

“Psychological antecedents of creativity and workplace innovation: Evidence from Saudi Arabia”

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PSYCHOLOGICAL ANTECEDENTS OF CREATIVITY AND WORKPLACE INNOVATION: EVIDENCE FROM SAUDI ARABIA

Abstract

Creativity and innovation are essential drivers of organizational success and societal progress, as they generate new ideas and solutions. Despite extensive interest, their key determinants remain underexplored and theoretically fragmented. To address this gap, this study aims to examine the factors influencing creativity and innovative work behavior. A quantitative methodology was employed to investigate the hypothesized relationships between the variables. We used an online survey to collect data from 358 gainfully employed respondents in Saudi Arabia, with the majority of participants residing in Riyadh city. Structural equation modeling was used to evaluate the simultaneous effects of workplace agility, intrinsic motivation, organizational identification, role congruence, and organizational solidarity on employee creativity and innovative work behavior. The *t*-values for the developed hypotheses are 6.78, 0.43, 6.34, 6.07, 6.43, 5.91, 0.13, 6.43, and 6.61, respectively. The results show that most *t*-values exceed the stipulated value of 1.96. Thus, significant and positive relationships were identified between workplace agility and intrinsic motivation, organizational identification, and organizational solidarity. In contrast, no significant relationship was observed between workplace agility and role congruence. Additionally, intrinsic motivation, organizational identification, and organizational solidarity were found to positively influence creativity, which in turn enhances innovative work behavior. Thus, an agile workforce would demonstrate affiliation and solidarity with their organization, be intrinsically motivated, and exhibit creativity.

Keywords

creativity, innovation, intrinsic motivation, organizational identification, organizational solidarity, agility, Saudi Arabia

JEL Classification

D23, O15, O30

INTRODUCTION

Extremely fulfilled, creative, and contented employees are a desperate organizational requirement to enhance productivity and handle unforeseen challenges. Creativity and innovation are significant for any organization as they help identify new concepts and solutions. They also facilitate enhanced employee motivation and decrease cost and resource waste. Furthermore, creativity, innovation, and innovative work behavior (IWB) are ideal solutions for dealing with competitiveness brought on by today's unstable and uncertain business environment. Although creativity and innovation are sometimes used interchangeably in management literature, they are distinct concepts. Creativity encompasses the generation of novel ideas or innovations and is a multifaceted and complex concept with no universally accepted definition. Various theoretical approaches and methods exist from which it can be understood. In addition, the concept of creativity has multiple conceptualizations, some of which are mutually inconsistent. In general parlance, creativity involves producing relevant and practical novelty, thus conceptually pointing toward innovation.

Innovation is implementing and marketing new ideas or inventions. It is the “process through which economic or social value is extracted from knowledge” (Raykov, 2014). It involves creating, exchanging, and refining ideas to develop new or significantly improved products or processes. Momeni et al. (2014) defined IWB as the “intentional development, introduction, and application of new ideas inside a job role, group, or organization for the suitable role of the group or organizational performance.” It is a dynamic and intricate phenomenon that includes creativity. IWB is also multidimensional. It has four interconnected traits: acknowledgment of the problem, idea formation, promotion, and recognition, which entail projecting innovative ideas, tasks, and implementation. Present market realities require businesses to exhibit creativity and innovation to secure competitive advantages. Hence, organizations must innovate their methods, procedures, products, and behaviors to succeed. Although adequate empirical evidence exists regarding the influence of various organizational behaviors on creativity and innovation (El-Kassar et al., 2022; Sulphey, 2024), a discrepancy remains between the variables that facilitate creativity and IWB (Tran et al., 2025). Recent literature has shown the indispensability of individual and organizational factors in fostering creativity. This calls for focused attention by all levels of management to the organizational environment to share all possible obstacles to creativity and maximize the opportunities for its expression (Soriano De Alencar, 1998).

1. LITERATURE REVIEW

Various theories have attempted to describe the process associated with creativity and innovation. The first theories discussed are the dynamic capabilities and the self-determination theories. Teece et al. (1997) define dynamic capabilities as endeavoring to gain a competitive edge by enhancing the ability to realign competence with the evolving business context. Simply put, they are a company’s strengths that enable it to adapt to and even drive change, leading to a competitive advantage, sustained success, and ultimately, survival. Teece et al. (2016) divided dynamic capacities into sensing, seizing, and transforming. Capabilities are essential to an organization’s survival and contribute to developing a competitive edge (Teece et al., 2016; Augier & Teece, 2008). Therefore, dynamic skills lead to improved organizational outcomes, for instance, innovative work behavior (Eisenhardt & Martin, 2000; Winter, 2003), innovation (Pavlou & El Sawy, 2011), and the sustainable development of organizations. However, some authors have argued that personal adaptability, comprising traits such as skills, abilities, and knowledge, particularly the capacity to identify weak signals and effectively interpret environmental signs, is crucial for addressing challenges via proactive techniques. It is crucial due to its strong connection to workers’ ability to work efficiently in a dynamic environment (Motowidlo & Kell, 2012). In light of this, capabilities cannot be purchased but must be learned and developed over time by integrating various contemporary management methods (Sony & Mekoth, 2016).

