Impact of Organizational Learning on Adaptive Performance: A Dimension-wise study on Chemical Industry of Pakistan

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Abstract

Purpose - The aim of this study was to analyze the effect of organizational learning on adaptive performance in the chemical industry of Pakistan. This study analyzed the impact of organizational learning dimensions "Intra-organizational knowledge sharing" shared vision, commitment to learning, open mindedness) with adaptive performance dimensions (handling emergencies and crisis, managing work stress, solving problems creatively, unpredictable work situations, learning new tasks, technologies and procedures, interpersonal adaptability, physical adaptability).

Methodology - Simple random sampling technique is used for the collection of data from employees in chemicals industry and from different cities of Pakistan. About 450 questionnaires were distributed among from 206 were used for further analysis. Correlation analysis and structural equation modeling is used to interpret the results.

Findings - Overall dimension-wise model was good fit and acceptable.

Practical Implication - This study helps the organizations to understand the importance of organizational learning because it will assist to enhance the adaptive performance, especially in chemical industry of Pakistan.

Originality/Value – Previously many studies was conducted analyze the effect of organizational learning on adaptive performance in different sectors but this study is unique because it specifically focus   effect of organizational learning on adaptive performance in the chemical industry of Pakistan.

Keywords Learning, Organization, Adaptive, Performance, Chemical.

Research type Research Paper

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1.0 INTRODUCTION

Every organization is struggling to gain excellence and precision in its providing products and services so that they can survive in the world's intense competitive business environment. Thirst to gain the position in this environment resulted in dynamic modifications at workplaces. In this competitive situation, employees' adaptive performance perspective at individual's end has increasing its importance which engaged more interest of industry and practitioners.

A lot of researches suggest that at workplaces, individuals and teams are objected with learning & developing new technologies, accommodating to working with different teams of individuals, dealing with prompt and astonishing changes dramatically occurring in the organizational environment, cultural diversity, and technological incursion (Weiss, 1991; Borman & Motowidlo, 1993; Ilgen & Pulakos, 1999; Haeckel, 1999; Quinones & Ehrenstein, 1997; Burke, Stagl, Salas, Pierce, & Kendall, 2006; Pulakos, Arad, Donovan, & Plamondon, 2000; Burke, Pierce, & Salas, 2006), which requires a prompt demand of workers' adaptability to face the constant change (Lang & Bliese, 2009; Chan, 2001). Conversely, Organizations are gradually implementing adaptive organizational designs (Thach & Woodman, 1994; Haeckel, 1999), adaptive information technology (Rasmussen, Pejterson, & Goodstein, 1994), and calling for adaptive performance from workers (Kozlowski et al., 2001; Ilgen & Pulakos, 1999; Griffin & Hesketh, 2003).Though, several researchers defined it as the individual's capacity to cop up with these changes (Ilgen & Pulakos, 1999).

Theorists used the word challenge adaptation or adaptability and have explained it as "an individual's capacity to preserve performance" or to improve from a rapid decline in performance (Kozlowski & Bell, 2008; Pulakos et al., 2000). Though, here is the need to comprehensively understand and explain the concept of adaptability or adaption and how it affects performance, over and above, the concerned mechanisms in this process.

It is necessary for the organizations to learn new tactics to gain knowledge and skills that will assist them to develop and enhance their existing and future performance so that they easily cope with organizational threats and weakness (DiBella, 1998; Ortenblad, 2001; Child, Faulkner, & Tallman, 2005). Many studies concluded that the effective strategy helps the firms to sustain and enhance their performance and to gain the competitive edge with the help of organizational learning (e.g. Mavondo, Chimhanzi, & Stewart, 2005; Sinkula, Baker, & Noordewier, 1997; Senge, 1990).

