurement model are strongly supported. This ensures that any forthcoming structural model analysis is built on a sound basis (Al-Okaily et al., 2023) (Khan, 2024) (Zhang, 2023) (Rawashdeh & Rawashdeh,

2022).The Average Variance Extracted values, all above the threshold of 0.5 and ranging from 0.621 to 0.843, support these findings even more completely: it means that at least 50% of observed data is accounted for by variance as a result of these constructs (Minh et al., 2024).Moreover, in order to confirm convergent validity, the high homogeneity revealed by KMO tests – ranging from 0.809 to 0.867 for all constructs -, all surpasses an acceptable level set at 0.7 (Rahimizhian & Irani, 2021).Finally, the composite reliability value of each construct was quite good; the range spanned from 0.878 to 0.969, which all exceeded a recommended minimum threshold for any research data input system ("Proceedings of the 19th Conference on Computer Science and Intelligence Systems (FedCSIS)," 2024).These findings make it a decisive point: the model does have reliability and convergence validity. By providing this solid empirical foundation for assessing proposed structural relationships of the constructs, these results ensure their reliable application (Mohammed et al., 2021) (Almogren et al., 2024).In addition to this exhaustive demand for discriminant validity, each construct was also the subject of scrutiny. The purpose was to make measurements of different phenomena and distinguish them from one another within our model (Zebua & Widuri, 2023).The Fornell-Larcker criterion was used as an indirect route to verify whether this was achieved, with the results being that each construct's average variance extracted is greater than its highest correlation outside a test set of other constructs (Rafsanjani et al., 2024) (Shannaq, 2024).Table 2 in the present results section also shows that root mean square errors (RMSE) and average variance extracted (AVE) comparison further reinforces this point (Susomrith & Amankwaa, 2019) (Alabood & Sulphrey, 2023).Additionally, the RfhNO'r prime consistent Armpit test was also employed here; since all of them came in well below the conservative threshold 0.85, it is further evidence to show beyond dispute each 'variable " that was used as an independent also remained in another sense completely separate (Yu-xia et al., 2024).This systematic validation process ensures that all constructs are clearly and reliably separated. As a result, we can responsibly analyze how they interact in the structural model. After this rigorous measurement model validation, the next step was to undertake a structural model analysis in order to verify the relations between factors.

Confirmatory factor analysis:

Authorised by a comprehensive confirmatory factor analysis, the measurement model was verified. The results confirm that the theoretical constructs have been adequetly mirrored in their observed indicators (Ates and koleman, 2024). This analysis included various fit indices, such as CMIN/DF, CFI SRMR and RMSEA to find the overall match. All indices met cognitive standards (Singh, 2024). The model fit the data well. The χ^2/df was less than 3, the CFI and TLI were both above 0.9, and RMSEA and SRMR were below 0.08. In combination, all these values confirm good model representation from empirical data (Jiang, 2024).

Table 3. Fit Statistics from Measurement Model Comparison

Models	χ^2	D F	χ^2 / DF	GF I	IF I	TL I	CF I	SRM R	RMSE A
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Factor measurement model	Model D (full)	755.6	31			.9	.9	.9		
		3	1	2.42	.87	5	5	5	.41	.06
Factor measurement model	Model C (three-factor)	2858.	31			.7	.7	.7		
		61	1	8.84	.63	4	2	4	.09	.14
Factor measurement model	Model B (two-factor)	4180.	32			.6	.5	.6		
		47	2	12.94	.55	1	8	1	.12	.18
Factor measurement model	Model A (one-factor)	5682.	32			.4	.4	.4		
		34	5	17.29	.43	7	2	7	.17	.21

Note: n = 365, All models are compared with the full measurement model.

Through this strict validation process, comparing a number of different factor models, one thing has been shown clearly--that Factor Model D is the most robust and theoretically pure form of expression. This result lends strong support to discriminant validity: that every latent variable is empirically distinct from the others and measures something unique about a given phenomenon (Jo and Hong, 2022) (Leon-Gomez et al., 2023). In addition, the Fornell-Larcker criterion demonstrates further the discriminant validity of the model, indicating that for each construct the square root of its AVE exceeds correlation with any other constructs (Castro-López et al., 2024). Furthermore, the Heterotrait-Monotrait Ratio was calculated; all values were less than the strict threshold of 0.85, consolidating the distinction of latent variables and giving more evidence about measurement model rigor "Proceedings of the 19th FedCSIS). These thorough validation steps give us high confidence in the detailed content of the constructs and measurement model, laying down a solid foundation for subsequent SEM analysis (Zhao et al., 2024). The construct unidimensionality confirmed by the results of CFA all acceptably fit indices, model robustness further substantiated. (Mei, 2014) Specifically, both the Goodness-of-Fit Index and Comparative Fit Index exceeded 0.96, a sign of an excellent fit between our model and actual observations (Özkaya & Özçelikay, 2024). Meanwhile, both the Root Mean Square Error of Approximation and the Standardized Root Mean Squared Residual were less than .05, amounting to almost zero residual variance and a perfect fit (Khan & Dukhaykh, 2022) (Khalaf & Abulela, 2021) refer to table 3 here. See the evidence above, these good statistics all point to the measurement model being psychometrically sound, and as such provides a firm basis for proceeding with structural model analysis (Zhao et al., 2024). Consistently high fit indices across multiple indicators provide solid evidence that this model reflects well the underlying theoretical structure. This is in line with standard guidelines for model acceptability (Olomiyete, 2024).