Self-determination theory (SDT) suggests that dedication to a task is the most critical factor in creativity. Kim and Drumwright (2016) confirmed that when people are intrinsically motivated, they consistently put effort toward a goal, such as being innovative, among other possible behavioral effects. SDT provides a comprehensive model for investigating what drives and characterizes individuals and discusses methods for implementing ideas to develop sustainable behaviors (Osbaldiston & Sheldon, 2003). The theory proposes that each worker has distinct individual needs that can be fulfilled by factors connected to their external environment. Accordingly, individuals engage in creative actions due to the compelling influence of various fundamental needs that shape behaviors more profoundly than other factors. Furthermore, the theory proposes a continuum that depicts varying degrees of self-determination to explain individual motivation, both intrinsic and extrinsic (Tandon et al., 2020). This theory can be applied to explain why individuals engage in creative and innovative behavior.

The componential theory of creativity, proposed by Amabile (1988), encompasses the interplay of multiple variables. It offers a comprehensive framework of the social and psychological factors necessary for a person to generate creative output. The theory is now extensively used to encompass creativity and innovation, carrying profound implications for organizational environments, and is beneficial for examining organizational and

psychological creativity. It explains the creative process and the several elements that affect both the process and the results. This model proposes three dominant components as individual characteristics: domain-relevant skills, creativity-relevant skills, and task motivations, as well as one outside the individual: the social environmental component.

Agility refers to the workforce's capacity to respond and adjust to unexpected and rapidly evolving conditions (Cai et al., 2018; Muduli, 2017; Pitafi et al., 2018). It is the degree to which a worker welcomes new challenges and opportunities by adapting to changing work circumstances and environments (Alavi et al., 2014; Elhadidy & Gao, 2024). Agility encompasses three dimensions: adaptability, proactivity, and resilience (Sherehiy, 2008). Workplace agility is a concept that might help organizations thrive in a global, competitive environment. Moskovich (2023) found that agile employees are quick to respond to changes and tend to adopt new trends readily. In addition to being flexible and creative, agile employees have organizational solidarity. Paul et al. (2020) found them to be flexible, adventurous, and adjustable, with an open mind, which fosters creativity. There are several other positive outcomes for organizations from workplace agility. Increased productivity is one of these benefits (Goldman et al., 1995), and another is the capability to deal with intense competition (Gehani, 1995). Muduli (2016) argues that agility can help direct businesses toward sustainability, equipping them to address various threats. It can also assist in dealing with the unexpected and make finding workable answers to complex problems easier. Previous research has shown that workplace agility offers numerous benefits, including organizational advancement, product superiority, and customer satisfaction (Naik et al., 2024). Munteanu et al. (2020) found that agile employees are involved in learning and personal development. Hence, they have problem-solving skills and are comfortable with new ideas and technologies. Numerous organizationally valuable characteristics such as role congruence, flexibility, rapid decision-making, adaptability to change, and creativity, may be displayed by workplace agility (AlAbood & Sulphrey, 2024; Moskovich, 2023; Muduli & Pandya, 2018; Rasheed et al., 2023; Sherehiy & Karwowski, 2014).

Additionally, workplace agility encompasses a perspective that fosters greater engagement and promotes solidarity among employees (Castro Spila & Alonso González, 2022). The influence of organizational culture on agility enhances flexibility and encourages teamwork, both of which are vital for building solidarity and enabling rapid adaptation (Moskovich, 2023; Dizari & Garoosi, 2015). Supporting this, AlAbood and Sulphrey (2023) confirmed a positive relationship between workplace agility and organizational solidarity among employees in Saudi Arabia.

Organizational identity is a complex self-concept that shapes an individual's roles within their employment context, defined by Lloyd et al. (2011). It emerges when employees align their values with those of their organization, fostering pride and identification (Bauer & Lim, 2019). This alignment can enhance employee behavior outcomes, retention (Wilkins et al., 2018; Bharadwaj & Yameen, 2021), and compliance with organizational norms (Sandhya & Sulphrey, 2021; Tarakci et al., 2023). Recent studies reveal varying relationships between work attitudes and organizational identity, with most indicating a positive impact on creativity and support for organizational goals (El Din & El Hessewi, 2019; Nafei, 2017). Cohen-Meitar et al. (2009) found organizational identity to be related to meaningfulness and creativity. In a study among millennials, Hui et al. (2021) found that organizational identity has a significant impact on creativity. Recently, this result was confirmed by Dai et al. (2022) across various employee classes.

