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Examining the effects of supportive work environment and organisational learning culture on organisational performance in information technology companies: The mediating role of learning agility and organisational innovation

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ABSTRACT

This study investigates the influence of a supportive work environment and organisational learning culture (OLC) on organisational performance with a serial mediation of learning agility and organisational innovation. Data was collected from 379 entry and middle-level information technology (IT) professionals. Structural equation modelling (SEM) and bootstrapping approach were utilised to assess the proposed hypotheses. Results indicate that both a supportive work environment and learning agility have a significant and positive impact on organisational innovation. In addition, learning agility was significantly correlated with organisational performance. Learning agility and organisational innovation had a serial mediating role in the indirect effect of a supportive work environment and OLC on organisational performance. This is the first known study to highlight that both a supportive work environment and OLC are essential for enhancing organisational performance through learning agility and organisational innovation in IT companies.

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Supportive work environment; learning agility; organisational learning culture; organisational innovation; organisational performance; information technology

Introduction

In light of rapid changes in the economy due to factors such as technology, competitiveness, globalisation, etc, organisations are struggling for novel ideas (Weresa, 2019). Previous studies have acknowledged the importance of continuous organisational innovation to survive in this cut-throat competitive market (Atkinson et al., 2022). Kanter (1996) explained that innovation is a set of formation as well as the utilisation of novel ideas, and that can be expanded by the employees working in the organisation having high learning agility in them. In a market climate of high competition, Chatterjee et al. (2021) stressed that if a company can produce new services and products it will lead to better business performance and competitive advantage. Thus, learning agility and

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innovation play a crucial role in an organisation's survival and in improving an organisation's performance.

Previous studies demonstrated that the concept of learning organisations has become crucial because a robust organisational learning culture (OLC) and a good working environment can effectively integrate employees into a new organisational structure (Tripathi & Sankaran, 2021). An OLC encourages organisational members to learn continuously and collaboratively to improve or maintain competencies to cope with the change present in the market (Lin & Huang, 2021). By disseminating a culture of knowledge and also by providing a supportive working environment, an organisation can make employees learning agile to adapt to the changes as well as to bring innovation to the organisation through their new ideas thereby can grow constructively and thriving on organisational transformation (Sidani & Reese, 2018).

The information technology (IT) industry has a dependency upon steady employees for getting a successful evolution in the market as employees are essential in regards to disseminating information and knowledge to the competitiveness and performance of an organisation (Lin et al., 2019). Due to this innovation within the organisation has remained a troubling issue in Indian IT companies (Atkinson et al., 2022). It has previously been observed that working environment and organisational culture can promote learning ability in employees. Nevertheless, up to now, a few pieces of research have investigated the association between a supportive work environment, OLC, learning agility, organisational innovation, and organisational performance.

When employees can adapt to changing environments, they are happier with their work, which means better job responsibilities and behaviour (Lin & Huang, 2021). Employees' job performance is a viable concern as the engineers manage to meet their changed job requirements via learning opportunities and support from the organisation. Previous scholars have amassed evidence regarding the effect of an OLC on outcomes related to the workforce, such as 'innovation capabilities, job satisfaction, motivation to transfer learning, organisational commitment and turnover intentions' (Tripathi & Dhir, 2022; Watkins & Kim, 2018). Nevertheless, there remains a lack of evidence on the relationship between a supportive work environment, OLC, learning agility, organisational innovation, and performance, particularly in the context of the Indian IT industry. We identify this as a significant research gap. To address this gap, we propose the following guiding research questions:

RQ1. Does supportive work environment, OLC, learning agility, and organisational innovation influence organisational performance?

RQ2. Does learning agility and organisational innovation act as mediators in the relationship between (a) supportive work environment and organisational performance; (b) OLC and organisational performance?

To answer our research questions, we have first assessed the degree to which a supportive work environment impacts learning agility and organisational innovation. Second, we examine the impact of OLC on learning agility and organisational innovation. Third, we checked the impact of organisational innovation on organisational performance. Fourth, the relationship between learning agility and organisational innovation has been

investigated. At last, we checked the serial mediating role of learning agility and organisational innovation between (a) supportive work environment and organisational performance and (b) OLC and organisational performance.

The rest of the article is structured in the following way. Section two summarises pertinent literature and develops a robust theoretical model of the relationships amid the respective constructs of this study. Section three details the procedures for evaluating the hypotheses. Section four discusses the study's findings. Finally, the concluding section comprises the discussion and conclusions, detailing theoretical and managerial implications, limitations, and future research directions.

Theoretical background and investigative hypotheses

Theoretical background

Supportive work environment

An environmental construct that stimulates a positive climate for employees in an organisation is known as a supportive work environment (Baldwin & Ford, 1988) that further induces employees to feel a sense of association (Naz et al., 2020) towards their organisation. A positive work environment has numerous advantages for both employees and employers. For the employee, it means going to work every day where your well-being, as well as your performance, is taken into account. It entails having managers who make time to assist employees in their personal and professional development. It promotes loyalty and good working relationships in a safe and enjoyable environment (Kundu & Lata, 2017). Whereas organisational environments are made up of forces or institutions that surround an organisation and have an impact on its performance, operations, and resources. It encompasses all elements that exist outside of the organisation's boundaries and has the potential to affect a portion or the entire organisation (Ladwig, 2022).