Hypotheses Testing

After the robustness and validity of the measuring model was built, the next step was to examine its structural model in order to test hypothesized associations between latent variables, as well as establish if those links were statistically significant (see Figures 12-15 So far). In

this stage, path coefficients' p-values were monitored and R squared values were recorded. In addition, these measures served to determine whether or not we could explain more of what we were observing by using SMLn terms ("19th Conference on Computer Science Intelligence Systems Proceedings of 2024", 2024). Evaluation of the structural model showed that it fit, with GOF=0.85, CFI is always more than 0.95 and RMSEA less than 0.08 (Tao et al, 2011; Varying et al., 2016).[ref] This means when the substantive hypotheses tested above emerged to be in condition, then failure rating for it must have been definitely below 1.0 per cent (Li et al., 2019).

Table 4. Mediation Analyses

Relationships	β	SE	95% Confidence	
			LL	UL
PsyCap $\rightarrow$ innovative work behavior	0.36**	0.06	0.25	0.49
PsyCap $\rightarrow$ Digital Technology	0.41**	0.06	0.28	0.53
Digital Technology $\rightarrow$ innovative work behavior	0.32**	0.05	0.21	0.41
<i>Mediation of Digital technology</i>				
Direct path	0.36**	0.06	0.25	0.49
Indirect path	0.11*	0.03	0.07	0.19

Note. PsyCap = Psychological Capital; SE = standard error; LL = lower limit; UL = upper limit. **p < .01, *p < .05.

The mediation analysis from Table 4, Servaes and his colleagues found that the specific way these antecedent factors lead to what we should do about them was explained by how intervening variable labour relations This was made richer with more sophisticated statistical methodology, using 5000 bootstrap samples (Jankelová et al., 2024) Consequently, we took advantage of the efficiency and accuracy combined into one that comes from using E-views 9 in smaller surveys: for those who are interested in uncovering these hidden relationships between an independent variable PsyCap and dependent same variables digital technology I feel that SPSS is your best bet-which is also what we have used when drawing all graphs involving two-stage least squares dummy variable errors. As can be seen from the above data, although literature in PsyCap itself is fairly extensive (for example see Luthans & Youssef, 2004), it has rarely covered the field of digital technology. The research outcomes were wildly successful!That the no-fit path from PsyCap to innovative work behavior remained significant ($\beta = 0.36$, $p < .01$) indicates not only DTCO partially evoking PsyCap $\rightarrow$ IWB but also how digital technology brings its advantages directly to the PsyCap–IWB relationship These data suggest that while professors “ utilization of digital technology enhances the advantages their psychological sources grant them for creative activities, it is equally involved in promoting innovation and development in colleges and universities However, if it were not for the continuous generation and cultivation of talent in these specialized fields,

then no great accomplishments would ever have been achieved. That is who Beijing aspires to be again." and "zhongguancun" (as ballroom-sized, marble floored, modern science parks occupied by celebrities) are already approaching their 10th anniversary Moreover, psychological capital plays a significant positive role in promoting employee engagement; at the same time, it is a powerful medium which strengthens innovative work practice (Khan & Dukhaykh, 2023) (Al-Kahtani et al., 2020). Moderated mediation was confirmed with a direct test at the same time. This direct test also entailed an assessment of both the index of moderated mediation and its confidence interval (C.I.). The calculated index coefficient was .10, and its confidence interval (LL= -.10, UL= .20) excluded "0". This provides empirical support for H2: cyberloafing through digital technology diminishes the positive indirect effect between PsyCap and innovative work behavior, which its index of moderated mediation confirms.

Table 5. Assessment of Moderated Mediation

Relationships	GRG	β	S.E.	<i>p</i>
PsyCap → innovative work behavior	0.20	0.37	0.06	***
Digital Technology → innovative work behavior	0.17	0.31	0.04	***
$R^2 = 0.21$				
PsyCap → Digital Technology	0.13	0.23	0.20	**
Cyberloafing → Digital Technology	-0.11	-0.19	0.21	Insig.
PsyCap * Cyberloafing → digital technology	0.07	0.04	0.05	*
$R^2 = 0.11$				
	Effect size	S.E.	Bootstrap 95% C.I.	
			LL	UL
-1 SD of cyberloafing	0.14	0.03	0.05	0.18
Mean (0) of cyberloafing	0.12	0.31	0.07	0.19
+1 SD of cyberloafing	0.10	0.39	0.08	0.24
Index of moderated mediation	0.01	0.02	-0.01	-0.05

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.10$, S.E. = standard errors, LL = lower limit, UL = upper limit, GRG = grey relational grade.

