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From Thriving to Driving Innovation: Millennials' QWL in Pakistan's Telecommunications Industry

ABSTRACT

In contemporary workplaces, Millennials have introduced unique values and expectations that have reshaped workplace dynamics. Thus, it is important for organizations to identify factors that influence their innovative capacities to improve productivity. However, limited scholarly attention has been given to the role of Quality of Work Life (QWL) in fostering Thriving at Work (TAW) and its subsequent effect on Millennials' Innovative Work Behavior (IWB) particularly within Pakistan's telecommunications sector. This study addresses this gap by employing Amabile's Componential Theory of Creativity to examine the relationship between QWL and IWB, along with TAW as a mediating variable. An online survey using purposive, non-probability sampling was conducted with 270 Millennials employed full-time in telecommunications' service companies across Lahore, Islamabad, and Karachi, and the hypothesized relationships were tested using Structural Equation Modeling (SEM) via SmartPLS 4.0. Results confirm that QWL is positively associated with both TAW and IWB, and that TAW partially mediates this relationship. Theoretically, this study extends Amabile's model to a non-Western, generationally distinct context. Practically, it underscores the importance for HR professionals and managers to embed the dimensions of Sirgy's QWL framework to cultivate TAW and, in turn, stimulate IWB among Millennial employees. The findings further suggest that practically promoting TAW can be an effective strategic focus for enhancing innovation in contemporary organizational settings.

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Keywords: Quality of Work Life, Thriving at work, Innovative work behavior, Millennials, Telecommunications, Pakistan

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Introduction

The role of competent human resources as a key driver for sustainable innovation and organizational productivity is undeniable (Carmeli & Spreitzer, 2009; Ployhart et al., 2014; Setyaningrum et al., 2024). Amidst these crucial evolutions in thought, the ideology of **Quality of Work Life (QWL)** has been consistently evolving and gaining traction as a key enabler for well-being, motivation, and productivity. QWL is not restricted to just job satisfaction; it comprises employees' comprehensive perceptions of their working conditions, opportunities for growth, work-life balance, and the degree to which they can realize their potential within the organization (Nauman et al., 2023; Singh, 2024). Prior studies have enumerated how QWL leads toward lower employee turnover, and improved job commitment as well as wellbeing which sustains this variable's role as a vital element of all human resource strategies (Spreitzer et al., 2005).

These evolutions in QWL hold particular relevance in the Pakistani context due to the country's drastically changing socio-economic conditions and the increasing representation of Millennials in the workforce (Soroya & Ameen, 2018; Iqbal et al., 2023). **Millennials** are generally categorized as individuals born between 1983 and 1994 (Deloitte, 2024), possessing their own unique set of values and expectations regarding work and personal lives. In fact, Millennials are the first generation to demonstrate a clear preference for more flexible work schedules, participative work environments, and focus on meaningful work which solidifies the need for more strategic interventions to activate QWL in the workplaces (Kaifi et al., 2012).

Relevant to the concept of work spheres, **Innovative work behavior (IWB)** comprises purposefully generating, promoting, and realizing novel ideas. The core element of IWB is creativity and the drive to revolutionize key ideas into attainable organizational outcomes (Carmeli & Spreitzer, 2009; Bauwens et al., 2023). Prior studies have mentioned that employees' IWB is enhanced by a multitude of organizational factors such as focus on learning and autonomy along with knowledge sharing (Faris Hussain et al., 2022). In the current era of advanced digitalization, there is a greater demand for constant innovation which makes the concept of IWB integral for organizational competitiveness (Kmieciak, 2020). Knowledge-intensive organizations require a faster pace of innovation from their human resources and hence IWB is a pivotal driver of organizational competitiveness as well as survival in the modern context. Pakistan's organizations do not have immunity from such global pressures. In fact, currently there is significant pressure on organizations to innovate and provide value-added solutions as well as newer perspectives capable of thriving in this era (Saleem et al., 2019; Raza & Awang, 2020)

Meanwhile, another related concept, '**Thriving at work (TAW)**' has become quite popular in scholarly research over the last few years and considerably gaining greater traction as a key variable in organizational research ever since the seminal work by Spreitzer at al (2005) was initially introduced to the academic realm. The concept of thriving comprises a psychological state wherein people encounter both learning as well vitality at work which does not just fuel their progress at work but also amplifies their sense of professional and personal growth capacities (Carmeli & Spreitzer, 2009). In fact, employees who thrive at work tend to be more open to novel ideas, energetic and resilient. These attributes are likely to spur creativity and innovation particularly for the Millennials for whom deriving such meaningfulness from work is critical (Kaifi et al., 2012).

It has become imperative for organizations and scholars to explore how Millennials' QWL interacts with IWB since a gradual shift to a greater number of Millennial workers in the global labor market is being witnessed. In order to remain agile and competitive, organizations and researchers must focus on these issues (Ali et al., 2022; Nurhayati et al., 2023). Seeing this emphasis on strategic HR practices for motivating as well as retaining Millennials, this manuscript focuses on understanding how QWL could potentially elevate TAW subsequently catalyzing IWB in this process for the Pakistani Millennials. The primary focus is to assess whether workplace enhancements in terms of adequate compensation, career growth opportunities, and fulfillment of social needs would raise the levels of thriving at work, and if enhancements in thriving would ultimately cause more innovative work behaviors. To date, no prior research has uncovered these associations especially for the Millennials hence there is considerable knowledge gap as well as population gap (Miles, 2017). It is imperative to explore these relationships for the Millennials since this generation will eventually take on all the major leading roles in corporations locally as well as globally (Krishna & Agrawal, 2024). Even though, there are prior studies on QWL and IWB, there is also considerable dearth of research uncovering how these concepts are interrelated via thriving at work. More contextual research is required on these concepts (Mohammed & Gharib Al-Qaisi, 2022)

This study set out to achieve the following research objectives:

1. To examine the direct effect of QWL on IWB among Pakistani Millennials.
2. To assess the relationship between QWL and TAW.
3. To determine the effect of TAW on IWB.
4. To investigate the mediating role of TAW in the relationship between QWL and IWB.