Organizational solidarity reflects the interdependency between employees and their organizations aimed at the common good, involving cooperative behaviors and shared objectives (Itzkovich & Heilbrunn, 2016; MacDonald et al., 2014). Solidarity is cultivated through shared work and interests, along with deliberate efforts to unify diverse groups toward common goals (Goffee & Jones, 1996; Wegmann, 2019). Research shows that organizational solidarity emerges from social dynamics within and across organizations where joint efforts are directed toward shared objectives (Koster & Sanders, 2007; Koster & Kaminska, 2012). Solidarity is the alignment between feelings and behaviors and the capacity to pursue shared objectives rapidly and efficiently. Organizational

solidarity originates from the employees' interpersonal relations or the organizational social policies (Koster & Kaminska, 2012). They work harder to make their social organization thrive (Goffee & Jones, 1996). Organizational solidarity boosts employee efficiency by effectively coordinating and preventing destructive behaviors (Blakey, 2015). This sociability supports creativity by encouraging teamwork and information sharing. It also instills a sense of receptivity to new ideas, permitting freedom of speech and unconventional thinking. It also fosters an environment of citizenship behavior where people are likely to exceed the formal requirements of their work. Jamshed and Majeed (2019) found that trust and solidarity with the organization enhance employee creativity. Higgins and Morgan (2000) also found a positive relationship between organizational solidarity and creativity.

Intrinsic motivation is the psychological drive that influences the direction, intensity, and persistence of behavior (Tremblay et al., 2009). It leads employees to adapt well to organizational needs, allowing them to express themselves freely and seek roles that foster creativity and innovation (Paul et al., 2019). It contrasts with extrinsic motivation, which is driven by external rewards. This study focuses exclusively on intrinsic motivation, which is crucial for understanding complex human psychology (Deci & Ryan, 1985) and is linked to increased job satisfaction, well-being, and performance (Desjardins & Ioannidou, 2020). Ample empirical evidence exists to show that intrinsic motivation is related to employees' creativity (Fischer et al., 2019; Malik et al., 2019; Karimi et al., 2022). Furthermore, the findings also reveal a positive relationship between intrinsic motivation and factors such as workforce agility and role congruence.

Role congruence is a critical job component in organizational psychology. Congruence refers to the extent to which the goals of individuals and the organization are in alignment. Role congruence is a resource because it drives employees to and keeps them in organizations with similar goals, allowing them to achieve their work objectives (Schneider, 1987). It directly influences people's attitudes and behaviors, leading to increased satisfaction and engagement, enhanced efficiency, and

reduced turnover (Klein & Colauto, 2020). On the other hand, a lack of congruence is a fundamental issue that has the potential to significantly affect various organizational aspects, such as design, symbolism, and acceptability. Role congruence also aids organizational members in feeling relaxed, being proactive, and engaging in foresightful actions, fostering the development of creative and innovative ideas (Smollan & Morrison, 2019). Additionally, it can enable proactive individuals to express their identities through creative and innovative behaviors (Peng, 2018). Several social scientists have found that workplace agility exhibits organizationally beneficial behaviors, such as quick decision-making, role flexibility, and congruence, and adaptation to change (Muduli & Pandya, 2018; Sherehiy & Karwowski, 2014; Naik et al., 2024). Workplace agility enhances organizational identification and resultant role congruence (Zhang et al., 2012). A recent study by AlAbood and Sulphey (2023) found a significant positive relationship between workplace agility and role congruence.

Moreover, role congruence helps organizational members act proactively and foresightfully, which helps develop creativity and innovativeness (Smollan & Morrison, 2019). Miller and Richard (2020) found that role congruence enhances job satisfaction and fosters creativity. According to Peng (2018), it helps enhance the proactivity of individuals who express their identity through innovative behaviors. AlAbood and Sulphey (2023) found that role congruence relates to employee creativity.

Creativity is defined as a critical mental function necessary for generating novel and valuable ideas (Guilford, 1959). It has been extensively studied by scholars as a key source of sustainable competitive advantage (Amabile, 1988). Creativity involves the ability to develop and apply new ideas; despite being a complex construct with varying definitions, it consistently involves domain-specific knowledge and skills essential for its cultivation (Kijkuit & van den Ende, 2007; Leenders et al., 2007). Amabile et al. (1996) described organizational creativity as the intersection of motivation, relevant knowledge and skills, and creative abilities, highlighting the challenges managers face in fostering creativity in today's dynamic business environment

(Shalley & Gilson, 2004). Research indicates that creativity is crucial for addressing client needs and driving organizational success, innovation, and survival. Grant and Berry (2011) and Karimi et al. (2022) found that intrinsic motivation improves flexibility and risk-taking and consequently enhances creativity. Factors that enhance creativity include innate abilities, specific knowledge, supportive environments, and intrinsic motivation, with emotional conditions playing a significant role in individuals' creative capabilities (Zhou, 2003; Amabile et al., 1988).

Hirst et al. (2009) and Haslam et al. (2013) found that identity motivates creativity. Consistent with these studies, Tang and Naumann (2016) found that team identity has a positive impact on creativity. Guegan et al. (2017) and Liu et al. (2021) also confirmed this result. A contrary opinion also exists, as Stensaker (2014) opined that organizational identity drives stability and consistency and is unlikely to foster creativity. However, Tang and Naumann (2016) empirically found that identity leads to both incremental and radical creativity. Rong and Xie (2021) also found that identity moderates the relationship between creativity and other variables. Imamoglu et al. (2022) also found that organizational identity correlates positively with creativity, and employees who identify highly with their organizational have high levels of creativity.