It can be seen that if we hold the control variables constant, psychological capital still has a significant positive effect on innovative work behavior ($\beta = 0.37$, $p < 0.01$). Digital technology, too, is significantly positively related to innovative work behavior ($\beta = 0.31$, $p < 0.01$). That the importance of both is reflected together in present-day college teachers' attitudes towards innovation Although PsyCap significantly predicts digital technology use (β

= 0.23, $p < .05$) and cyberloafing is not significant effect on digital technology ($\beta = -0.19$, ns), this relationship is found to be marginally significant when the interaction term between PsyCap and cyberloafing is considered as a whole ($\beta = 0.04$, $p < .10$). Cunningham found that the indirect effect of PsyCap on innovative work behavior through digital technology is at its strongest among no peopleoblerss and weakest among many peopleoblerss: > strongest when there are no peopleoblers at all (0.14), > moderate if medium (0.12), and > weakest under conditions when large crowd someone appears in front of him (0.10). The index of moderated mediation is quite tiny (0.01), as the confidence intervals include zero. This suggests there is only very weak moderation overall. See Table 5. We then directly tested for the interaction effect as well. The simple slopes for low and high PsyCap are plotted in Figure 3. Since the lines are not parallel, this indicates a moderating effect of cyberloafing (CL). Results show that at low PsyCap, innovative work behavior (IWB) becomes lower with higher CL than with low CL and the difference is substantial. Nevertheless, for high PsyCap the difference between low and high CL narrows. This suggests that PsyCap itself plays a greater role than CL in enhancing IWB (**Figure 3**).

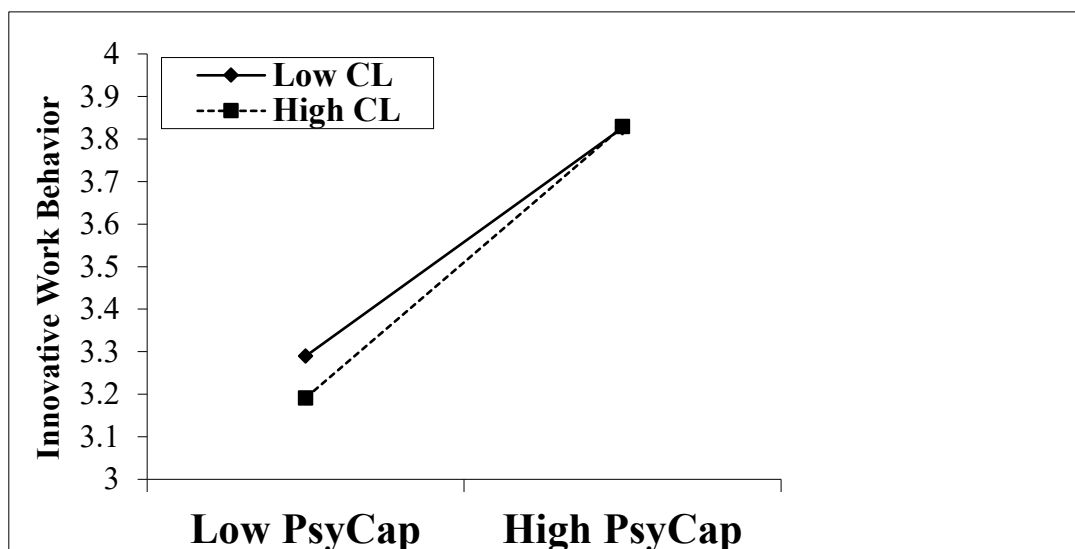


Figure 3. Interaction effect of cyberloafing (CL) on the relationship between psychological capital (PsyCap) and innovative work behavior (IWB).

Discussion

Because innovative work behaviour is vital in Pakistani educational institutions we explain other new roles for both virtualization and digitization in contemporary society. We extend the research on how psycho-logical capital through digital technology enables employees to make innovations in their work. We also tested the moderation effects of cyberloafing on the application of this model in Pakistan. The results of this study showed that cyber technology significantly mediates the relationship between PsyCap and innovation at work. In contrast, cyberloafing also significantly moderates linkages between PsyCap and technology. These findings extend our current understanding of how internet technologies might work as media for people's thoughts by pushing forward both theoretical and practical research.

Theoretical Implications

In our study, we extend the understanding of innovative work behavior by pinpointing the digital technology in addition to psychological capital in link between IWBs and psychological capital (Fu & Qiu, 2023). In other words, Technological integration serves as a crucial channel through which the psychological resources for any individual are transformed to innovative outputs in an organization (Alshebami, 2021). Additionally, our research addresses a significant ontological gap in the literature by thoroughly detailing how psychological capital, digital technology, and cyberloafing interact to shape innovative work behaviour, thus enriching theoretical discussions of innovation drivers in digital work environments (Zia et al., 2024) (Zhang, 2023). More specifically, these findings help to extend current models through integrating cyberloafing as an essential moderator. They show how undesirable online behaviors can blunt the favorable influence of psychological capital on digital technology adoption and hence, innovative work behaviors (Karimi et al., 2023). Our findings are also in line with prior research that stressed the importance of managing social and psychological resources to cultivate innovative organizational behaviour (Hsu & Chen, 2015). This empirically supports the idea that management of digital resources and employee well-being must be approached strategically by organizations in order to nurture an effective workforce capable of producing genuine innovation (Alabood & Sulphrey, 2023). Our study, furthermore, responds to a challenge by showing in a way never seen before all of the mediating and moderating mechanisms involved in how motivational factors in leadership play out such behavior as innovative work behaviours. This brings us closer to gaining a profound understanding for the mediating and moderating mechanisms that affect innovative work performance in an organizational environment, especially with respect to leadership and motivation factors (Afsar & Umrani, 2019) (Wang et al., 2022).