To fulfill these objectives, the following hypotheses were posed:
H_1: QWL is positively associated with TAW
H_2: QWL is positively associated with IWB.
H_3: There is a positive association between TAW and IWB
H_4: TA mediates the association between QWL and IWB.

This manuscript describes the theoretical underpinnings of the study along with hypotheses development, followed by the methodology, results and discussion culminating in conclusion, implications and limitations.

Theoretical Background and Literature Review

Amabile's Componential Theory of Creativity (1983) presents a comprehensive framework for understanding how individual and environmental factors interact to foster creativity within organizations. The theory, initially developed by Teresa Amabile (1983), subsequently refined in latter work (Amabile, 1996; Amabile & Pratt, 2016) identifies three essential intra-individual components that underpin creative behavior: skills relevant to one's domain, creativity-relevant processes, and intrinsic task motivation along with one external component i.e., social work environment in which the individual is situated. This theory highlights that creativity cannot merely be considered as the result of intelligence or talent rather it is a multifaceted phenomenon that arises from various contextual and motivational influences.

The first aspect, domain-relevant skills, refers to the person's knowledge, job-related/technical know-how, and cognitive prowess within a certain sector or domain. These baseline skills build the cornerstone for the generation of creativity. It is more likely for people possessing complete command or control over a certain domain to be able to diagnose problems and knowledge gaps, reframe issues, and add value to the existing knowledge within that domain or sector (Amabile, 1983). In organizations with high QWL—where learning and development resources are emphasized—employees are more likely to build these skills, enabling them to innovate within their roles.

The second aspect, creativity-relevant processes, suggests how cognitive processes and work-related behaviors support innovative mindsets. This involves ambiguity-tolerating habits, risk-taking capacities as well as the heuristics for solving a multitude of complex problems at work. Possessing such cognitive styles make the individual flexible enough to persevere through a variety of uncertain situations and difficult problems which enables creative/novel idea generation (Amabile, 1996). Furthermore, these creativity relevant processes are impacted by personality traits as well as reinforcement, training and organizational support. Thriving at work, characterized by vitality and learning, complements these creativity processes by energizing employees to explore new ideas.

The third internal aspect, intrinsic task motivation, is deemed the most pivotal driver of creativity in Amabile's componential framework. Intrinsic motivation essentially refers to indulging in effort or performing a task based on the deeper internal satisfaction it garners as opposed to engaging for the sake of external validation or rewards. In the work sphere, when intrinsic motivation of the employees is stimulated to perform certain tasks, they are more likely to research broader ranges of ideas, expend sustainable levels of effort, and even indulge in intellectual risk-taking- all of which would drive creativity. Amabile's research highlights how the presence of autonomy, meaningfulness, and challenge in work domains promotes intrinsic motivation that ultimately boosts creativity. High-QWL environments that offer autonomy, meaningful work, and psychological safety promote intrinsic motivation, which is further sustained by TAW. Thriving supports creative engagement by enabling sustained interest, focus, and energy—factors necessary for innovation (Carmeli & Spreitzer, 2009).

Finally, the fourth aspect, "the social environment," serves a moderating role in the framework i.e., as per Amabile, this component has the potential to serve as a facilitator or obstructor of creative endeavors. According to Amabile and Pratt (2016). The work environment impacts creativity via numerous processes such as resource provision, management practices, feedback systems and team dynamics. If the social environment is supportive, it can enhance the three intra-individual aspects through provision of autonomy, collaboration opportunities, psychological safety without fear of negative reinforcement. On the other hand, rigid or harsh work environments conceptualized by excessive control, rigid evaluations and scare resources can hamper creativity even amongst the most knowledgeable and skilled individuals. Organizational conditions such as transparent leadership, fairness, feedback, and supportive peer relations—all facets embedded in QWL—can facilitate the creativity-to-innovation process. In this framework, thriving at work acts as the psychological conduit through which environmental resources such as QWL are translated into Innovative Work Behavior (IWB).

The important thing to gauge from these facets of the componential theory is that creativity cannot be considered a fixed trait rather it must be understood as a contextual behavior dependent on a myriad of factors in the individual as well as the environment and their respective interaction. Creativity can be witnessed when the organizational mechanisms provide reasonably satisfactory quality of work life and participate in interventions targeting the three internal factors of employees (Amabile and Pratt, 2016)

Amabile's componential theory provides a robust foundation for understanding the relationships among QWL, thriving, and IWB, as it explicitly connects environmental conditions to creativity and innovation. These propositions are further developed in the following sections.