Prior researches focus on the adaptive performance at individuals end only such as trainings, adaptive changes, stress appraisals, self-efficacy, self-monitoring, process feedback, multi-tasking performance, structure change, individual differences and performance outcomes. But prior studies are lack of adaptive performance as organizational perspectives. Therefore, the essential purpose of this research is to identify theory and to collect empirical evidence on organizational learning dimensions and its effect on adaptive performance dimensions. This study separately explores the relationships of all four dimensions of organizational learning named: intra-organizational knowledge sharing, shared vision, commitment to learning, and open mindedness with dimensions of adaptive performance named: "handling emergencies and crisis, managing work stress, solving problems creatively, unpredictable work situations, learning new tasks, technologies and procedures, interpersonal adaptability, and physical adaptability".

2.0 LITERATURE REVIEW

Organizational Learning

It has been suggested that human beings are learners by nature (Senge, 1990). Senge contends that despite our natural inclination to learn, our society's primary institutions having a controlling rather than learning orientation. This is contrary to what is best for organizations because over the long run good performance depends on learning. Argyris (1997) express that learning is a process that includes the identification of the problem, identification of solutions, implementation of solutions, and monitoring the effectiveness of the solutions. Learning helps to understand, explore and lead towards innovation and creation. According to Czarniawska (2001) learning process is a sort of process which always leads to innovation and personification as it keeps on upgrading and updating the employees with the latest trends and management practices governed by the organizations to show more systematic performance and behavioral integration among employees. As the more employees are concentrate towards learning process will help to boosts up the level of inner satisfaction and job gratitude. Nonaka and Takeuchi (1995) stated that, through social learning and perception, employees tend to perform and gain the valuable experience with a systematic mind set and retrospective behavior in order to fulfill the will of accomplishing the organizational vision. The employees' behavioral and social betterment is coherent with their understanding with the cultural knowledge. Huber (1991) highlighted that organizations are so called learning organizations that if these

organizations are focused on learning processes and adjustment of behaviors, which modify the socially held norms i.e. social networks of employees for information, and knowledge sharing are so affective that the union of individual, teams and groups work with cooperation, coordination and social welfare.

Due to constant changes occurring in the workplace, the learning culture of an organization is more important than ever (Maurer & Rafuse, 2001). Organizations must adapt to the changing nature of technological and human resource demands to remain competitive. Organizational success depends widely to the level of organizational ability to acclimatize the changes continuously accruing in its external environment by adapting new knowledge and enhancing new skills. Illeris (2004) suggests that adult learning involves individual psychological processing and acquisition in addition to social interaction. Goldstein and Ford (2002) contend that while learning is rooted in individuals, organizations can promote a positive environment that supports learning.

An organization's learning culture reflects the degree to which the organization prioritizes employees' learning and development (Egan, Young, & Bartlett, 2004). The policies and practices of a learning organization emphasize the need for constant growth and thus encourage employee development. Tracey, Tannenbaum, & Kavanagh (1995) suggest that a learning culture is composed of several main components that contribute to shared values and beliefs. First, learning should be measured as a responsibility of every employee's job. Members of the organization share an understanding that they are expected to develop themselves. Second, learning is supported by work relationships and social interaction. The work environment encourages collaboration and cooperativeness among work teams and units. Third, formal practices promote employee learning by offering opportunities for development. The organization provides the resources that employees need to learn. Further, policies reinforce the importance of learning by informing employees why it is necessary to continuously learn. Finally, competition and innovation are rewarded. Employees strive to perform well and expect others in the organization to have the same high performance standards. At the same time, the organization strives to perform at the highest standard, by being the best in the industry. These characteristics contribute to employees' expectations that learning is necessary for an organization to thrive. Their shared expectations form an organizational value which is how continuous learning becomes embedded within the culture of the organization (Tracey et al. 1995).

Organizations that embody a learning culture develop and grow over time as their members' value the concept of continuous learning and performance improvement (London & Mone, 1999). Goldstein and Ford (2002) suggest that the goal of a learning organization is to urge every member of the organization to cultivate their skills and improve organizational effectiveness. Gaining knowledge in organizations with a learning culture becomes an everyday occurrence rather than being confined solely to formal training experiences. Egan et al. (2004) found that organizational learning culture is an appropriate way of forecasting job satisfaction, high motivation level to transfer learning further, and turnover intention.