Practical Implications

Managers who want to develop an innovative workforce have some useful tips from this literatures: upgrade the team psychological capital can be realized both strategically and with digital tools. First, organizations should invest in training programs designed to boost people's psychological capital, so they become traits of the person rather than acquired habits. That is, they might need to train their employees in self-efficacy, hope, optimism, and resilience, which are linked with digital tool use output (Santoso et al., 2019). Such endeavors may comprise workshops on positive psychology, counseling services for workers facing difficulties, and resilience-building exercises designed to help workers acquire the mental strength needed in order to use digital tools effectively (Lan, 2019). Second, management should create a receptive organizational culture that encourages the introduction and application of digital technologies, giving employees suitable training, suitable materials, and beneath that suitable psychological safety to practice with no fear of making mistakes (Bayram and Öztırak, 2023) (Khan et al., 2024). This includes providing opportunities for lifelong learning and successively improving increasing levels of digital literacy among staff so that people not only understand the new technology but are also capable of using it to think up novel ideas and novel answers.

Limitations and Prospects for Future Research

This study has several limitations, primarily related to the use of self-report data and a single-country context, which may restrict the generalizability of its findings. In the future, researchers could employ objective data on employee behavior and the use of digital tools to avoid common method bias and get a more reliable understanding of the interactions studied. Furthermore, carrying out this experiment in a variety of geographical and cultural settings would enrich both its external validity and its practicability (Afsar and Umrani, 2019). Longitudinal designs might also be employed to investigate these variables over time, revealing deeper insights into causal pathways (Alabood and Sulphey, 2023) (Zhang, 2023). Moreover, future research could explore the impacts of particular digital leader styles and communication methods on employee digital engagement and innovative work behavior (Zia et al., 2024).

Conclusion

Despite Zia et al.(2024) confirmation with respect to the importance of digital communication on digital engagement and digital leadership and how the innovation work behavior among the technological professionals increases, in the present study this statement has been confirmed. It can be inferred from these findings that developing digital competencies and leaders at organization level enables a greater contribution to innovation generation in the given workforce (Zia et al., 2024; Sweeney et al., 2022). Thus, organizations need to adopt strategies that combine digital communication and digital leadership in order to create an innovative ecosystem and respond effectively to changing environmental conditions (Bayram & Öztürk, 2023). This consists of sustaining an atmosphere conducive to innovation and lifelong learning, offering exposure to emergent ideas and skills; enabling employees in deploying their capabilities (Afsar & Umrani, 2019) (Bayram & Öztürk, 2023). Such a combination not only helps employees acquire the digital tools they need, but also the psychological endowments and the leadership support that employees need to innovate meaningfully in the enterprise (Wang et al., 2022) (Zia et al., 2024). Additionally, examining differences across industries would provide more refined insights, as the extent of technology integration differs among sectors (Zia et al., 2024). Finally, future research may also examine the role and effects of alternative leadership orientations (e.g. empowering, inclusive, authentic leadership) on innovative work behavior, mediated by psychological empowerment (Afsar & Umrani, 2019). In addition to that, we suggest that future research utilizes larger, more heterogeneous samples representing more industrial sectors and diverse demographic characteristics (Zia et al., 2024) (Khan & Dukhaykh, 2022) (Jo & Hong, 2022).

References:

1. Abun, D., La Gente, D., Francis, J., & Encarnacion, M. J. (2022). The Effect of Bureaucratic and Humanistic Leadership Styles on the Innovative Work Behavior of Employees. *Abun et al., Divine Word International Journal of Management and Humanities*, 1(1), 41-57.

2. Aciksoz, S., Sendir, M., Atar, N. Y., Simsekoglu, N., & Baydili, K. N. (2024). Exploring the relationship between cyberloafing and innovativeness among nurses in research hospitals: a cross-sectional study in Turkey. *BMC nursing*, 23(1), 371.
3. Afsar, B., & Umrani, W. A. (2019). *Transformational leadership and innovative work behavior: The role of motivation to learn, task complexity and innovation climate*.
4. Afsar, B., & Umrani, W. A. (2020). Transformational leadership and innovative work behavior: The role of motivation to learn, task complexity and innovation climate. *European Journal of Innovation Management*, 23(3), 402-428.
5. Alabood, A., & Manakkattil, S. (2023). Workplace agility, intrinsic motivation, and role congruence antecedents of innovative work behavior: Evidence from Saudi Arabian organizations. *Problems and Perspectives in Management*, 21(3), 448.
6. Alabood, A., & Sulphrey, M. M. (2023). Workplace agility, intrinsic motivation, and role congruence antecedents of innovative work behavior: Evidence from Saudi Arabian organizations. *Problems and Perspectives in Management*, 21(3), 448.
7. Aladwan, M. A., Muala, I. A., & Salleh, H. S. (2021). Cyberloafing as a mediating variable in the relationship between workload and organizational commitment. *Management Science Letters*, 11(3), 1013-1022.
8. Al-Ghazali, B. M., & Afsar, B. (2022). Impact of psychological capital on mental health, readiness for organizational change, and job insecurity: hotel employees' perspective in COVID-19. *Journal of Tourism Futures*.
9. Almansoori, S. I., Araci, Z. C., & Dweiri, F. (2025). A structural equation modeling approach to evaluating innovation dynamics' effect on SME performance in the United Arab Emirates. *Discover Applied Sciences*, 7(5), 1-18.
10. Almogren, A. S., Al-Rahmi, W. M., & Dahri, N. A. (2024). Exploring factors influencing the acceptance of ChatGPT in higher education: A smart education perspective. *Heliyon*, 10(11).
11. Al-Okaily, M., Alkhwalid, A. F., Abdulmuhsin, A. A., Alqudah, H., & Al-Okaily, A. (2023). Cloud-based accounting information systems usage and its impact on Jordanian SMEs' performance: the post-COVID-19 perspective. *Journal of Financial Reporting and Accounting*, 21(1), 126-155.
12. Alshebami, A. S. (2021). The influence of psychological capital on employees' innovative behavior: mediating role of employees' innovative intention and employees' job satisfaction. *Sage Open*, 11(3), 21582440211040809.
13. Altin, M., & Yilmaz, R. (2022). Adoption of cloud-based accounting practices in Turkey: an empirical study. *International Journal of Public Administration*, 45(11), 819-833.
14. Ateş, H., & Kölemen, C. Ş. (2025). Integrating theories for insight: An amalgamated model for gamified virtual reality adoption by science teachers. *Education and Information Technologies*, 30(2), 2123-2153.
15. Baig, L. D., Azeem, M. F., & Paracha, A. (2022). Cultivating innovative work behavior of nurses through diversity climate: The mediating role of job crafting. *SAGE open nursing*, 8, 23779608221095432.