QWL and TAW

QWL encompasses employees' perceptions of various work environment factors, including job security, fair compensation, growth chances and work-life balance (Danna & Griffin, 1999). QWL has been conceptualized in a myriad of ways across published scholarly work over the years and hence has a number of accepted definitions (Nadler and Lawler, 1983; Nauman et al., 2020). The major component of QWL is to address how individuals can improve their work with facilitation by the organizational aspects and as such Sirgy et al. (2001) created an exhaustive list of items for measuring QWL inculcating seven dimensions of employee needs based on employees feeling healthy and safe, fulfillment of monetary and household needs, workplace social assistance, respect, self-actualization, knowledge building as well as creativity and innovation in the workplace.

Hence, QWL delineates employees' need-fulfillment through various organizational resources and policies that also simultaneously enhance individual's growth in terms of personal as well as professional aspects in the process (Sirgy et al., 2001). Prior research highlights how QWL is positively related to employee productivity (Marks et al., 1986), organizational growth (Lau & May, 1998) commitment to the organization, satisfaction from job, and team spirit (Huang et al., 2007; Koonmee et al., 2010).

Prior studies have highlighted that supportive work elements serve as one of the antecedents of thriving at work. For example, Porath et al. (2012) found that employees who perceive high levels of organizational support and fairness are more likely to thrive. Similarly, Abid et al. (2019) established a positive relationship between supportive work environments and thriving, emphasizing the role of resources and autonomy in promoting employees' vitality and learning. For instance, organizations that prioritize employee well-being through flexible working arrangements and career advancement opportunities often report higher levels of thriving among their workforce (Liu et al., 2021)

High QWL fosters positive emotions and psychological well-being, which are essential for thriving at work. Thriving is considered as a state of mind comprising two dimensions: vitality (how energized and alive one feels) and learning (how much personal development and growth one senses) (Spreitzer et al., 2005). Domain-Relevant Skills comprise the knowledge, expertise and technical abilities that aid in tackling issues pertinent to a certain domain/field. We may logically infer that higher QWL would augment domain-relevant skills by ensuring that employees have access to adequate T&D facilities as well as constant opportunities for learning and career growth. Spreitzer et al., (2005) highlighted this link as well.

QWL contributes to thriving by fulfilling basic psychological needs as also outlined in the concept of Self-Determination (Deci & Ryan, 2000). When employees experience autonomy, competence, and relatedness in

their work environment, there are greater chances for them to feel energized and engaged. Furthermore, Spreitzer et al. (2005) highlights that thriving employees exhibit higher adaptability, which is essential in dynamic work environments. By ensuring that employees' basic psychological and emotional needs are met, it is proposed that QWL creates a platform for sustained vitality and learning.

Hence, it is proposed that:
H_1: QWL is positively associated with TAW

QWL and IWB

IWB involves the generation, promotion, and realization of novel ideas within a work context (Janssen, 2000). It is a critical factor for organizational adaptability and success in today's dynamic business environment. High QWL can create the conditions necessary for fostering IWB by providing employees with the resources, autonomy, and support they need to innovate. Research has consistently shown that favorable work environments enhance employees' innovative behaviors. For instance, Prieto and Pérez-Santana (2014) highlighted that QWL elements such as job autonomy, role clarity, and supportive supervision are significant predictors of IWB. Similarly, Afsar and Badir (2017) demonstrated that high-QWL environments encourage employees to indulge in experimental and potentially riskier projects which stimulates creativity and enhances innovative potential. Employees in such environments are more likely to leverage organizational support to challenge existing processes and implement innovative solutions.

Amabile's Componential Theory of Creativity supports this relationship by emphasizing the role of environmental factors in enhancing intrinsic motivation, which is crucial for innovation. Employees who perceive their work environment as supportive are more likely to engage in idea generation, problem-solving, and implementation of innovative solutions. Furthermore, Wallace et al. (2016) found that innovation-friendly climates, often present in high-QWL organizations, amplify employees' creative potential by fostering collaboration and resource sharing.

Hence, it is proposed that:
H_2: QWL is positively associated with IWB

TAW and IWB

Thriving at work reflects employees' psychological growth and forward momentum, encompassing vitality and learning (Spreitzer et al., 2005). These attributes are integral for fostering creativity and innovation. Vitality provides the energy and enthusiasm needed to pursue innovative activities, while learning equips employees with the knowledge and skills to generate and implement new ideas.

Carmeli and Spreitzer (2009) found that thriving employees are more likely to engage in proactive behaviors, including innovation. This is supported by Paterson et al. (2014), who demonstrated that thriving mediates the relationship between supportive organizational practices and innovative behaviors. Thriving employees are also more equipped to get past obstacles and uncertainties associated with innovation, as they possess higher levels of resilience and adaptability.

Thriving fosters a psychological state in which employees are more inclined to take calculated risks and propose creative solutions. Porath et al. (2012) noted that thriving employees often exhibit higher levels of curiosity and initiative, which are critical for identifying opportunities for innovation. Furthermore, thriving enhances employees' capacity to collaborate effectively, as they are energized and confident in their abilities.

Amabile's Componential Theory aligns with these findings, as thriving enhances both domain-relevant skills and creativity-relevant processes. Thriving employees are intrinsically motivated to explore new possibilities and take risks, which are critical for innovation. In addition, thriving individuals contribute to a culture of continuous improvement, which sustains long-term innovation within organizations.