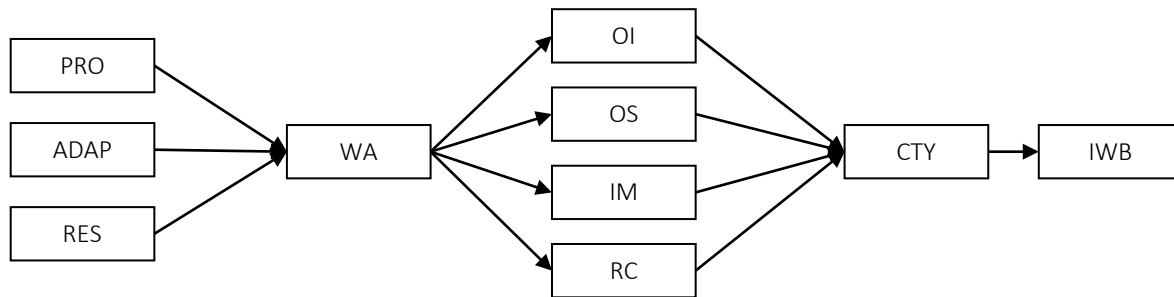
Creativity is a psychological phenomenon that is fundamentally impacted by employee motivation. Intrinsic motivation involves doing something because it promises pleasure (Ryan & Deci, 2000). The link between intrinsic motivation and creativity is influenced by various environmental, individual, and psychological factors (Karimi et al., 2022). Individuals' intrinsic motivation grows their engagement in activities, improves their learning capacity, and stimulates their curiosity and interest in expanding their creative potential (Ryan & Deci, 2000; Wu et al., 2020; Zhou & Hoever, 2014). The relationship of intrinsic motivation as a critical concept of creativity has been determined (George & Zhou, 2007; Wu et al., 2020). Amabile (1988) found that intrinsic motivation has a positive relationship with creativity. Cromwell et al. (2023) found

that intrinsic motivation is essential to creativity, as it facilitates divergent thinking patterns. Research also suggests that intrinsic motivation helps the organizational environment by making it autonomous, involved (Moneta & Csikszentmihalyi, 1996), and creative (Amabile, 1988). Tierney and Farmer (2002) also suggested that intrinsic motivation could lead to creativity. Al-Harbi et al. (2019) found a significant positive relationship between intrinsic motivation and creativity in Saudi Arabia.

Innovation is a process that begins with a creative idea and culminates in its successful implementation (Nahavandi et al., 2013; Ramos et al., 2018). An organization can be competitive only with creativity and innovation (Feldman, 2004). Innovation involves implementing creative ideas in an organizational context to attain effectiveness, long-term success, and sustainability. Creativity is the basis of innovative knowledge, which supports each other (Cheng & Chen, 2009). Individual creativity is essential to organizational innovation (Woodman et al., 1993). Empirical evidence suggests that creativity is a precursor to innovation, as it encourages employees to seek new ideas and opportunities (De Barros et al., 2025). Dul and Ceylan (2014) demonstrated that companies that foster creativity are better positioned to be innovative and launch new goods and services. Further, a crucial component of successful organizational innovation is the degree to which creativity is fostered (Ramos et al., 2018).

The significance of creativity and innovation as vital forces behind organizational success and societal advancement is beyond doubt. Innovation involves implementing and promoting novel concepts, which are the cornerstone of organizational success and thriving. Social scientists, academics, and the research community have long been intrigued by the antecedents and determinants of creativity and innovation.

The objective of the study is to examine the factors that influence creativity and innovative work behavior. The study primarily examines the interplay between workplace agility, intrinsic motivation, organizational identity, role congruence, and organizational solidarity on cre-



Note: PRO is proactivity; ADAP is adaptability; RES is resilience; WA is Workplace agility; OS is organizational identity; OI is organizational solidarity; IM is intrinsic motivation; RC is role congruence; CTY is Creativity; IWB is innovation.

Figure 1. Proposed model

activity and innovative work behavior. Figure 1 proposes a conceptual framework for empirical examination. Based on the comprehensive literature review, the hypotheses are formulated as follows:

- H1: Workplace agility and organizational identity have a significant positive relationship.*
- H2: Workplace agility and organizational solidarity have a significant positive relationship.*
- H3: Workplace agility and intrinsic motivation have a significant positive relationship.*
- H4: Workplace agility and role congruence have a significant positive relationship.*
- H5: Role congruence and creativity have a significant positive relationship.*
- H6: Organizational identity and creativity have a significant positive relationship.*
- H7: Organizational solidarity and creativity have a significant positive relationship.*
- H8: Intrinsic motivation and creativity have a significant positive relationship.*
- H9: Creativity and Innovation have a significant positive relationship.*

2. METHOD

The study employed a quantitative methodology, utilizing seven standardized questionnaires to collect online data from employees work-

ing across various private and public sectors in Saudi Arabia, with the majority of respondents based in Riyadh. The questionnaire links were distributed through social media, specifically WhatsApp, which is widely used and highly active among employees in Saudi Arabia. Distribution was facilitated with the support of group administrators to ensure broader reach and participation.

The seven questionnaires have stood the test of time and have been utilized globally for data collection. The questionnaires have been reported to have robust reliability and validity.