16. Bayram, V., & Öztırak, M. (2023). A Study on the Impact of Agile Leadership and Innovative Behaviors on Psychological Empowerment. *Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 24(4), 547-559.
17. Bayram, V., & Öztırak, M. (2023). *A Study on the Impact of Agile Leadership and Innovative Behaviors on Psychological Empowerment*.
18. Binyamin, G., & Carmeli, A. (2010). Does structuring of human resource management processes enhance employee creativity? The mediating role of psychological availability. *Human Resource Management*, 49(6), 999-1024.
19. Cai, W., Khapova, S., Bossink, B., Lysova, E., & Yuan, J. (2020). Optimizing employee creativity in the digital era: Uncovering the interactional effects of abilities, motivations, and opportunities. *International journal of environmental research and public health*, 17(3), 1038.
20. Castro-Lopez, A., Cervero, A., & Alvarez-Blanco, L. (2024). Predictive analysis of Metaverse usage intention in the Spanish University. *Journal of Computers in Education*, 1-24.
21. Chen, W., Zhu, X., Sun, S., Liao, S., & Guo, Z. (2021). The impact of employees' psychological capital on innovative work behavior: the chain mediating effect of knowledge donating and knowledge collecting. *Frontiers in Psychology*, 12, 761399.
22. Curzi, Y., & Ferrarini, F. (2024). High-performance work systems and firm innovation: the moderating role of digital technology and employee participation. Evidence from Europe. *Management Research Review*, 47(13), 51-68.
23. Curzi, Y., Fabbri, T., Scapolan, A. C., & Boscolo, S. (2019). Performance appraisal and innovative behavior in the digital era. *Frontiers in psychology*, 10, 1659.
24. *Definition and Conceptualization Innovative Work Behavior LIWB*. (n.d.).
25. Elamin, A. M., Aldabbas, H., Ahmed, A. Z. E., & Abdullah, A. N. (2024). Employee engagement and innovative work behavior: the mediating role of knowledge-sharing behavior in the United Arab Emirates (UAE) service context. *Administrative Sciences*, 14(9), 232.
26. Farrukh, M., Meng, F., Raza, A., & Wu, Y. (2022). Innovative work behaviour: the what, where, who, how and when. *Personnel Review*, 52(1), 74.
27. Fu, L., & Qiu, Y. (2023). Contributions of psychological capital to the learning engagement of Chinese undergraduates in blended learning during the prolonged COVID-19 pandemic: the mediating role of learning burnout and the moderating role of academic buoyancy. *European Journal of Psychology of Education*, 39(2), 837.
28. GENTE, F. J. D., Abun, D., & Encarnacion, M. J. (2022). The Effect of Bureaucratic and Humanistic Leadership Styles on the Innovative Work Behavior of Employees. *Divine Word International Journal of Management and Humanities (DWIJMH) (ISSN 2980-4817)*, 1(1), 41.
29. Guo, H., Zhou, Z., Ma, F., & Chen, X. (2024). Doctoral students' academic performance: the mediating role of academic motivation, academic buoyancy, and academic self-efficacy. *Heliyon*, 10(12).