Broad and Newstrom (1992) asserted the important sub-constructs of the work environment namely organisational, supervisory, and peer support. Two theories such as organisational support theory and social support theory propose the connection between organisational support and affective commitment and also asserts how an employee builds an emotional connection (Rhoades et al., 2001) with the help of organisational support. Naz et al. (2020) assert that a supportive work environment fills the gap between an organisation and its employees by enhancing the employees' association with their organisation that further helps in improving the overall performance of an organisation and it helps in bringing the innovative work culture within the organisation.

Organisational learning culture (OLC)

The process of creating, retaining, and transferring knowledge within an organisation is known as organisational learning. As an organisation gains experience, it improves over time. It can gain knowledge from this experience. This knowledge is diverse, encompassing any topic that could benefit an organisation (Oh & Han, 2020). Whereas, an accumulation of organisational protocols, principles, perspectives, and conventions that stimulates constant learning and development is known as OLC (Tripathi & Sankaran,

2021). In light of the recent flexible environment, the organisation is developing an OLC that associates organisational learning with performance enhancement to be in a competitive market (Lau et al., 2019). With an OLC, a business can transform its learning process into a constructive, communicative, and collaborative one in which employees learn through a structured and task-based format that identifies and addresses specific organisational learning needs in a planned change environment (Obeso et al., 2020).

A negative relationship was discovered between an OLC and intention to leave and a substantial relationship between job performance and OLC was found (Lin & Huang, 2021). Nevertheless, an urgent call is required for an extensive investigation to explore the association between an OLC as well as other organisation-related variables empirically (Choi, 2020). The present research is depending on the 'Dimensions of Learning Organisation Questionnaire (DLOQ)' (Marsick & Watkins, 2003); which is further validated in different contexts (Watkins & Kim, 2018). Consequently, to strengthen the understanding of the OLC construct, this study has adopted DLOQ in the Indian context.

Learning agility

Learning agility has been described by Lombardo and Eichinger (2000) as the 'aptness-readiness for grasping the skills so that anyone can execute these things at the very first time, difficult or non-identical conditions'. Learning agility has been focused on the contemporary performance of employees in the organisation (Tripathi & Dhir, 2022). It also has an association with employees' flexibility (McGuire et al., 2009) and adeptness to change (Gravett & Caldwell, 2016). Further, learning agility has been validated and then segmented into four parts such as 'people agility, mental agility, change agility, and results agility' (Lombardo & Eichinger, 2003). Certain attributes, as well as specific meanings, are associated with each part of learning agility (Tripathi & Sankaran, 2021). Generally, this means that the building of learning agility can also be useful to human resource development (HRD) as a corporate resource to strengthen competencies of strategic importance for the company (Osorio-Londono et al., 2020). In the current study the conceptualisation of 'learning agility', has been approached from a psychological standpoint.

Organisational innovation

Organisational innovation has been defined as the creation and execution of novel ideas within the organisation in a fast-changing environment (Damanpour, 1991); innovation is defined as the main factor for an organisation to get success (Yunis et al., 2018). Prior research study has demonstrated that organisational innovation has given birth to technological innovation and then further altogether, they have provided high performance in an organisation (Jyoti & Rani, 2017). Innovation is segmented into three kinds such as technological innovation, product innovation, administrative or processual innovation. Regardless of the type of innovation; innovation shows four characteristics such as connection with uncertainty, exhaustive utilising knowledge; sensitivity, and the intersection of boundaries (Kanter, 1985). Organisational innovation has emerged as the main factor behind managing the novel changes that emerged in the environment (Amarakoon et al., 2018). Increased productivity, profit-making, leadership, as well as a promising workplace, are some consequences of organisational innovation. The

previous study also asserted that as innovation provides adaptability as well as coherence in productivity, it provides an essential outlook to institutions and communities as well (Fazlıoğlu et al., 2019).

Organisational performance

Organisational performance is the degree to which an organisation transfers its associated objectives and goals to a meaningful outcome (Tajvidi & Karami, 2017). Within a firm, firm performance can be captured as a task accomplishing process by employees (Pratono, 2018). Subjective scale or objective scale can be utilised in two ways: 1) for measuring the firm performance and 2) for preventing the defects (Shafiq et al., 2019). ‘Market share, sales, customer satisfaction, employee satisfaction, and profitability’ are the main factors for measuring subjective performance while on the flip side ‘return on earnings and return on assets’ measure objective performance (Chowdhury et al., 2019). Instead of various frameworks suggested by several researchers, to date, no single universally accepted process has been explored to measure organisational performance.

Investigative hypotheses

Supportive work environment and learning agility

Learning agility can be defined as a person’s willingness to put what they’ve learned to good use in a new and unknown situation, and also adapting the situation quickly (Tripathi & Sankaran, 2021). Learning agile individuals can better adjust to difficult learning objectives (Lombardo & Eichinger, 2000) inquire about others for information, and dwell on their unsuccessful learning experiences (Bedford, 2011). Additionally, the workplace environment can play an important antecedent to learning agility. Past studies have established that the learning agility of employees is related to the culture of an organisation (Tripathi et al., 2020). Moreover, no study has explored the association between a supportive work environment and learning agility to date. This study developed the hypothesis according to the above argument:

H1. A supportive work environment can positively impact learning agility.