The study employed the workforce agility (WA) scale developed by Alavi et al. (2014). The scale consists of three factors: proactivity ($\alpha = 0.95$), adaptability ($\alpha = 0.93$), and resilience ($\alpha = 0.91$). Each factor has four items. The high values of each factor signify robust reliability. A sample item is "I can perform my job efficiently in difficult or stressful situations." The questionnaire has been used in numerous other studies (Zhu et al., 2021).

The five-item questionnaire developed by Mael and Ashforth (1992) measured organizational identity ($\alpha = 0.87$). The questionnaire has five items. A sample item is "When I talk about this organization, I usually say *we* rather than *they*." Several earlier studies have utilized this questionnaire, including those by Miao et al. (2020) and Shim and Faerman (2017).

Organizational solidarity was measured using the five-item questionnaire developed by Itzkovich and Heilbrunn (2016). This question-

naire ($\alpha = 0.82$) was developed based on the measure developed by Lindenberg (2006). A sample item includes “I am willing to help my coworkers when things go wrong unexpectedly.”

The questionnaire adapted by Tierney et al. (1999) based on Amabile (1988) was used to examine intrinsic motivation. This questionnaire consists of three items. A sample item is “I enjoy finding solutions to complex problems.”

Role congruence was assessed using the questionnaire developed by Klein and Colauto (2020). The questionnaire consisted of eight items, with an Alpha of 0.915, indicating good reliability. A sample item includes “My personal goals are consistent and match the company’s.”

Creativity was measured using a 13-item questionnaire developed by Zhou and George (2001) ($\alpha = 0.91$). A sample item is “I am a good source of creative ideas.” This scale was also used by Zhang and Bartol (2010).

The questionnaire developed by Veloso et al. (2021) ($\alpha = 0.84$) was used to measure innovative work behavior. The questionnaire has five items. A sample item is “I develop appropriate plans and schedules to implement new ideas.”

All seven questionnaires were measured on a five-point scale ranging from “strongly agree” to “strongly disagree.” Since any member of the social media group could respond to the link, the method is a probability sampling technique. The respondents were informed about the purpose of data collection, and their consent was obtained. Additionally, respondents were assured of complete confidentiality in their survey responses. All participants were 18 years of age or older, and prior consent was obtained before data collection commenced. Data for the study were collected from 358 samples over an eight-week period starting in December 2024. The respondents had an age range of 18 to 58. The mean age was 30.76. The overall experience of the sample ranged from six months to 34 years, with an average experience of just over seven years (7.18 years). 281 (78.5%) were males and 77 (21.5%) were females. Saudi samples accounted for 326 (91.9%), and the remaining expatriates

accounted for 32 (8.9%). Most samples were undergraduates (202, 56.4%), followed by graduates (77, 21.6%). There were 42 (11.7%) postgraduates and 37 (10.3%) doctorates. Thus, the sample is diverse. The demographics of the sample are presented in Table 1.

Table 1. The demographics of the sample

	Details	Number	Percent
Gender	Male	281	78.5%
	Female	77	21.5%
Age	18 to 28	116	32.46%
	26–35	122	34.08%
	36–45	90	25.14%
	46–55	25	6.98%
	Above 55	5	1.40%
	Degree	Doctorates	37
	Postgraduates	42	11.7%
	Graduates	77	21.6%
	Undergraduates	202	56.4%
Nationality	Saudi nationals	326	91.06%
	Non-Saudi nationals	32	8.94%

The collected data meet various rules of thumb regarding robust path models (Barclay et al., 1995). For example, a sample size of ten times the number of structural paths in the inner path model or ten times the number of scale indicators is considered ideal (Barclay et al., 1995). Sample adequacy for factor analysis is also examined using the Kaiser-Meyer-Olkin (KMO) and Bartlett’s test (Kaiser, 1974). According to Shrestha (2021), a KMO value of above 0.90 is excellent, above 0.80 is good, and above 0.70 is moderate. In the instant case, the KMO value was .864. This implies sampling adequacy (Hair et al., 2017). Additionally, the sample size meets the “golden standard” proposed by Simon and Goes (2013). Thus, the sample collected for the present study is adequate. This study examined common method variance (CMV) with Harman’s one-factor test. CMV issues arise when a single component emerges that accounts for most of the covariance in an exploratory factor analysis (Podsakoff & MacKenzie, 2003). The factor analysis extracted multiple factors, with the preliminary factor accounting for 24.33% and the second factor accounting for 5.49% of the variance. According to Podsakoff et al. (2003), in the event of issues associated with CMV, the covariance of the primary component will account for more than 50%. The results thus indicate no CMV.

3. RESULTS

The study used Cronbach's Alpha to assess reliability (Nunnally, 1978). The results are presented in Table 2. It can be observed that the Alpha values of all variables meet Nunnally's (1978) stipulation of 0.70. This signifies the reliability of the questionnaires.

There are multiple views about the base stipulation of average variance extracted (AVE). According to Fornell and Larcker (1981), the minimum stipulation is 0.50. However, Hair et al. (2010) stipulated a minimum value of 0.70. It can be observed from Table 3 that the AVEs of all variables exceeded the minimum stipulation of 0.70, proposed by Hair et

al. (2010), confirming convergent validity. In addition, Bagozzi et al. (1991) stipulated a cut-off score of 0.60 for composite reliability (CR). The CR values of all variables, presented in Table 3, varied between 0.913 and 0.974, meeting the stipulation.