30. Gusti, M. A., Satrianto, A., Juniardi, E., & Fitra, H. (2024). Artificial intelligence for employee engagement and productivity. *Problems and Perspectives in Management*, 22(3), 174.
31. Herijanto, P., Fiernaningsih, N., Widayani, A., Fauzi, A., & Himmah, M. (2023). The influence of vocational lecturer's work environment on innovative work behavior and creative self-efficiency. *Problems and Perspectives in Management*, 21(3), 408.
32. Higuera-Castillo, E., Singh, V., Singh, V., & Liébana-Cabanillas, F. (2024). Factors affecting adoption intention of electric vehicle: a cross-cultural study. *Environment, Development and Sustainability*, 26(11), 29293-29329.
33. Hooi, L. W. (2021). Leveraging human assets for MNCs performance: the role of management development, human resource system and employee engagement. *The International Journal of Human Resource Management*, 32(13), 2729-2758.
34. Hosseini, S., & Haghighi Shirazi, Z. R. (2021). Towards teacher innovative work behavior: A conceptual model. *Cogent Education*, 8(1), 1869364.
35. Hsu, M. L. A., & Chen, F. H. (2015). The Cross-Level Mediating Effect of Psychological Capital on the Organizational Innovation Climate–Employee Innovative Behavior Relationship. *The Journal of Creative Behavior*, 51(2), 128.
36. Hsu, M. L. A., & Chen, F. H. (2015). The Cross-Level Mediating Effect of Psychological Capital on the Organizational Innovation Climate–Employee Innovative Behavior Relationship. *The Journal of Creative Behavior*, 51(2), 128.
37. Hussain, H., Wen, J., & Rădulescu, M. (2024). Innovation Performance in the Digital Divide Context: Nexus of Digital Infrastructure, Digital Innovation, and E-knowledge. *Journal of the Knowledge Economy*.
38. Huy, L. V., Nguyen, T. H., Vo-Thanh, T., Thinh, N. H. T., & Dung, T. T. T. (2024). Generative AI, Why, How, and Outcomes: A User Adoption Study. *AIS Transactions on Human-Computer Interaction*, 16(1), 1.
39. Javed, I., Niazi, A., Nawaz, S., Ali, M., & Hussain, M. (2023). Impact of workplace bullying on work engagement among early career employees. *PLoS ONE*, 18(10).
40. Jiang, Y., Pongsakornrungrasit, S., Pongsakornrungrasit, P., & Li, L. (2024). The Impact of Interactivity on Customer Purchase Intention in Social Media Marketing: The Mediating Role of Social Presence. *TEM Journal*, 2133.
41. Jo, Y., & Hong, A. J. (2022). Impact of Agile Learning on Innovative Behavior: A Moderated Mediation Model of Employee Engagement and Perceived Organizational Support. *Frontiers in Psychology*, 13.
42. Jo, Y., & Hong, A. J. (2022). Impact of Agile Learning on Innovative Behavior: A Moderated Mediation Model of Employee Engagement and Perceived Organizational Support. *Frontiers in Psychology*, 13.
43. Karimi, S., Malek, F. A., Farani, A. Y., & Liobikienė, G. (2023). The Role of Transformational Leadership in Developing Innovative Work Behaviors: The Mediating Role of Employees' Psychological Capital. *Sustainability*, 15(2), 1267.
44. Karimi, S., Malek, F. A., Farani, A. Y., & Liobikienė, G. (2023). The Role of Transformational Leadership in Developing Innovative Work Behaviors: The Mediating Role of Employees' Psychological Capital. *Sustainability*, 15(2), 1267.

45. Kerksieck, P., Bauer, G. F., & Brauchli, R. (2019). Personal and Social Resources at Work: Reciprocal Relations Between Crafting for Social Job Resources, Social Support at Work and Psychological Capital. *Frontiers in Psychology*, 10.
46. Khalaf, M. A., & Abulela, M. A. A. (2021). The Academic Buoyancy Scale: Measurement Invariance across Culture and Gender in Egyptian and Omani Undergraduates. *European Journal of Educational Research*, 2121.
47. Khan, K., Javaid, Z. K., & Ali, A. A. (2024). Effects of authentic leadership on innovative work behavior: psychological capital as mediator and organizational unfairness as moderator in pakistani public sector organizations. *International Journal of Management Research and Emerging Sciences*, 14(3), 201-222.
48. Khan, M. A. (2024). Examining the Influence of Organizational Structure and Leadership on Innovation in Hybrid Work Settings: The Mediating Role of Organizational Culture in Enhancing Team Collaboration and Innovation Outcomes. *Research Square (Research Square)*.
49. Khan, M. J., Aslam, N., & Riaz, M. N. (2012). Leadership Styles as Predictors of Innovative Work Behavior. *Pakistan Journal of Social and Clinical Psychology*, 9(2), 17.
50. Khan, M., & Dukhaykh, S. (2022). An Empirical Study of the Influence of Perceived Organizational Support, Leader Member Exchange and Proactive Personality on Turnover Intention and Innovative Work Behavior: The Mediating Role of Employee Engagement. *Global Journal of Human Resource Management*, 10(4), 32.
51. Khan, M., & Dukhaykh, S. (2022). An Empirical Study of the Influence of Perceived Organizational Support, Leader Member Exchange and Proactive Personality on Turnover Intention and Innovative Work Behavior: The Mediating Role of Employee Engagement. *Global Journal of Human Resource Management*, 10(4), 32.
52. Khwaja, M. G., Hameed, A., & Zaman, U. (2023). Determining involvement HRM practices and benevolent HRM attributions' role in improving employees' engagement and reducing stress in sales-centric organisations. *International Journal of Knowledge and Learning*, 17(1), 1.
53. Kumi, E., Osei, H. V., Asumah, S., & Yeboah, A. (2024). The impact of technology readiness and adapting behaviours in the workplace: a mediating effect of career adaptability. *Future Business Journal*, 10(1).
54. Lan, X. (2019). How Psychological Capital Promotes Innovative Behavior: A Mutilevel Modeling. *American Journal of Industrial and Business Management*, 9(12), 2202.
55. Lan, X. (2019). How Psychological Capital Promotes Innovative Behavior: A Mutilevel Modeling. *American Journal of Industrial and Business Management*, 9(12), 2202.
56. León-Gómez, A., Jaén, J. M. S., Manzano, M. P., & Garza-Sánchez, H. H. (2023). Unlocking sustainable competitive advantage: exploring the impact of technological innovations on performance in Mexican SMEs within the tourism sector. *Environment Development and Sustainability*.
57. Li, W., Gill, S. A., Wang, Y., Safdar, M. A., & Sheikh, M. R. (2022). Proactive Personality and Innovative Work Behavior: Through the Juxtapose of Schumpeter's Theory of Innovation and Broaden-And-Build Theory. *Frontiers in Psychology*, 13.