Organisational learning culture and learning agility

The environment which facilitates employees towards the acquisition and transferring the knowledge, as well as skills to their peer groups, is known as a learning culture and also it stimulates the eagerness in employees towards learning something new for the continuous betterment (Yadav & Dixit, 2017). OLC stimulates long-term learning opportunities, facilitates the transformation of knowledge as well as information, and also it enhances team alliances to obtain and enrich the essential skills and attributes of the employees (Watkins & Marsick, 1997). Previous studies have suggested that the OLC enhances the employees’ eagerness towards learning. In other words, OLC increases the learning agility of employees which ultimately helps the organisation in addressing the novel changes in the market (Gravett & Caldwell, 2016). Following the above argument, this study developed the hypothesis:

H2. An OLC can positively impact learning agility.

Learning agility and organisational innovation

Previous studies have suggested that an organisation that can adapt to the changes emerging in the market can enhance its performance by creating an environment that leads to swift, competitive actions as well as organisational innovation (Ahmad et al., 2020). As a result, organisational agility gives a path to the companies for altering their position as well as their procedures as per the very changes in the environment (Govuzela & Mafini, 2019). The aptness to discover novel shifts stimulate innovativeness in the organisation as well as it also facilitates a swift response against the novel changes in the environment (Lin & Huang, 2021). Nevertheless, a prior study has also suggested that strategies for responding to the new challenges in the environment can encourage recognition of innovativeness within the organisation that can be obtained by the inclusion of organisational agility (Govuzela & Mafini, 2019). Organisational agility can be assumed as a mechanism through which an organisation can enable innovativeness within it (Atkinson et al., 2022). Studies have also suggested that an organisation can be agile by having learning agile employees that can bring innovation to the organisation (Govuzela & Mafini, 2019). However, as per our best knowledge, no study has suggested an association, particularly between the employees' learning agility and organisational innovation. Therefore, the following hypothesis is developed:

H3. Learning agility can positively impact organisational innovation.

Supportive work environment and organisational innovation

Innovative activities are facilitated in particular among the employees through a work environment that includes organisational work, teamwork, job satisfaction, internet and external networks, employee incentives, capacity building, and expertise (Buttice et al., 2020). The innovative behaviour is associated with increased affective engagement and commitment to sustainability (Norouzinik et al., 2022). The positive teamwork effects on technological innovation have been investigated by (Corsino et al., 2019). Furthermore, Buttice et al. (2020) discovered that innovation is associated with confidence, prosperity, and connectivity. A supportive work environment enhances individuals' ability to innovate (Naz et al., 2020). The role of creative people or groups of people in companies gives a crucial message to management. They should therefore promote, encourage and adapt existing incentives and awards to innovative championships. Following the above argument, this study developed the hypothesis:

H4. A supportive work environment can positively impact organisational innovation.

Organisational learning culture and organisational innovation

Due to the fiercely competitive market, an organisation is required to re-engineer their businesses, procedures, and policies with the help of employees' innovative knowledge and skills for good results (Damanpour, 1991). For good results, proper attention to the employees is a prerequisite in these unprecedented changes. In this way, the organisation plays a crucial role in stimulating and leading its employees towards long-term learning (Jiang et al., 2019). However, employers may adapt the new knowledge as well as the

necessary skills through training or seminars and then transform the knowledge into their employees (Succi & Canovi, 2020). Consequently, an organisation may develop a learning culture within it. This learning within the employees must help the organisation by nurturing innovative ideas and skills (Roper & Love, 2018). OLC is not only helpful to the individual but also is beneficial to the different cohorts and organisations as well from a broader perspective (Carvalho et al., 2017). Employers are required to be vigilant in terms of facilitating the learning culture in the organisation because the obtained knowledge and skills by the employees are vital to bringing organisational innovation (Naqshbandi & Tabche, 2018). Previous studies have suggested that if an organisation is cultivating organisational learning, it will lead to organisational innovation (Bunea, 2019; Cohen & Levinthal, 1990). Hence, the present study developed the hypothesis as:

H5. An OLC can positively impact organisational innovation.

Organisational innovation and organisational performance

Given the volatile worldwide business conditions and the high demand for international and local competition (Dasgupta, 2019), companies should improve their flexibility and reactivity to their effectiveness. This necessarily results in a greater need for ongoing product and service innovation and internal processes and behaviour. The previous research has shifted from efficiency to innovation to address this issue. More knowledge was needed on how to coordinate individual efforts to impact innovation and performance at the organisational level (Ferreira et al., 2019). Khin and Ho (2019) also argued that innovation gaps should help to improve the performance of the organisation, though Rubera and Kirca (2012) suggested that innovation indirectly affects business and financial positions on organisational value. Nevertheless, innovative measures are essential for improved operations. In this line, Fernández et al. (2019) demonstrated that organisations focussing on the prolific innovation of employees are better able to secure a greater market share, leading to profitability and high income. The resource-based theory also recommends that organisations can challenge their competitors by developing an innovation strategy (Bommer & Jalajas, 2004). It also leads to a competitive advantage and better corporate performance. Thus, this study hypothesises:

H6. Organisational innovation can positively impact organisational performance.