Billet (2004) proposed that the workplace is a learning environment in which an interaction occurs between the organization's participatory practices that are afforded to members and members' participation in these activities. Organizations regulate employees' participation in activities through social norms, social groups, and cultural practices. In other words, Billet (2004) contended that the activities and social opportunities that are provided to employees and their willingness to participate in these activities impact the learning that occurs in the workplace.

The organizational learning is a multi-dimensional approach i.e. individual, team and organizational level learning. All three levels of learning are significantly related with the performance of employees, job satisfaction and organizational affiliation. Learning culture improves the team and group performance in organizations as it facilitates in creating such networks of information and experience sharing where employees interact and learn from each other and from organizational system, thereby manipulating the behavior and working activities of individual and groups. Yang (2003) suggested that cultural legitimacy concentrated on creating opportunities which further helps to flourish the value delivering traits among employees which subsequently become the reason to improve financial position and knowledge management of organization.

Adaptive Performance

Adaptive performance, generally, defined as the ability of a person to acclimatize the vibrant work situations (Hesketh & Neal, 1999). Pulakos et al. (2000) stresses that by adjusting behaviors to the necessities of working condition and upcoming happenings, employee exhibit the adaptive performance. Besides all prior researches identifying the importance of a number of adaptive behaviors by Hesketh & Neal, (1999); Ilgen (1994), Allworth & Hesketh (1996), London & Mone (1999), Pulakos et al. (2000) were pioneer in proposing a universal model of

adaptive performance. Initially, individual performance and their adaptability to changes were analyzed by them and then 1000 critical situations of 24 jobs in the army which reflect adjustable behaviors of participants mandatory for new work scenarios. As a result, they proposed eight dimensions of adaptive performance which includes (1) Handling emergencies and crisis (2) Managing work stress (3) Solving problems creatively (4) Dealing with uncertain or unpredictable work situations (5) Learning new tasks, technologies and procedures (6) Interpersonal adaptability (7) Cultural adaptability (8) Physical adaptability. The mixture of all these factors were precise as vital concerning upon the explicit occupational and organizational situations linked with any specified job (Pulakos et al., 2000, 2002).

Edwards & Morrison (1994), Ashford (1986), Weiss (1984), and Murphy (1989) later, comprehensively explain that acknowledged adaptive performance claim that individuals are able to deal with unforeseeable and fluctuation work settings that may come into existence due to lack and/or lower resources availability, changes in organizational priorities and organizational restructuring which further require employees to enhance their adaptability effortlessly and swiftly to make effective and efficient decisions while facing ambiguities and uncertainties. Handling emergencies and crisis, for Pulakos and colleagues (2000, 2002), means communication among other things, the rapidity with which an employee is considered able to respond to any situation or keep away from any hazard, crises or any emergency in a suitable way. This dimension was originated from military personnel's sample where it is pre-defined the capacity to handle any situation more likely threaten of physical integrity and sincerity of an individual (e.g. dangerous or life-threatening situations) which requires particular behavior (hold on emotional and instant decision). For Pulakos and colleagues (2000, 2002), capability to handle new problems, another dimension of adaptability, involves the skills to build up innovative and creative approaches and solutions to deal with complex, ill-defined and unusual problem, also referred by (Zhang & Bartol, 2010). Individuals are predictable to handle the stress linked with quick and random nature of changes in their daily working routine. They cannot agitate and proceed with tasks by making quick and suitable decisions. It also included the ability to convince peers and subordinates positively in hectic and/or annoying situations. Constant advancement by technological innovation and growth of employment related professions leads employees towards requiring capacity and readiness to employ themselves in new learning to treat rapid changes in productive and effective manners. According to Noe & Ford, (1992); Hesketh & Neal, (1999) and London & Mone, (1999), employees should forecast, plan and flourish the skills associated to be important and valuable in upcoming future jobs.