Discriminant validity confirms that the study constructs exhibit the necessary variance compared to other constructs (Hulland, 1999). The results of discriminant validity are reported in Table 4. It shows that no r values exceed 0.70, as Anderson and Gerbing (1988) prescribed. Further, all the r values are less than the square root of AVEs (provided in the diagonal), as Fornell and Larcker (1981) stipulated. The results thus confirm discriminant validity.

Table 2. Reliability analysis

S.No	Code	Variables	Number of Variables	Cronbach's Alpha
1	WA	PRO Proactivity	4	0.883
2		ADAP Adaptability	4	0.911
3		RES Resilience	4	0.893
4	IM	Intrinsic motivation	3	0.816
5	RC	Role congruence	7	0.824
6	OI	Organizational identification	6	0.927
7	OS	Organizational solidarity	5	0.894
8	CTY	Creativity	13	0.911
9	IWB	Innovative work behavior	5	0.936

Table 3. Convergent validity

Variables	Estimate	Item reliability	Error (Delta)= (1-item reliability)	AVE	Sum of Estimate	Sum of Error (Delta)	CR
PRO1 ←	0.911	0.830	0.170	0.766	3.499	0.936	0.929
PRO2 ←							
PRO3 ←							
PRO4 ←							
ADAP1 ←	0.837	0.701	0.299	0.845	3.671	0.620	0.956
ADAP2 ←							
ADAP3 ←							
ADAP4 ←							
RES1 ←	0.852	0.726	0.274	0.749	3.462	1.002	0.923
RES2 ←							
RES3 ←							
RES4 ←							
IM1 ←	0.811	0.658	0.342	0.779	2.639	0.664	0.913
IM2 ←							
IM3 ←							
RC1 ←	0.846	0.716	0.284	0.735	5.998	1.852	0.951
RC2 ←							
RC3 ←							
RC4 ←							
RC5 ←							
RC6 ←							
RC7 ←							

Table 3 (cont.). Convergent validity

Variables		Estimate	Item reliability	Error (Delta)= (1-item reliability)	AVE	Sum of Estimate	Sum of Error (Delta)	CR
OI1	←	0.816	0.666	0.334	0.758	5.216	1.451	0.949
OI2	←	0.966	0.933	0.067				
OI3	←	0.865	0.748	0.252				
OI4	←	0.878	0.771	0.229				
OI5	←	0.866	0.750	0.250				
OI6	←	0.825	0.681	0.319				
OS1	←	0.855	0.731	0.269	0.728	4.264	1.360	0.930
OS2	←	0.817	0.667	0.333				
OS3	←	0.897	0.805	0.195				
OS4	←	0.843	0.711	0.289				
OS5	←	0.852	0.726	0.274				
CTY1	←	0.971	0.943	0.057	0.743	11.191	3.343	0.974
CTY2	←	0.865	0.748	0.252				
CTY3	←	0.876	0.767	0.233				
CTY4	←	0.884	0.781	0.219				
CTY5	←	0.815	0.664	0.336				
CTY6	←	0.826	0.682	0.318				
CTY7	←	0.822	0.676	0.324				
CTY8	←	0.897	0.805	0.195				
CTY9	←	0.814	0.663	0.337				
CTY10	←	0.887	0.787	0.213				
CTY11	←	0.824	0.679	0.321				
CTY12	←	0.865	0.748	0.252				
CTY13	←	0.845	0.714	0.286				
IWB1	←	0.897	0.805	0.195	0.782	4.410	1.090	0.947
IWB2	←	0.997	0.994	0.006				
IWB3	←	0.815	0.664	0.336				
IWB4	←	0.846	0.716	0.284				
IWB5	←	0.855	0.731	0.269				

Note: PRO is proactivity; ADAP is adaptability; RES is resilience; WA is Workplace agility; OS is organizational identity; OS is organizational solidarity; IM is intrinsic motivation; RC is role congruence; CTY is Creativity; IWB is innovation.

Table 4. Discriminant validity

Factors		WA			IM	RC	OI	OS	CTY	IWB
		PRO	ADAP	RES						
WA	PRO	0.82	–	–	–	–	–	–	–	–
	ADAP	0.11	0.93	–	–	–	–	–	–	–
	RES	0.25	0.17	0.75	–	–	–	–	–	–
IM		0.16	0.13	0.14	0.73	–	–	–	–	–
RC		0.02	0.15	0.16	0.16	0.81	–	–	–	–
OI		0.17	0.22	0.42	0.05	0.44	0.78	–	–	–
OS		0.42	0.25	0.24	0.37	0.15	0.15	0.84	–	–
CTS		0.25	0.34	0.16	0.15	0.48	0.42	0.21	0.77	–
IWB		0.15	0.14	0.24	0.26	0.06	0.32	0.42	0.26	0.72

Note: PRO is proactivity; ADAP is adaptability; RES is resilience; WA is Workplace agility; OS is organizational identity; OS is organizational solidarity; IM is intrinsic motivation; RC is role congruence; CTY is Creativity; IWB is innovation.