Serial mediation effects of learning agility and organisational innovation

Prior literature has supported the linear relationship between an OLC and learning agility (Tripathi & Srivastava, 2020) and between organisational learning and organisational innovation (Bunea, 2019). To date, empirical evidence is lacking specifically in the integrative relationship between an OLC, learning agility, and organisational innovation. Past researchers confirm the mediating power of learning agility between various antecedent variables and workplace-related behaviours (Tripathi et al., 2020). Furthermore, organisational innovation can act as a bridge between personal and organisational drivers and the international performance of small or medium companies. Nevertheless, no study has conceptualised and validated how learning agility and organisational innovation play a mediating role between (1) supportive work environment and organisational

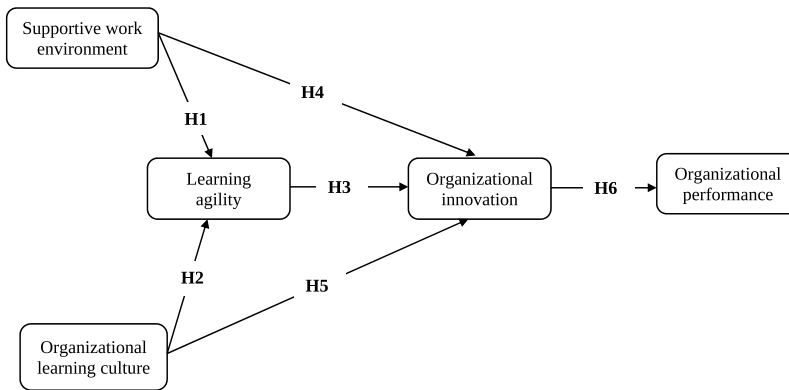


Figure 1. The research framework.

performance and, (2) OLC-organisational performance, particularly in the Indian IT sector. Therefore, this study developed the hypothesis as:

H7. Learning agility and organisational innovation mediates positively between a supportive work environment and organisational performance.

H8. Learning agility and organisational innovation mediates positively between OLC and organisational performance.

By integrating the proposed hypotheses, a research framework is presented in [Figure 1](#).

Methods

Research participants and procedures

This study collected data from ten different information technology software organisations situated in the Southern part of India via online mode. In contrast to the offline survey, the online survey site was utilised which is more accurate, anonymous, and confidential (Stewart et al., 2009). The questionnaire of this study involved two parts. The first part involved multi-item scales such as supportive work environment, OLC, learning agility, organisational innovation, and organisational performance whereas the other part was related to demographic information of the respondent. Sensitive demographic questions were put at the end of the questionnaire to reduce the respondents' resistance (Teclaw et al., 2012).

The respondents were entry-level as well as middle-level executives. Purposive sampling was adopted for data collection between April 2019 and March 2020 for the IT professionals (Ali et al., 2021). Out of 585 questionnaires, 379 valid responses were received, representing a response rate of 64.78%. The participants consisted of 212 (55.93%) males and 167 (44.06%) females. In the sample 143 (37.74%) participants were single whereas 236 (62.26%) participants were married. Their age varied, as 15 (4%) were between 51–60 years; 53 (14%) were between 41–50 years; 133 (35.2%) were between 31–40 years, and 178 (46.8%) were between 20–30 years. Around 124 (32.71%)

Table 1. Respondents' demographic profile (N = 379).

Variable	Frequency	Percentage (%)
Gender		
Male respondents	212	55.93
Female respondents	167	44.06
Marital status		
Single	143	37.74
Married	236	62.26
Age		
20–30 years	178	46.8
31–40 years	133	35.2
41–50 years	53	14.0
51–60 years	15	4.0
Education		
Graduate	124	32.71
Postgraduate	192	50.65
Others	63	16.62
Work experience		
0–5 years	220	58.2
6–10 years	69	18.2
11–15 years	42	11.0
16–20 years	27	7.2
>20 years	21	5.4

were graduates, 192 (50.65%) were post-graduate whereas 63 (16.62%) were having other education. Additionally, we observed different career stages among the respondents, with work experience between 0–5 years (220, 58.2%), 6–10 years (69, 18.2%), 11–15 years (42, 11%), 16–20 years (27, 7.2%), and more than 20 years (21, 5.4%; [Table 1](#)).

A wave analysis was carried out (Van der Stede et al., 2006) to evaluate the likelihood that respondents and non-respondents differ from one another in the study (Limaj & Bernroider, 2019). The technique divides the data set into two groups namely early and late responses, treating late respondents as non-respondent proxies (Limaj & Bernroider, 2019). No significant differences were observed between the two groups concerning age (χ^2 , $p = 0.15$), gender (χ^2 , $p = 0.73$), education (χ^2 , $p = 0.56$), and work experience (χ^2 , $p = 0.49$). The findings indicate that non-response bias in this research study is unlikely to be an issue. Additionally, the missing values in our data were not greater than the critical 5% of total values (Hair et al., 2019). Therefore, the mean method of imputation was used as it is useful to manage a small number of missing data sets (Hair et al., 2019).

Measures

The measurement items were adopted to research the context of the current study from the previous studies to ensure content validity.

Supportive work environment. The supervisory relationship (Eisenberger et al., 1986; Rhoades et al., 2001), perceived climate (Kennedy & Daim, 2010), peer group interaction (Ghosh & Sahney, 2011), and perceived organisational support were used to assess the supportive work environment (Ghosh & Sahney, 2011; Rhoades et al., 2001). Perceived organisational support and supervisory relationship scales were altered before use. The

scale showed good reliability, as we obtained Cronbach's alpha values of 0.82, 0.83, 0.97 and 0.92 respectively.