58. Liu, J., Xu, R., & Wang, Z. (2024). The effects of psychological capital, work engagement and job autonomy on job performance in platform flexible employees. *Scientific Reports*, 14(1).
59. Mei, M. Q. (2014). *Learning to innovate: the role of ambidexterity, standard, and decision process*. Frederiksberg: Copenhagen Business School (CBS).
60. Meria, L., Yohana, C., & Purwohedi, U. (2023). Enhancing lecturer readiness to change: The mediation role of work engagement. *Cogent Business & Management*, 10(3).
61. Minh, H. N. T., Tran, N. P., Nguyen, K., Hong, T., Dinh, H., Vo, H., Diem, T., Nguyen, N. A., Yen, T., & Luong, Q. (2024). The Relationship between Psychological Capital and Work Commitment: A Study among Gen Z Workers in Vietnam. *Journal of Chinese Human Resource Management*, 15(3).
62. Mishra, D., & Tangeja, N. (2022). Cyberslacking for Coping Stress? Exploring the Role of Mindfulness as Personal Resource. *International Journal of Global Business and Competitiveness*, 17, 56.
63. Mohammed, A., Ferraris, A., & Troise, C. (2021). CSR practices and creativity during COVID-19 pandemic in the emerging market: investigating the mediating effect of affective commitment. *Management Decision*, 60(10), 2669.
64. Mohammed, B. F., Zhao, J., Yang, C., Yuwei, Y., & Zalat, Y. M. A. A. (2022). The impact of self-directed team on high-performance organization with the mediating role of knowledge sharing culture: Organizational support as a moderator. *Frontiers in Psychology*, 13.
65. Muneer, S., Singh, A., Choudhary, M. H., & Alshammari, A. S. (2024). The Mediating Role of Psychological Empowerment on the Relationship Between Digital Transformation, Innovative Work Behavior, and Organizational Financial Performance. *Behavioral Sciences*, 15(1), 5.
66. Muzayyanah, N., & Djudiyah, D. (2024). Exploring the Differences in Innovative Work Behavior and Workforce Agility Between Korean and Indonesian Employees: A Cross-cultural Study in a South Korea FDI Company. *KnE Social Sciences*.
67. Nahyan, M. T. A., Ahbabi, J. M. A., Alabdulrahman, M. A., Alhosani, I., Jabeen, F., & Farouk, S. (2024). Employee job security and job performance: the mediating role of well-being and the moderating role of perceived organizational support and psychological capital. *European Journal of Management and Business Economics*.
68. Olomiyete, I. A. (2024). Effects of Experience and Computer Proficiency on the Acceptance Behaviour of Accountants towards Usage of Cloud-Based Accounting Technology. A case of Nigerian Accountants. *Journal of Ecohumanism*, 3(4), 3303.
69. Özkaya, Y., & Özçelikay, G. (2024). Exploring the Nexus of Professional Commitment, Emotional Labor, and Self-Efficacy Among Community Pharmacists: Implications for Healthcare Delivery. *Turkish Journal of Pharmaceutical Sciences*.
70. Peng, M. Y. (2024). Breaking down barriers: exploring the impact of social capital on knowledge sharing and transfer in the workplace. *Humanities and Social Sciences Communications*, 11(1).
71. Proceedings of the 19th Conference on Computer Science and Intelligence Systems (FedCSIS). (2024). *Annals of Computer Science and Information Systems*, 39.

72. Rafsanjani, M. A., Wahyudi, H. D., Dewi, R. M., & Kamalia, P. U. (2024). Navigating the College Students' Adversities: The Role of Academic Buoyancy and Motivation on Learning Achievement. *Journal on Efficiency and Responsibility in Education and Science*, 17(3), 247.
73. Rahimzhan, S., & Irani, F. (2021). Investigating the antecedents of innovative behaviors in the hotel industry of Turkey. *Tourism & Management Studies*, 17(4), 45.
74. Rasheed, M. H., Khalid, J., Ali, A., Rasheed, M. B., & Ali, K. (2024). Human Resource Analytics in the Era of Artificial Intelligence: Leveraging Knowledge towards Organizational Success in Pakistan. *Journal of Chinese Human Resource Management*, 15(3).
75. Rawashdeh, A., & Rawashdeh, B. S. (2022). The effect cloud accounting adoption on organizational performance in SMEs. *International Journal of Data and Network Science*, 7(1), 411.
76. Riaz, A., Shahid, M., & Ali, Q. (2021). A Moderated Mediation Model of Empowering Leadership and Employees' Innovative Work Behavior. *Journal of Management and Research*, 8(2), 252.
77. Salam, S., & Senin, A. A. (2022). A bibliometric study on innovative behavior literature (1961–2019). *Sage Open*, 12(3), 21582440221109589.
78. Santoso, H., Elidjen, E., Abidinagoro, S. B., & Arief, M. (2019). The role of creative self-efficacy, transformational leadership, and digital literacy in supporting performance through innovative work behavior: Evidence from telecommunications industry. *Management Science Letters*, 2305.
79. Shannaq, B. (2024). Unveiling the Nexus: Exploring TAM Components Influencing Professors' Satisfaction With Smartphone Integration in Lectures: A Case Study From Oman. *TEM Journal*, 2365.
80. Shi, Y., Lin, Y., & Yu, Z. (2024). The effects of need satisfaction on active academic procrastination and the mediating roles of academic buoyancy and self-regulated learning. *Current Psychology*, 43(24), 21096-21109.
81. Shore, A., Tiwari, M., Tandon, P., & Foroapon, C. (2024). Building entrepreneurial resilience during crisis using generative AI: An empirical study on SMEs. *Technovation*, 135, 103063.
82. Singh, S., Pant, T., & Agarwal, T. (2024). Examining the Temporal Effects of Employer Branding on Employee Engagement and Employee Retention: A Longitudinal Study in the Indian IT Sector. *Journal of Chinese Human Resource Management*, 15(3).
83. Slåtten, T., Mutonyi, B. R., & Lien, G. (2020). The impact of individual creativity, psychological capital, and leadership autonomy support on hospital employees' innovative behaviour. *BMC Health Services Research*, 20(1), 1096.
84. Srirahayu, D. P., Ekowati, D., & Sridadi, A. R. (2023). Innovative work behavior in public organizations: A systematic literature review. *Heliyon*, 9(2).
85. Stănescu, D. F., Zbucnea, A., & Pînzaru, F. (2020). Transformational leadership and innovative work behaviour: the mediating role of psychological empowerment. *Kybernetes*, 50(5), 1041.