Hence, it is proposed that:
H_3: There is a positive association between TAW and IWB

TAW as a Mediator

The role of TAW as a potential mediator in the association between QWL and IWB is grounded in both theoretical and empirical evidence. High QWL creates the conditions necessary for thriving by providing employees with resources, autonomy, and a sense of purpose. Thriving, in turn, facilitates innovative behaviors by fostering intrinsic motivation, energy, and resilience. Abid et al. (2020) demonstrated that thriving plays the role of a mediator in the relationship between supportive work environments and employee innovation. Similarly, Wallace et al. (2016) found that thriving employees are more likely to engage in IWB, as they possess the psychological resources needed to explore and implement novel ideas. Organizations with high-QWL practices often report that thriving employees are key drivers of innovation, as they actively seek opportunities for growth and improvement. Amabile's Componential Theory of Creativity serves as a robust framework for understanding this mediating role. High-QWL environments enhance intrinsic motivation, which is reflected in thriving. Thriving employees, equipped with vitality and learning, are more likely to partake in creative processes and innovative behaviors. This dynamic highlights the importance of fostering thriving as a pathway to innovation.

Hence, it is proposed that:
H_4: TAW mediates the association between QWL and IWB

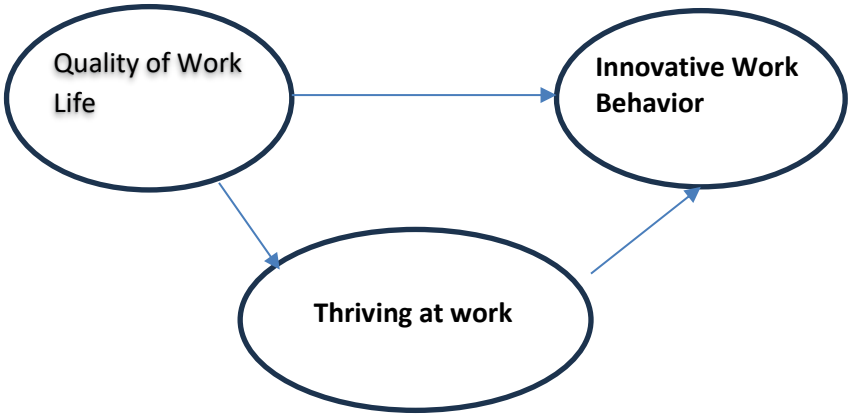

Figure 1: Theoretical Framework

Methodology

This study employs a quantitative, cross-sectional design to examine the relationships between QWL, TAW and IWB among millennials in Pakistan's telecommunications sector.

Sampling

This study utilized purposive sampling, a non-probability technique wherein participants are deliberately selected based on features that match with the research purpose and objectives (Etikan, Musa, & Alkassim, 2016). The sample comprises Millennial employees (born between 1983 and 1994) working in telecommunications service provider companies in Lahore, Islamabad, and Karachi, Pakistan. This group was selected for their relevance to the research variables, as millennials often navigate evolving work environments where QWL, TAW and IWB intersect meaningfully.

The Telecommunications sector in Pakistan was chosen for the study as it is vital driver for digital transformation and this sector's swift technological advancement propels the organizations to maintain an innovative and creative workforce (Hey Innovations, 2023). This sector has experienced remarkable growth with a greater number of younger people opting to work in this sector since the expansion is primarily driven through a demand for digital connectivity which is in line with the tech-savviness of the younger cohorts. The younger workforce will predominantly shape the future of this sector in Pakistan (Pak Careers, 2023). The sector has an estimated market size of USD

4.6 billion in 2025 and forecasted to increase up to 5.49 billion by the year 2030 ("Pakistan telecom market size | Mordor intelligence," 2025).

Purposive sampling was used for the study as it is appropriate for studies aiming to generate insights from a defined population segment rather than from a randomly drawn general population (Palinkas et al., 2015). Given the study's focus on contextually driven psychological constructs within a service-intensive sector, selecting participants based on shared demographic and professional characteristics enhances the study's internal validity and conceptual clarity.

A total of 270 respondents were recruited. This sample size exceeds the minimum requirement for Structural Equation Modeling (SEM), which is often recommended to be at least 100 to ensure model stability and convergence (Hair et al., 2019). To enhance reach and participation, elements of convenience and snowball sampling were also employed, as these are often combined effectively in field studies involving knowledge-based workers (Sadler et al., 2010; Naderifar, Goli, & Ghaljaie, 2017). Surveys were distributed both online and in person over a period of three weeks. To encourage candid responses and comply with ethical research, participant anonymity was maintained, and survey instructions explicitly stated that responses would be used for academic purposes only.

Table 1

Variables	Total Response	Percent
	Gender	
Male	152	56.29
Female	118	43.70
	Marital Status	
Divorced	12	0.04
Married	180	66.66
Single	78	28.88
	Managerial Status	
Managerial	112	41.48
Non-Managerial	158	58.51

Measurement Instruments

QWL was assessed using the 16-item scale developed by Sirgy et al. (2001). Sample items are, "My job provides good health benefits", "I feel that my job is secure for life", and "There is a lot of creativity involved in my job". All items were rated on a 5-point Likert scale ranging from 1 to 5 where 1 was strongly disagree and 5 was strongly agree.

Porath et al.'s (2012) scale for TAW was used in this study. It contains 10 items and sample items are, "At work I find myself learning often" and, "At work I feel alive and vital". All items were rated on a 5-point Likert scale.

IWB was evaluated using the 9-item scale by Janssen (2000). The respondents were asked to indicate with what frequency they engaged in certain innovative behaviors. Sample items are, "Creating new ideas for difficult issues" and "Transforming innovative ideas into useful applications". All items were gauged on a 5-point Likert scale with ranges from 1 (Never) to 5 (Always).