Table 5 shows that all fit indices meet established thresholds. The Goodness-of-Fit Index (GFI), introduced by Jöreskog and Sörbom (1996) as an alternative to the Chi-Square test, stands at 0.919, exceeding the minimum of 0.90 set by

Hair et al. (2017). The Root Mean Square Error of Approximation (RMSEA) is 0.047, below Hu and Bentler’s (1999) cutoff of 0.08, as is the Root Mean Square Residual (RMR) at 0.049. The Comparative Fit Index (CFI) at 0.928 and the Tucker-Lewis

Index (TLI) at 0.922 both surpass the required 0.90, confirming a robust fit for the model and qualifying it for SEM.

Table 5. Fit index

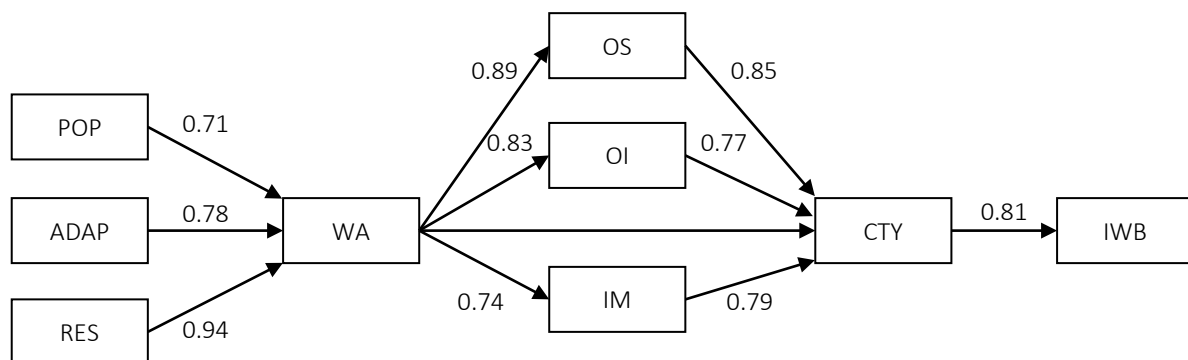
Model	GFI	RMSEA	RMR	CFI	IFI	TLI
Criteria	≥ 0.90	≤ 0.08 < .1	≤ 0.08 < .1	≥ 0.90	≥ 0.90	≥ 0.90
Obtained	0.919	0.038	0.049	0.937	0.917	0.922

The SEM analysis results, including the structural model and t-values, are presented in Table 6. Seven hypotheses are supported, while two are rejected. The measurement model is presented in Figure 2. It reasonably explains the variables studied, their correlations, path coefficients, and regression weights. According to Hair et al. (2017), the t-values examine the significance of the path coefficient. The range recommended by Hair et al. (2017) is 1.96. Table 6 shows that most t-values exceed the recommended value of 1.96. Other than H2 and H7, all the other hypotheses are accepted. Further, the standardized path coefficients are significant at a 0.01 level.

Table 6. Structural equation modeling results

Hypothesis	Standardized path coefficient	t-values	Result
H1	WA → IM	0.811**	Supported
H2	WA → RC	0.113**	Not-supported
H3	WA → OI	0.947**	Supported
H4	WA → OS	0.822**	Supported
H5	OI → CTY	0.973**	Supported
H6	OS → CTY	0.916**	Supported
H7	RC → CTY	0.171**	Not-supported
H8	IM → CTY	0.937**	Supported
H9	CTY → IWB	0.982**	Supported

Note: ** p at 0.01. WA is workplace agility; PRO is proactivity; ADAP is adaptability; RES is resilience; OS is organizational identity; OS is organizational solidarity; IM is intrinsic motivation; RC is role congruence; CTY is Creativity; IWB is innovation.



Note: PRO is proactivity; ADAP is adaptability; RES is resilience; WA is Workplace agility; OS is organizational identity; OS is organizational solidarity; IM is intrinsic motivation; RC is role congruence; CTY is Creativity; IWB is innovation.

Figure 2. Measurement model

4. DISCUSSION

Creativity and innovation are critical competencies for modern organizations in the current highly dynamic environment and are under tremendous pressure to sustain and thrive (Stankevica, 2015). Such organizations must accord prime importance to creativity and innovation due to their ability to positively impact organizational performance (Tran et al., 2025). Empirical evidence suggests that an innovative culture enhances organizational performance and business excellence (AlKahtani & Sulphery, 2022). The extant literature on creativity and innovation reveals that the former is closely related to the latter (Bruno-Faria, 2003). Research also indicates that promoting employee creativity can help foster innovation and improve organizational effectiveness (Ravi & Sumathi, 2023). Workplace innovation is indispensable for organizational sustainability and effectiveness (Akram et al., 2020). Further, Bos-Nehles and Veenendaal (2019) and Fitriasari et al. (2024) re-

vealed that individual and corporate creativity and innovation can create a long-term competitive advantage.