86. Susomrith, P., & Amankwaa, A. (2019). Relationship between job embeddedness and innovative work behaviour. *Management Decision*, 58(5), 864.
87. Türkeş, M. C., Stăncioiu, A. F., & Bănac, C. S. (2024). The intention to use ChatGPT in office work in Romania: Between utility and hedonic motivation. *Amfiteatru Economic*, 26(67), 783-800.
88. Ursin, P. af, Järvinen, T., & Pihlaja, P. (2020). The Role of Academic Buoyancy and Social Support in Mediating Associations Between Academic Stress and School Engagement in Finnish Primary School Children. *Scandinavian Journal of Educational Research*, 65(4), 661.
89. Waheed, A., Waheed, S., Hussain, S., & Majeed, A. (2024). The HR revolution: Redefining performance paradigms in Pakistan's pharma landscape through moderating role of innovative climate. *Plos one*, 19(5), e0301777.
90. Wang, H., Chen, X., Wang, H., & Xie, M. (2022). Employee innovative behavior and workplace wellbeing: Leader support for innovation and coworker ostracism as mediators. *Frontiers in Psychology*, 13, 1014195. Zhang, H. (2023). Technostress, Academic Self-Efficacy, and Resistance to Innovation: Buffering Roles of Knowledge Sharing Culture and Constructive Deviant Behavior. *Psychology Research and Behavior Management*, 3867.
91. Wang, Y., Yi, C., & Zhu, Y. (2021). Promoting Innovative Behavior in Employees: The Mechanism of Leader Psychological Capital. *Frontiers in Psychology*, 11.
92. Wu, J., Gong, X., & Liu, Y. (2022). Research on the influence mechanism of employees' innovation behavior in the context of digital transformation. *Frontiers in Psychology*, 13.
93. Yang, H., Lin, Z., Chen, X., & Peng, J. (2022). Workplace loneliness, ego depletion and cyberloafing: can leader problem-focused interpersonal emotion management help? *Internet Research*, 33(4), 1473.
94. Yılmaz, A. A., & Tuzlukaya, Ş. E. (2023). The relation between intellectual capital and digital transformation: a bibliometric analysis. *International Journal of Innovation Science*, 16(2), 244.
95. Zebua, S. U. L. I. N. A., & Widuri, R. I. N. D. A. N. G. (2023). Analysis of factors affecting adoption of cloud accounting in Indonesia. *Journal of Theoretical and Applied Information Technology*, 101(1), 89-105.
96. Zhang, H. (2023). Technostress, Academic Self-Efficacy, and Resistance to Innovation: Buffering Roles of Knowledge Sharing Culture and Constructive Deviant Behavior. *Psychology Research and Behavior Management*, 3867.
97. Zhang, Q., Liao, G., Ran, X., & Wang, F. (2025). The Impact of AI Usage on Innovation Behavior at Work: The Moderating Role of Openness and Job Complexity. *Behavioral Sciences*, 15(4), 491.
98. Zhao, Y., Li, Y., Liu, B., Chang, H., & Guo, Y. (2024). Unique attributes of official endorsers in destination marketing. *Scientific Reports*, 14(1), 13959.
99. Zhong, J., Chen, Y., Yan, J., & Luo, J. (2021). The mixed blessing of cyberloafing on innovation performance during the COVID-19 pandemic. *Computers in Human Behavior*, 126, 106982.

100. Zia, A., Memon, M. A., Mirza, M. Z., Iqbal, Y. M. J., & Tariq, A. (2024). Digital job resources, digital engagement, digital leadership, and innovative work behaviour: a serial mediation model. *European Journal of Innovation Management*.
101. Zia, A., Memon, M. A., Mirza, M. Z., Iqbal, Y. M. J., & Tariq, A. (2024). Digital job resources, digital engagement, digital leadership, and innovative work behaviour: a serial mediation model. *European Journal of Innovation Management*.