Organisational learning culture. To assess OLC, we adapted items from the DLOQ (Watkins & Kim, 2018). The sample items include 'My organisation makes its lessons learned available to all employees' and 'My organisation works together with the outside community to meet mutual needs'. Cronbach's alpha was 0.98.

Learning agility. Items proposed by Gravett and Caldwell (2016) were utilised to measure learning agility. The sample items include 'I can deliver results amidst changing circumstances', 'I seek out people to learn about subjects outside my work field' and 'I look for ways to use new knowledge'. Cronbach's alpha was 0.88.

Organisational innovation. Items proposed by Venkatesh and Bala (2012) formed organisational innovation. The sample items include 'My organisation readily accepts innovations based on research results', 'Innovation is readily accepted in this organisation' and 'Innovation in this organisation is perceived as too risky and is resisted'. The measure includes four items, and Cronbach's alpha was 0.96.

Organisational performance. A scale proposed by Lee and Choi (2003) was used to investigate organisational efficiency. 'My company is more successful', and 'My company is more innovative', are two examples of sample products. Cronbach's alpha was 0.93, indicating that the scale was reliable.

Control variables. Control variables such as respondents' gender, age, work experience and education. We coded the variables as: age (1 = 20–30 years, 2 = 31–40 years, 3 = 41–50 years, 4 = 41–50 years and 5 = 51–60 years), gender (1 = male, 2 = female), education (1 = graduate, 2 = postgraduate and 3 = others) and work experience (1 = 0–5 years, 2 = 6–10 years, 3 = 11–15 years, 4 = 16–20 years and 5 = above 20 years).

Items were measured on a five-point Likert scale as mentioned above (see Appendix Table A1). In addition, we conducted a pilot study based on a sample of 30 IT professionals, to check their understanding of the survey questions.

The data analysis

With the help of SPSS 23 and AMOS 23 software, three steps were taken for the data analysis. First, this study reported descriptive statistics, reliabilities, and correlation of the measurement model. To measure the construct validity, confirmatory factor analysis (CFA) was utilised. Second, structural equation modelling (SEM) was applied to examine the fit of the estimated model to determine how well it explained the data. Last, a serial mediation analysis with bootstrapping was conducted, and the results of hypotheses testing were reported.

Results

Intercorrelations of variables

The correlation, mean, and standard deviation values among the measures of an OLC, supportive work environment (perceived climate, supervisory relationship, peer-group interaction, and perceived organisational support), learning agility, and organisational innovation are presented in Table 2.

Table 2. Descriptive statistics.

Variables	Mean	S.D.	1	2	3	4	5	6	7	8
OLC	3.21	0.77	(0.75)							
LA	4.07	0.78	0.04	(0.79)						
OI	3.83	1.05	0.03	0.21**	(0.94)					
PC	2.89	0.82	0.07	0.06	-0.03	(0.75)				
SR	3.48	0.81	0.03	0.01	-0.11*	0.22**	(0.79)			
PGI	4.05	0.83	0.03	0.42**	0.30**	0.03	-0.06	(0.96)		
POS	2.78	1.10	0.05	0.09	0.01	0.25**	0.08	0.01	(0.89)	
OP	3.84	0.96	0.07	0.15**	0.49**	0.00	-0.08	0.24**	0.03	(0.84)

Note(s): The square root of AVE is represented through parentheses diagonal values.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Organisational learning culture (OLC), Learning agility (LA), Organisational innovation (OI), Perceived climate (PC), Supervisory relationship (SR), Peer group interaction (PGI), Perceived organisational support (POS), Organisational performance (OP).

Table 3. Measurement model estimates.

Variables	Items	Factor loadings	Cronbach's α	AVE	CR	VIF
OLC	OLC1	0.76	0.89	0.57	0.88	1.07
	OLC6	0.85				
	OLC4	0.84				
	OLC5	0.87				
	OLC2	0.70				
	OLC3	0.74				
LA	LA1	0.74	0.88	0.62	0.90	2.01
	LA2	0.61				
	LA3	0.86				
	LA4	0.90				
	LA5	0.81				
	LA6	0.93				
OI	OI1	0.95	0.96	0.88	0.96	1.54
	OI2	0.97				
	OI3	0.95				
	OI4	0.91				
OP	OP1	0.95	0.93	0.71	0.92	1.22
	OP2	0.93				
	OP3	0.88				
	OP4	0.86				
	OP5	0.79				
PC	PC1	0.82	0.82	0.56	0.79	1.92
	PC2	0.85				
	PC3	0.84				
SR	SR1	0.83	0.83	0.63	0.84	1.28
	SR2	0.88				
	SR3	0.88				
PGI	PGI1	0.98	0.97	0.93	0.97	1.36
	PGI2	0.95				
	PGI3	0.97				
POS	POS1	0.91	0.92	0.79	0.92	1.64
	POS2	0.94				
	POS3	0.91				

Note (s): CR = Composite reliability; AVE = Average variance extracted; VIF = Variance inflation factor.