Scale Validation and Item Modification

To ensure construct validity, reflective measurement model assessment was conducted via SmartPLS 4. Items with factor loadings below 0.40 were removed (Hair et al., 2019). Reverse-coded items, which initially demonstrated poor loadings and contributed to response inconsistencies, were excluded to enhance scale coherence. Prior literature has cautioned that reverse-coded items often confuse respondents and may reduce internal consistency in self-report surveys (Weijters & Baumgartner, 2012).

To aid transparency, detailed item loadings and removed items, Composite reliability (CR), Average Variance Extracted (AVE), and HTMT ratios were within recommended thresholds and are summarized in Table 1 in the next section.

Ethical Considerations

This study was conducted in accordance with ethical research standards. Participation was voluntary, and informed consent was obtained from all respondents prior to data collection. Participants were informed about the confidentiality of their responses and anonymity of their identities.

Results and Discussion

To analyse the data, SmartPLS was used for Structural Equation Modeling. First, the measurement model was evaluated to test reliability and validity followed by structural model evaluation to test the hypotheses.

Measurement Model Evaluation

In order to assess the measurement model's adequacy, factor loadings, Reliability (Alpha and composite), Convergent validity (AVE) and Discriminant validity (Fornell & Larcker criterion) were assessed in accordance with the guidelines suggested by Hair et al (2023).

Consistent with established thresholds (Hair et al., 2023), items with loadings below 0.40 were removed to enhance construct reliability and validity. Low-loading items contribute minimally to their underlying construct and can distort the measurement model by inflating error variance and reducing internal consistency (Hulland, 1999). Three QWL items—"I do my best to stay healthy and fit," "My job does well for my family," and "My job helps me develop my creativity outside of work"—were removed. This

may be attributed to the fact that these items tapped into personal or non-work-specific domains, which may not align strongly with core workplace-based QWL perceptions. Additionally, two reverse-coded items from the learning subscale of TAW ("I am not learning" and "I find myself learning often") and one from vitality ("I do not feel very energetic") were excluded. Reverse-coded items often show poor psychometric performance due to response misinterpretation or cognitive burden, particularly in self-administered surveys (Weijters & Baumgartner, 2012). Their removal improved the internal consistency and clarity of the constructs without compromising theoretical coverage. Notably, all items from the IWB scale loaded well, requiring no exclusion.

As demonstrated in Table 1, all retained items had outer loadings above the 0.60 threshold, with most exceeding 0.70, supporting indicator reliability.

Table 2

Outer Loadings of Retained Indicators

		Cronbach's Alpha	Composite reliability (rho_c)	Average Variance Extracted (AVE)
QWL 1	0.639	0.81	0.88	0.72
QWL 2	0.658			
QWL 3	0.752			
QWL 4	0.766			
QWL 5	0.765			
QWL 6	0.776			
QWL 7	0.758			
QWL 8	0.661			
QWL 9	0.793			
QWL 10	0.753			
QWL 11	0.722			
QWL 12	0.697			
TAWL 1	0.818			
TAWL 2	0.827			
TAWL 3	0.724	0.84	0.90	0.75
TAWV4	0.769			
TAWV5	0.689			
TAWV6	0.827			
TAWV7	0.74	0.79	0.88	0.71
IWB1	0.87			
IWB2	0.838			
IWB3	0.846	0.70	0.83	0.62
IWB4	0.889			
IWB5	0.871			
IWB6	0.851	0.92	0.93	0.54
IWB7	0.817			
IWB8	0.855			
IWB9	0.856	0.75	0.84	0.57

Internal consistency reliability was tested using Cronbach's alpha and composite reliability (CR). As mentioned in Table 1, all constructs met or exceeded the recommended thresholds of 0.70 (Cronbach's alpha) and 0.80 (CR), indicating strong internal consistency (Nunnally & Bernstein, 1994). Cronbach's alpha provides a conservative estimate of internal consistency, while CR is more appropriate for SEM as it accounts for different factor loadings. Ensuring reliability at this stage confirms that the indicators within each construct are consistently measuring the same underlying latent variable.

Convergent validity was evaluated using the average variance extracted (AVE), with all constructs greater than the threshold of 0.50 (Fornell & Larcker, 1981), confirming that a substantial proportion of variance in each construct's indicators was captured by the latent construct. Fornell-Larcker criterion was deployed to test Discriminant validity. As demonstrated in Table 2, the square root of each construct's AVE (diagonal values) is more than its correlations with other constructs, establishing discriminant validity (Fornell & Larcker, 1981). This ensures that the constructs are empirically distinct and not capturing the same underlying concept. Variance inflation factor (VIF) values for all indicators were well below the conservative threshold of 3.3 (Diamantopoulos & Siguaw, 2006). The highest VIF observed was 2.7, confirming the absence of multicollinearity, which could otherwise inflate standard errors and bias path coefficients.

Table 2
Fornell–Larcker Criterion for Discriminant Validity

	IG	IP	IR	Learn	QWL	Vital
IG	0.851					
IP	0.818	0.871				
IR	0.651	0.689	0.843			
Learn	0.406	0.409	0.512	0.791		
QWL	0.653	0.629	0.71	0.423	0.73	
Vital	0.461	0.501	0.621	0.696	0.475	0.758

Structural Model Assessment & Hypothesis Testing

This section presents the study's key findings and interprets them through the lens of Amabile's Componential Theory of Creativity, existing empirical literature, and practical implications. Overall, the results support the hypothesized relationships and reveal both direct and indirect pathways through which Quality of Work Life (QWL) influences Innovative Work Behavior (IWB) among Millennials in Pakistan's telecommunications sector. This has been discussed in detail below.