Therefore, it is believed that employees will be more than willing and ready to get occupied for the development of professions. Hollenbeck, LePine, & Ilgen, (1996) explain that increasing trends of work environments which are represented through project works or multidisciplinary team where individuals are probably to regulate their interpersonal behaviors to work with an extensive variety of coworkers efficiently and effectively. Absolute client contacts which supposed in the growth of service activities also require interpersonal flexibility in order to meet client's expectations in a better way (Paulhus & Martin, 1988; Spiro & Weitz, 1990; Bowen & Waldman, 1999).

Identification of development opportunities by corporate sector emphasis extended partnerships which further require cultural adaptability like workforce need to work efficiently and effectively with different nationals, international and occupational cultural contexts (Noe & Ford, 1992; Ilgen & Pulakos, 1999). The eagerness to settle in with different cultures should be consider by different viewpoints and opinions that reflected by adaption of a variety of personalities and openness to others which in other words, explain behaviors of interpersonal adaptability.

Pulakos and colleagues (2000, 2002), at the end, identify physical adaptability which includes the capacity to work in complex and scratchy environment such as noise and heat (Fiedler & Fiedler, 1975; Edwards & Morrison, 1994). By keeping in mind "Handling emergencies and crises dimension" where sample size was military personnel, physical adaptability also includes such jobs that entail the capacity to endure physical strain such as emergencies services, military services, construction, the restaurant business, banking sector, public services and the tourist industry.

Adaptive performance is required when an employee must perform efficiently and effectively in a novel (Chen, Thomas, & Wallace, 2005) or changing task environment (Chen et al., 2005; Kozlowski et al., 2001; LePine et al., 2000) and is characterized by being responsive to variable job demands (Hesketh & Neal, 1999). Variable job demands include being placed in a new work team, being required to solve a poorly-defined problem, or having to use new technology. Adaptive performance builds on general domain knowledge, extending beyond the expertise that influences routine performance (e.g., performance in typical situations; Kozlowski & DeShon, 2004).

Research also has demonstrated that the personality differences that forecast performance in an adaptive environment are distinct from those that predict an individual's ability to perform a routine task. For example, LePine et al. (2000) found that performance

concerning to decision-making ability before an unforeseen task and performance behind the change, but the relationship was only of sensible extent. Furthermore, the set of employees' differences that forecasted performance before the change was diverse than the employees' differences that forecasted performance subsequent to the change.
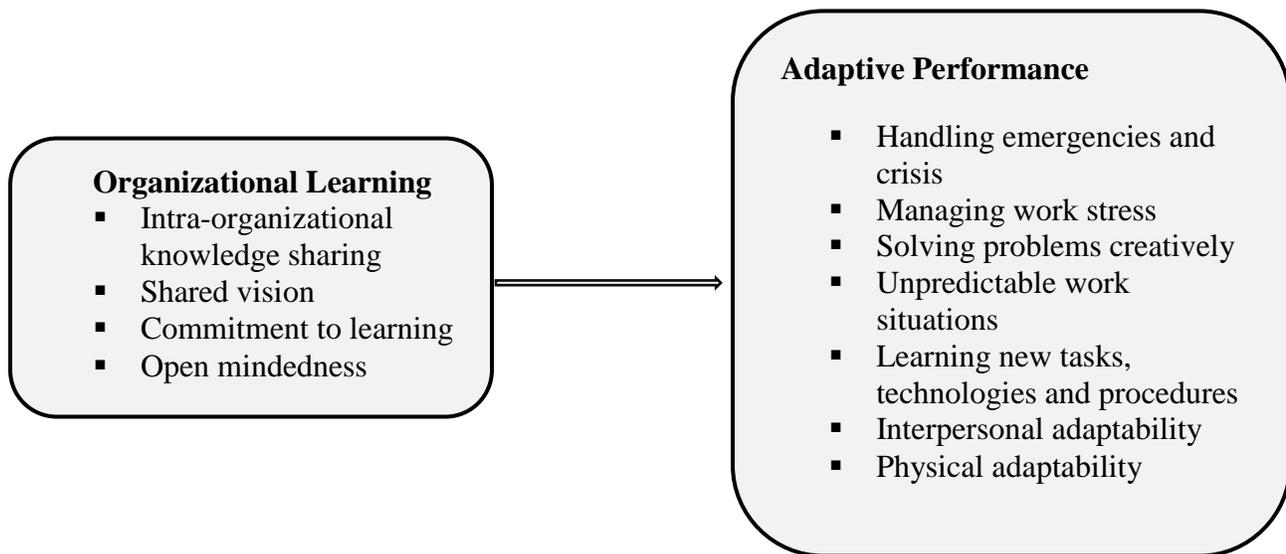
3.0 PROPOSED RESEARCH MODEL