Reliability, validity, and multicollinearity

Results indicate different values of 'Cronbach's alpha' and the range was 0.82 to 0.97, which displayed an adequate level of internal consistency reliability (Table 3). In this study, 'internal consistency reliability, convergent and discriminant validity' were measured with the help of CFA. Results indicated that composite reliability (CR) varied from

0.79 to 0.97, which was above the threshold value for CR, and therefore acceptable range was satisfied (Fornell & Larcker, 1981). Additionally, factor loadings of individual items demonstrated significant values that further supported convergent validity. To test the constructs' validity, this study utilised the average variance extracted (AVE) measure. The values of AVE of all constructs varied between 0.56 to 0.93, exceeding the threshold value of 0.5 (Fornell & Larcker, 1981) for an acceptable level of convergent validity. *'To meet the requirements of discriminant validity, the square roots of a construct's AVE should exceed the estimated intercorrelations between one construct and the others in the model'*.

Table 2 suggested that square roots of all constructs' AVE values ranged from 0.75 to 0.96 and provided preliminary support for discriminant validity (Hair et al., 2019). Based on these tests, we can conclude that reliability and validity are adequate for the proposed model. Additionally, multicollinearity was also assessed using the Variance Inflation Factor (VIF), which should be less than 10 (Hair et al., 2019). The VIF values between 1.07 and 2.01 confirmed the absence of any issue due to multicollinearity (Table 3).

Common method bias

Because 'all items were answered by a single source, which could generate common method variance (CMV), we used Harman's one-factor test to determine the effect (Podsakoff et al., 2003). The first principal component in the total explained variance was 34.58 (<50%), suggesting that there were no serious CMV problems'. We further conducted a common latent factor analysis since the CFA techniques are widely accepted and used for the concerns of CMV (Williams & McGonagle, 2016). The results indicated that the five-factor model ($\chi^2 = 561.25$, $df = 261$, $\chi^2/df = 2.15$, GFI = 0.90, AGFI = 0.88, RMSEA = 0.04) was a better fit than the one-factor model ($\chi^2 = 3243.37$, $df = 189$, $\chi^2/df = 17.16$, GFI = 0.48, AGFI = 0.37, RMSEA = 0.19). Thus, the measures under study had little interference due to CMV.

Hypothesis testing

Figure 2 exhibits the results of the hypothesised model. We found that OLC has a significant positive impact on learning agility ($\beta = 0.450$, $p < 0.001$) and organisational innovation ($\beta = 0.210$, $p < 0.001$). Further, learning agility had a significant positive impact on organisational innovation ($\beta = 0.128$, $p < 0.01$). Similarly, a supportive work environment showed a significant positive impact on organisational innovation ($\beta = 0.248$, $p < 0.001$).

Finally, organisational innovation had a significant positive impact on organisational performance ($\beta = 0.459$, $p < 0.001$), thus supporting H2, H3, H4, H5, and H6, respectively. However, no significant impact of a supportive work environment on learning agility ($\beta = 0.018$, n.s.) was observed, thus H1 was rejected.

To verify the effect of serial mediation, a bootstrap sample of 5000 cases with a 95% confidential interval (CI) was carried out (Table 4). When there is zero in the lower and upper levels of the 95% confidence interval (CI), it is inferred that the mediation effect is insignificant; otherwise, the mediation effect can be supported (Hayes, 2013). Table 4 presents the results of serial mediation effects. According to the results, it can be

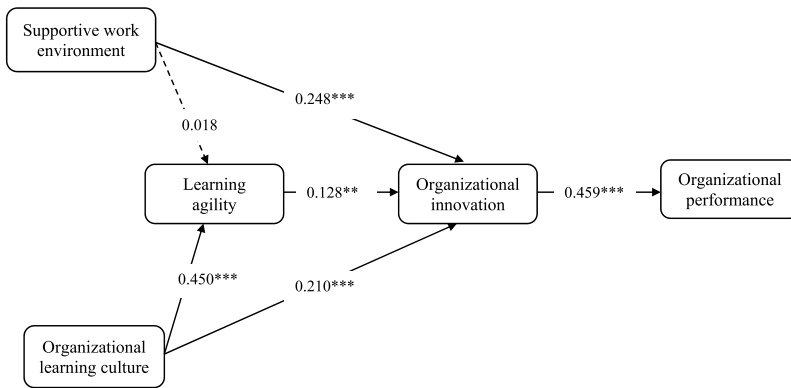


Figure 2. Results of the hypothesised model. Note (s): Supported Path* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 4. Bootstrap test of serial mediation effects.

Mediation effect	Estimate	Standard error	p	BC 95% CI	
				Lower	Upper
SWE→LA→OI→OP	0.102	0.028	0.000	0.054	0.166
OLC→LA→OI→OP	0.148	0.037	0.000	0.088	0.231

Note (s): SWE = Supportive work environment, OLC = Organisational learning culture, LA = Learning agility, OI = Organisational innovation, OP = Organisational performance.

determined that serial mediation can be confirmed. The impact of a supportive work environment on organisational performance mediated by learning agility and organisational innovation was positive and significant ($\beta = 0.102$), because the CI does not contain a value of 0 [lower-level CI = -0.054 ; upper-level CI = 0.166]. These research findings provide empirical support for H7. In addition, it was observed that the impact of OLC on organisational performance mediated by learning agility and organisational innovation is significant ($\beta = 0.148$), as the CI does not contain a value of 0 [lower-level CI = 0.088 ; upper-level CI = 0.231]. The empirical results also provide evidence for H8.