Following the establishment of a robust measurement model described in the previous section, the assessment of the structural model was carried out. Firstly, endogenous constructs' coefficient of determination was assessed and as such R^2 values were used to evaluate the explanatory power of the model. QWL explained 37.2% of the variance in TAW (R^2 = 0.372, t value = 4.86, p = 0.00), and QWL and TAW together explained 67.7% of the variance in IWB (R^2 = 0.677, t value = 15.51, p = 0.00). Both are statistically significant and considered substantial in social science research (Cohen, 1988).

Table 3
Hypotheses Testing

Hypotheses		Path Coefficient	P Value
Total Effects			
H_2	QWL -> IWB	0.813	0.000
Direct Effects			
H_1	QWL → TAW	0.610	0.001
H_2	QWL → IWB	0.717	0.001
H_3	TAW → IWB	0.157	0.001
H_4	QWL→ TAW → IWB	0.096	0.013

Next hypothesis testing and path coefficients were determined through a bootstrapping procedure (5,000 subsamples) which revealed significant positive relationships for all hypothesized paths. Specifically, QWL showed a strong direct effect on IWB (β = 0.717, t = 13.085, $p < .001$) and a moderate positive effect on TAW (β = 0.610, t = 9.811, $p < .001$). TAW, in turn, had a smaller but statistically significant effect on IWB (β = 0.157, t = 2.474, $p < .001$), suggesting that while QWL is the dominant predictor, TAW still contributes uniquely to IWB.

To assess whether TAW plays a mediating role in the association between QWL and IWB, the specific indirect effect was examined. The indirect path QWL → TAW → IWB was found to be statistically significant (β = 0.096, t = 2.234, p = 0.013), indicating that thriving partially mediates the effect of QWL on IWB. Given that the direct path (QWL → IWB) remained significant (β = 0.717, $p < .001$) in the presence of the mediator, this confirms a partial mediation model (Zhao, Lynch, & Chen, 2010).

The analysis shows that QWL significantly enhances both TAW and IWB. Moreover, TAW itself contributes to IWB and partially mediates the relationship between QWL and IWB. The results provide compelling evidence that Quality of Work Life is a strong driver of Innovative Work Behavior through Thriving at Work both directly as well as indirectly. The structural model demonstrates robust explanatory power, with 67.7% of the variance in IWB explained. Thriving at Work partially mediates this relationship, suggesting that efforts to improve QWL can stimulate innovation

not only by altering job conditions but also by enhancing employees' psychological engagement. These findings suggest that both structural (QWL) and psychological (TAW) factors jointly influence Millennials' ability to innovate in the workplace. These results indicate that while QWL is a robust predictor of innovation, TAW contributes an additional, meaningful psychological layer to the innovation process.

The findings align strongly with Amabile's Componential Theory of Creativity, which emphasizes the interplay between environmental enablers (like QWL) and individual psychological states (like TAW) in fostering creativity and innovation. Specifically, the strong direct effect of QWL on IWB is consistent with previous studies showing that organizational support, autonomy, and meaningful work environments drive innovation (Afsar & Badir, 2017; Ma Prieto & Pilar Pérez-Santana, 2014). The positive association between QWL and TAW echoes Porath et al. (2012), who found that environments emphasizing well-being and growth stimulate vitality and learning. The link between TAW and IWB builds Carmeli and Spreitzer's (2009) work further, where thriving individuals were considered more proactive.

The mediation analysis aligns with the theoretical underpinning of Amabile's Componential Theory of Creativity (Amabile, 1988), which posits that work environment factors like QWL can foster psychological states (such as vitality and learning) that enhance individual innovation. The partial mediation of TAW—rather than full mediation—adds a nuanced contribution. This suggests that while thriving is important, other aspects of QWL (e.g., job design, rewards, or supervision) may also directly foster innovation without always needing to pass through psychological states. This outcome also mirrors findings by Paterson et al. (2014), where thriving was one of several mechanisms—not the sole mediator—in translating organizational resources into IWB.

Conclusion, Limitations and Implications

This study investigated the effect of Quality of work life on Innovative Work Behavior amongst Millennials working in the Telecommunications Service provider companies in Pakistan. Thriving at work was studied as the mediating variable in this relationship. The results highlighted a significant positive relationship amongst the variables which endorses the proposition that enhancing the QWL of millennials is particularly important for raising their IWB via an enhancement in thriving at work. These findings carry both theoretical significance for researchers as well as practical relevance for organizations aiming to cultivate innovation through supportive work environments and psychologically enriching experiences for the Millennial generation. Millennials have always been known for valuing creativity and innovation alongside growth opportunities at their workplaces.

This study offers several theoretical contributions. First, it extends Amabile's Componential Theory of Creativity by empirically demonstrating the mediating role of thriving in the QWL–IWB relationship within a non-Western, collectivist context. While Amabile emphasized the work environment's role in fostering creativity, this research shows that psychological states such as thriving (vitality and learning) are critical mechanisms that explain how supportive work environments translate into innovation. Second, it addresses a generational lens—Millennials—whose engagement with innovation and work-life dynamics may differ from earlier cohorts, thus highlighting the generational relevance of motivational and environmental creativity drivers.