This study explored the perceptions of organizational members regarding the factors that stimulate creativity and the resultant innovation. This aspect continues to intrigue researchers and social scientists. Based on inputs from dynamic capabilities and self-determination (SDT) theories, as well as componential theories, the study examined the relationship between several behavioral antecedents of creativity and innovative work behavior. The study also empirically confirms the reciprocity principle of social exchange theory. According to the theory, when members participate in social exchanges, they interact mutually, become loyal, and identify with their respective organizations. Such identity could result in their expression of solidarity with their organizations. Furthermore, work agility has a broad impact on organizational behavior, necessitating essential adjustments to support workplace creativity and innovative work behavior. In addition, employees' ability to produce new ideas and innovate is enhanced by a sense of identity and solidarity with their organizations.

The hypotheses formulated for the study were thus to analyze the antecedents of creativity and innovative work behavior. Initially, the study examined the relationship between work agility and the other variables (*H1* to *H4*). The antecedent behaviors examined in the study were work agility, intrinsic motivation, role congruence, organizational identity, and organizational solidarity. These variables were identified based on an extensive review of the literature. The study thus examined the relationship between role congruence, organizational identity, organizational solidarity, and intrinsic motivation on creativity and innovative work behavior. The data, collected from 358 gainfully employed samples from Saudi Arabia, were analyzed using SEM to address the research questions. The analysis has helped address the study's objectives and answer the research questions. The results indicate a significant, direct, positive relationship between all the identified variables. Other than hypothesis *H2* (the relationship between work agility and role congruence), all the other hypotheses were accepted at 0.01.

While the relationship between the constructs has been individually examined earlier (AlAbood & Sulphey, 2023; Arndt, 2020; Dizari & Garoosi, 2015; Imamoglu et al., 2022; Jamshed & Majeed, 2019; Nafei, 2017; Peng, 2018; Wu et al., 2020), this is the first time that the collective impacts have been investigated. The identified relationships between most variables and creativity are congruent with those of earlier studies. However, no significant relationship was observed between role congruence and creativity, contrary to earlier studies by Miller and Richard (2020) and Smollan and Morrison (2019). This result can be explained in the context of Muchinsky and Monahan (1987), who identified and distinguished two concepts of congruence: supplementary fit and complementary fit. While the former involves the similarity between the individual and the people in the environment, the latter focuses on the resources or demands of an environment. Complementary fit occurs when individual abilities meet demands or when needs and resources complement each other (Su et al., 2015). Considerable debate exists on whether interest congruence is supplementary or complementary (Wang et al., 2021). It would be ideal if future studies could identify this "fit aspect" and the causative factors behind this result, which rejected the hypothesis. It is also possible that cultural factors influenced the results (AlKahtani & Sulphey, 2022), which warrants further investigation.

This study has added further theoretical inputs to the academic literature in multiple ways. First, the study enriches the literature on innovation, often considered elusive due to its numerous definitions and conceptualizations. Furthermore, there is an incongruity regarding the specific variables that facilitate creativity and innovative work behavior. The study extends the application of insights from the theoretical foundations of social identity theory (Trepte & Loy, 2017) and social exchange theory (Blau, 1964; Homans, 1958) to the realms of creativity and innovation. The results further deepen our understanding of the beneficial effects of the variables on creativity and innovative work behavior. The study also provided empirical evidence for how specific organizational behavior components can improve innovative work behavior and creativity.

The findings offer numerous practical implications. The study constructed and analyzed a structural model developed by reviewing relevant literature. These results emphasize the importance of work agility, organizational identity, organizational solidarity, and intrinsic motivation in developing innovative work behavior. This study is one of the few that have examined the complex relationship between the variables. First, the identified variables that have been found to impact innovation can help practitio-

ners implement appropriate interventions to enhance innovative work behavior. Employees can be involved in creating a conducive, effective, and efficient internal control system to cultivate an organizational culture that encourages innovation and improves organizational effectiveness and performance. Organizations must develop their behavioral environment to stimulate creativity, which involves including people in proactive work behavior and rewarding them accordingly.

CONCLUSION

The study examined the various factors that influence creativity and innovative work behavior. The research focused on the interplay between work agility, intrinsic motivation, organizational identity, role congruence, and organizational solidarity in relation to creativity and innovative work behavior. Earlier studies did not examine these links closely. The results show that all the variables, except role congruence, contribute to creativity and innovation. Thus, in addition to the two paths presented in the proposed model, all the other proposed paths are accepted. The constructs examined in the study are essential and would facilitate organizational creativity and innovation, enhancing their standing in this highly competitive and dynamic business landscape. The study thus advances the understanding of the antecedents of creativity and innovation. In general, this study posits that an agile workforce would exhibit intrinsic motivation, demonstrate identification and solidarity with their organization, and display creativity. Furthermore, creativity is a precursor to innovative work behavior, which stakeholders should take note of. This paper will catalyze and trigger further empirical studies on fostering creative and innovative work behavior.

AUTHOR CONTRIBUTIONS

Conceptualization: Manakkattil Mohammed Sulphey.

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Formal analysis: Manakkattil Mohammed Sulphey.

Funding acquisition: Abdulaziz AlAbood, Manakkattil Mohammed Sulphey.

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Validation: Manakkattil Mohammed Sulphey.

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