Following Li et al. (2014), we further compared the relative efficacy of a supportive work environment with the OLC. Two alternative models for the supportive work environment and OLC were established separately to predict organisational innovation (Figure 3). The R^2 for the supportive work environment-based model is only 43% compared to 52% for the organisational learning culture-based model. The result indicates that OLC explains more variation in organisational innovation compared with a supportive work environment.

While there were sufficient model fit indices shown in the hypothesised model, two alternative models were studied for the exclusion of rational alternatives. We assumed that a supportive work environment and OLC have direct effects on organisational performance instead of organisational innovation in the first alternative model. On the other hand, we considered the direct impact of learning agility on organisational performance in the second alternative model. The model fit comparison between hypothesised and alternative models is presented in Table 5. Compared to the two alternative models,

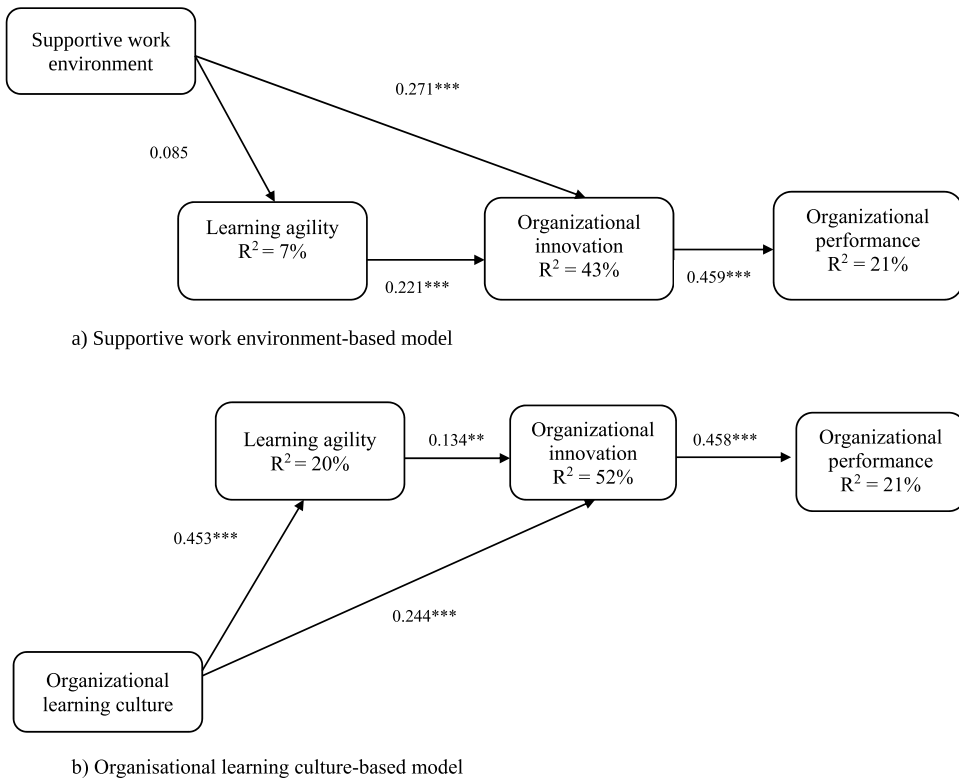


Figure 3. Results of comparing the relative efficacy of supportive work environment- based model and organisational learning culture-based model using AMOS (a) Supportive work environment-based model (b) Organisational learning culture-based model.

Table 5. Model fit comparisons among the hypothesised and alternative models.

Models	χ^2	df	p-value	SRMR	CFI	AIC	BIC	CAIC
Hypothesised model	489.095	262	<0.001	0.061	0.983	615.095	863.160	926.160
Alternative Model 1	613.141	286	<0.001	0.095	0.923	615.095	892.132	946.786
Alternative Model 2	652.586	291	<0.001	0.098	0.912	934.965	921.534	982.342

Note (s): SRMR = Standardised root mean square residual; CFI = Confirmatory fit index; AIC = Akaike information criterion; BIC = Bayesian information criterion; CAIC = Consistent Akaike information criterion.

the hypothesised model has a smaller Akaike information criterion (AIC), Bayesian information criterion (BIC), and consistent AIC (CAIC), there is thus the best fit model index for our hypothesised model and the best way to explain patterns in our data (Hair et al., 2019).

Discussion and conclusions

Discussion

The context of this study is focused on investigating the relationship between a supportive work environment, OLC, learning agility, organisational innovation, and organisational performance through statistical data analyses, which has further provided

the empirical contributions to the relationship between employee and employer factors as suggested by previous scholars (Tripathi & Srivastava, 2020).

Depending on the literature, we hypothesised, that a supportive work environment has a significant positive influence on learning agility (H1). While we found a non-significant relationship between a supportive work environment and learning agility which contradicts the study of Tripathi et al. (2020). This can be explained by the fact that only supporting workplaces may not be enough to promote new concepts or knowledge to increase the learning agility of employees.

Further, we hypothesised that OLC has a significant positive influence on learning agility (H2), and learning agility has a significant positive influence on organisational innovation (H3). We discovered a significant relationship exists between OLC and learning agility, as well as a significant relationship exists between learning agility and organisational innovation. This finding is consistent with the findings of previous studies (Gravett & Caldwell, 2016; Yadav & Dixit, 2017) and (Ahmad et al., 2020; Atkinson et al., 2022; Eidizadeh et al., 2017; Lin & Huang, 2021), which proposed that OLC plays an important role in fostering learning agility in employees, which can help to foster innovation in an organisation.