Furthermore, these results offer practical actionable insights for HR managers, organizational leaders, and policymakers. For HR professionals and managers, the findings underscore the importance of cultivating a high-QWL environment as a pathway to innovation. Specific initiatives that can be implemented include, Recognition and rewards systems for idea generation and creativity, Flexible job design that allows for autonomy and encourages risk-taking, Learning and development programs aimed at skill-building and cross-functional growth, and Well-being policies that promote vitality—such as wellness benefits, mental health days, and manageable workloads. Investing in QWL practices such as fair compensation, skill-building, and recognition is likely to yield immediate returns in employee innovation.

These initiatives can foster a culture of thriving, particularly among Millennials, by providing both external resources and internal motivation to innovate. Policymakers, too, can incorporate thriving into national talent strategies by promoting corporate innovation programs that address employee psychological needs.

Despite the vast scope of the study, there are certain limitations in the design. Firstly, using cross-sectional approach limits any causal interpretations which were mostly addressed through a sound theoretical and conceptual framework. Longitudinal studies would provide more meaningful results and robust findings due to temporal dynamics. Future studies should consider diary studies or panel data to explore temporal dynamics and verify directionality of effects. Secondly, the study focused exclusively on Millennials but did not seek to compare between the three generations employed at the contemporary workplaces. Future researchers may take that into account. Additionally, self-reported data has the possibility of some common method bias although this was partially mitigated through statistical controls and anonymity assurances. Method triangulation (e.g., supervisor ratings or behavioral tracking) would strengthen future studies. Future researchers are encouraged to test other potential mediating variables within this framework and to test it across multiple generations along with inter-generational comparisons. Finally, researchers could explore moderators such as psychological capital, or perceived organizational support to develop a more holistic model.

References

Abid, G., Zahra, I., & Ahmed, A. (2019). Promoting thriving at work and waning turnover intention: A relational perspective. Future Business Journal, 5(1), 9. https://doi.org/10.1186/s43093-019-0009-z

Afsar, B., & Badir, Y. (2017). Workplace spirituality, perceived organizational support and innovative work behavior: The mediating effects of person-organization fit. Journal of Workplace Learning, 29(2), 95–109. https://doi.org/10.1108/JWL-11-2015-0086

Amabile, T. M. (1983). The social psychology of creativity: A componential conceptualization. Journal of Personality and Social Psychology, 45(2), 357–376. https://doi.org/10.1037/0022-3514.45.2.357

Arora, S., & De, P. (2020). COVID-19 and business scenario planning: Reacting with resilience in India. Journal of Public Affairs, e2609. https://doi.org/10.1002/pa.2609

Carmeli, A., & Spreitzer, G. M. (2009). Trust, connectivity, and thriving: Implications for innovative behaviors at work. The Journal of Creative Behavior, 43(3), 169–191. https://doi.org/10.1002/j.2162-6057.2009.tb01313.x

Carmeli, A., & Spreitzer, G. M. (2009). Trust, connectivity, and thriving: Implications for innovative behaviors at work. The Journal of Creative Behavior, 43(3), 169–191.

Carmeli, A., & Spreitzer, G. M. (2009). Trust, connectivity, and thriving: Implications for innovative behaviors at work. The Journal of Creative Behavior, 43(3), 169–191. https://doi.org/10.1002/j.2162-6057.2009.tb01313.x

Dabke, D. (2016). Impact of leader's emotional intelligence and transformational behavior on perceived leadership effectiveness: A multiple source view. Business Perspectives and Research, 4(1), 27–40. https://doi.org/10.1177/2278533715605433

Danna, K., & Griffin, R. W. (1999). Health and well-being in the workplace: A review and synthesis of the literature. Journal of Management, 25(3), 357–384.

Danna, K., & Griffin, R. W. (1999). Health and well-being in the workplace: A review and synthesis of the literature. Journal of Management, 25(3), 357–384. https://doi.org/10.1177/014920639902500305

Diamantopoulos, A., & Siguaw, J. A. (2006). Formative versus reflective indicators in organizational measure development: A comparison and

empirical illustration. *British Journal of Management, 17*(4), 263–282. https://doi.org/10.1111/j.1467-8551.2006.00500.x

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. American Journal of Theoretical and Applied Statistics, 5(1), 1–4.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.2307/3151312

Hair, J., Joseph F. Hair, J., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2023). Advanced issues in partial least squares structural equation modeling. SAGE Publications.

Hameed, F., Khan, N. R., Islam, T., Sheikh, Z., & Naeem, R. M. (2020). Assessing the role of perceived investment in employee development and reward satisfaction in the relationship between ethical leadership and employee outcomes. Journal of Management Sciences, 7(1), 113–132. https://doi.org/10.20547/jms.2014.2007101

Huang, T.-C., Lawler, J. and Lei, C.-Y. (2007), "The effects of quality of work life on commitment and turnover intention", Social Behavior and Personality: An International Journal, Vol. 35 No. 6, pp. 735–750.

Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal*, *20*(2), 195-204. https://doi.org/10.1002/(sici)1097-0266(199902)20:2<195::aid-smj13>3.0.co;2–7

Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behaviour. Journal of Occupational and Organizational Psychology, 73(3), 287–302.

Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behaviour. Journal of Occupational and Organizational Psychology, 73(3), 287–302. https://doi.org/10.1348/096317900167038

Kaifi, B. A., Nafei, W. A., Khanfar, N. M., & Kaifi, M. M. (2012). A multi-generational workforce: Managing and understanding millennials. International Journal of Business and Management, 7(24), 88–93.

Koonmee, K., Singhapakdi, A., Virakul, B. and Lee, D.-J. (2010), "Ethics institutionalization, quality of work life, and employee job-related outcomes: a survey of human resource managers in Thailand", Journal of Business Research, Vol. 63 No. 1, pp. 20–26.

Krishna, S. M., & Agrawal, S. (2024). Creative performance of millennials and Generation Z: What matters more, intrinsic or extrinsic rewards? Administrative Sciences, 15(1), 11.

Lau, R. and May, B.E. (1998), "A win-win paradigm for quality of work life and business performance", Human Resource Development Quarterly, Vol. 9 No. 3, pp. 211–226.

Liu, D., Zhang, S., Wang, Y., & Yan, Y. (2021). The antecedents of thriving at work: A meta-analytic review. Frontiers in Psychology, 12.

Ma Prieto, I., & Pilar Pérez-Santana, M. (2014). Managing innovative work behavior: The role of human resource practices. *Personnel Review*, *43*(2), 184–208. https://doi.org/10.1108/pr-11-2012-0199

Miles, D. A. (2017). A taxonomy of research gaps: Identifying and defining the seven research gaps. Journal of Research Methods and Strategies, 1(1), 1–8.

Mohammed, K. N., & Gharib Al-Qaisi, A. M. (2022). Enhancing Innovative Work Behavior Through Quality of Work Life. Journal of Positive School Psychology, 6(6), 7685–7694.

Nadler, D. A., & Lawler, E. E. (1983). Quality of work life: Perspectives and directions. Organizational Dynamics, 11(3), 20–30. https://doi.org/10.1016/0090-2616(83)90003-7

Nauman, S., Zheng, C., & Basit, A. A. (2020). How despotic leadership jeopardizes employees' performance: The roles of quality of work life and work withdrawal. Leadership & Organization Development Journal, 42(1), 1–16.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.

Organizational Dynamics, Vol. 11 No. 3, pp. 20–30.

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. Administration and Policy in Mental Health and Mental Health Services Research, 42(5), 533–544. https://doi.org/10.1007/s10488-013-0528-y

Paterson, T. A., Luthans, F., & Jeung, W. (2014). Thriving at work: Impact of psychological capital and supervisor support. Journal of Organizational Behavior, 35(3), 434–452. https://doi.org/10.1002/job.1907

Ployhart, R. E., Nyberg, A. J., Reilly, G., & Maltarich, M. A. (2014). Human capital is dead; long live human capital resources! Journal of Management, 40(2), 371–398. https://doi.org/10.1177/0149206313512152

Porath, C., Spreitzer, G., Gibson, C., & Garnett, F. G. (2012). Thriving at work: Toward its measurement, construct validation, and theoretical refinement. Journal of Organizational Behavior, 33(2), 250–275. https://doi.org/10.1002/job.756

Porath, C., Spreitzer, G., Gibson, C., & Garnett, F. G. (2012). Thriving at work: Toward its measurement, construct validation, and theoretical refinement. Journal of Organizational Behavior, 33(2), 250–275. https://doi.org/10.1002/job.756

Prieto, I. M., & Pérez-Santana, M. P. (2014). Managing innovative work behavior: The role of human resource practices. Personnel Review, 43(2), 184-208. https://doi.org/10.1108/PR-11-2012–0199

PwC. (2013). PwC's NextGen: A global generational study. Retrieved from https://www.pwc.com/gx/en/hr-management-services/publications/assets/pwc-nextgen.pdf

Sirgy, M.J., Efraty, D., Siegel, P. and Lee, D.-J. (2001), "A new measure of quality of work life (QWL) based on need satisfaction and spillover theories", Social Indicators Research, Vol. 55 No. 3, pp. 241-302.

Sirgy, M. J., Efraty, D., Siegel, P., & Lee, D. J. (2001). A new measure of quality of work life (QWL) based on need satisfaction and spillover theories. Social Indicators Research, 55(3), 241–302.

Spreitzer, G. M., Sutcliffe, K. M., Dutton, J. E., Sonenshein, S., & Grant, A. M. (2005). A socially embedded model of thriving at work. Organization Science, 16(5), 537-549. https://doi.org/10.1287/orsc.1050.0153

Spreitzer, G. M., Sutcliffe, K. M., Dutton, J. E., Sonenshein, S., & Grant, A. M. (2005). A socially embedded model of thriving at work. Organization Science, 16(5), 537–549. https://doi.org/10.1287/orsc.1050.0153

The Deloitte global 2024 Gen Z and millennial survey. (2024, May 16).

Wallace, J. C., Butts, M. M., Johnson, P. D., Stevens, F. G., & Smith, M. B. (2016). A multilevel model of employee innovation: Understanding the effects of regulatory focus, thriving, and employee involvement climate. Journal of Management, 42(4), 982–1001. https://doi.org/10.1177/0149206313506462

Web.PDX.edu. (n.d.). Sample size requirements for SEM. Retrieved from https://web.pdx.edu/~newsomj/semclass/ho_sample%20size.pdf

Weijters, B., & Baumgartner, H. (2012). Misresponse to reversed and negated items in surveys: A review. *Journal of Marketing Research, 49*(5), 737–747. https://doi.org/10.1509/jmr.11.0368