Furthermore, we hypothesised that a supportive work environment (H4) and OLC (H5) have a significant positive influence on organisational innovation. In the current study, we discovered that a supportive work environment and OLC have a positive impact on organisational innovation. This supports the findings of previous studies, which established a supportive work environment as a stronger predictor of organisational innovation (Buttice et al., 2020; Corsino et al., 2019; Norouzinik et al., 2022) and OLC as a precursor of organisational innovation (Bunea, 2019; Roper & Love, 2018; Succi & Canovi, 2020).

Additionally, we hypothesised that organisational innovation has a significant impact on organisational performance (H6). In this study, we discovered that organisational innovation has a positive effect on organisational performance. This finding is consistent with the findings of previous studies (Dasgupta, 2019; Fernández et al., 2019; Ferreira et al., 2019; Khin & Ho, 2019), which established organisational innovation as a stronger predictor of organisational performance.

This study makes a significant contribution by determining the mediating roles of learning agility and organisational innovation between a supportive work environment and organisational performance (H7), as well as the mediating roles of learning agility and organisational innovation between OLC and organisational performance (H8). We discovered that both learning agility and organisational innovation serve as a positive mediators between a supportive work environment and organisational performance, as well as between OLC and organisational performance. We believe there has been no prior research on these specific effects in the context of the IT sector. Nevertheless, a few studies have examined that, organisational culture is an antecedent of organisational learning (Oh & Han, 2020) and learning agility (Tripathi & Sankaran, 2021), and organisational learning (Oh & Han, 2020) is an antecedent of organisational performance.

Theoretical implications

The current study has some major theoretical contributions. First, this is the first study to confirm that the effect of a supportive work environment on learning agility is

insignificant. The second important contribution of this research is that it establishes that OLC ($\beta = 0.450$, $p < 0.001$) has a stronger and more significant influence on learning agility as compared to the supportive work environment. Third, we established that employees' learning agility and organisational innovation act as serial mediators in the relationship between (1) a supportive work environment and organisational performance and, (2) OLC and organisational performance. Hence, for an organisation seeking improvement in its performance, learning agile individuals will be of utmost importance as they enhance innovation, which can be facilitated by bringing a supportive work environment and OLC into the organisation. Fourth, the R^2 for the supportive work environment-based model (0.43) is lower as compared to the organisational learning culture-based model (0.52), indicating that organisational learning culture explains more variation in organisational innovation compared to a supportive work environment.

Implications for practice

For managerial practices, present research gives valuable insights specific to the information technology sector which is much more exposed to vulnerable changes than others from the HRD point of view. Hence, the adaptation of innovative ideas, knowledge, and skills are required to survive and thrive in the long run and also for improving the performance as per the novel changes. First, when an organisation is facing unavoidable changes in its structure, procedures, and processes, and inclusion of a supportive work environment and OLC is specifically required. The findings demonstrated that an OLC influences the employees' learning agility; an OLC stimulates a learning-culture environment which enhances the learning agility of employees. Whereas a supportive work environment act as a catalyst in bringing innovation within the organisation. Further, an OLC also helps organisations as well as employees in creating a learning mindset through which employees will be able to respond to the changes effectively as well as efficiently. This learning-culture environment helps employees in the transformation of their old patterns, procedures, skills, and attributes to the new ones as per the changes present in the market.

Additionally, the employees having learning agility will be more encouraged and motivated towards the novel changes. They will have the eagerness to learn the new concepts, procedures, and processes thereby they will have more new ideas, skills, and attributes that help bring innovation to the organisation. In turn, management is required to provide them with a conducive and harmonious learning culture and supportive environment that will strengthen the agility of learning in employees. Hence, management should focus on a supportive work environment and OLC that will boost the learning agility in the employees, thereby will provide innovation in the organisation to survive and thrive in the flexible market for the long run and that will increase the performance of an organisation.

Limitations and future research

The study had a few limitations. First, we collected cross-sectional survey data and future studies can analyse longitudinal data to investigate the causal relationship among constructs. Second, the target respondents were from the Information Technology Industry

in India. Hence, the generalisability of the results to other sectors can be an issue. Future studies can replicate this research framework for different organisational and cultural contexts. Third, the study is based entirely on employees' attitudinal and behavioural variables. In the future, other organisational and employee variables can be used.

Conclusions

The purpose of this study was to determine the contribution of a supportive work environment, OLC, learning agility, and organisational innovation to organisational performance in the IT sector. In this model, we also investigated the mediating role of learning agility and organisational innovation in the relationship between a supportive work environment and organisational performance, as well as the relationship between OLC and organisational performance. Based on 379 responses from IT professionals, a structural model was developed. Learning agility, a supportive work environment, and OLC were discovered to be important dimensions for organisational innovation. This study found that OLC is a strong predictor of learning agility, and also organisational innovation has a positive impact on organisational performance. Furthermore, while examining the mediation effects, we discovered that learning agility and organisational innovation demonstrate a positive mediation between a supportive work environment and organisational performance, as well as between OLC and organisational performance.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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