Organizational Learning
- Intra-organizational knowledge sharing
- Shared vision
- Commitment to learning
- Open mindedness

Adaptive Performance
- Handling emergencies and crisis
- Managing work stress
- Solving problems creatively
- Unpredictable work situations
- Learning new tasks, technologies and procedures
- Interpersonal adaptability
- Physical adaptability

Fig 1. Framework for Study

Hypotheses

Following hypotheses are developed from the above theoretical framework:

H1a: "Intra-organizational knowledge sharing" will positively and significantly correlate with handling emergencies and crisis.

H1b: "Intra-organizational knowledge sharing" will positively and significantly correlate with managing work stress.

H1c: "Intra-organizational knowledge sharing" will positively and significantly correlate with solving problems creatively.

H1d: "Intra-organizational knowledge sharing" will positively and significantly correlate with Unpredictable work situations

H1e: "Intra-organizational knowledge sharing" will positively and significantly correlate with Learning new tasks, technologies and procedures.

H1f: "Intra-organizational knowledge sharing" will positively and significantly correlate with Interpersonal adaptability.

H1g: "Intra-organizational knowledge sharing" has direct, meaningful and significant with physical adaptability.

H2a: Shared vision has direct and meaningful association with handling emergencies and crisis.

H2b: Shared vision has direct and meaningful relationship with managing work stress.

H2c: Shared vision has direct relationship with solving problems creatively.

H2d: Shared vision has positive and significant association with Unpredictable work situations

H2e: Shared vision has direct and significant association with Learning new tasks, technologies and procedures.

H2f: Shared vision has direct association with Interpersonal adaptability.

H2g: Shared vision will positively and significantly correlate with physical adaptability.

H2a: Commitment to learning will positively and significantly correlate with handling emergencies and crisis.

H2b: Commitment to learning will positively and significantly correlate with managing work stress.

H2c: Commitment to learning will positively and significantly correlate with solving problems creatively.

H2d: Commitment to learning will positively and significantly correlate with Unpredictable work situations.

H2e: Commitment to learning will positively and significantly correlate with Learning new tasks, technologies and procedures.

H2f: Commitment to learning has direct with Interpersonal adaptability.

H2g: Commitment to learning has direct association with physical adaptability.

H2a: Open mindedness has meaningful and direct association with handling emergencies and crisis.

H2b: Open mindedness will positively and significantly correlate with managing work stress.

H2c: Open mindedness will positively and significantly correlate with solving problems creatively.

H2d: Open mindedness will positively and significantly correlate with Unpredictable work situations.

H2e: Open mindedness will positively and significantly correlate with Learning new tasks, technologies and procedures.

H2f: Open mindedness will positively and significantly correlate with Interpersonal adaptability.

H2g: Open mindedness will positively and significantly correlate with physical adaptability.

4.0. MATERIAL AND METHODS

Chemical industry of Pakistan is the focused population for this study. This research is based on a sample of 206 employees from chemical industry of Pakistan. Data is collected from employees by using simple random sampling technique, in chemicals industry and from following mentioned cities of Pakistan (Lahore, Sargodha, Faisalabad, Islamabad, Karachi, Hyderabad, Sahiwal, Multan, Rahim Yar Khan, Sukkur, Vehari, K.P.K, Quetta, Gujranwala).

450 questionnaires were distributed whereas 250 questionnaires were return back by respondents, out of which 44 questionnaire were discarded due to incomplete responses. The questionnaire was send to the target respondents through courier services (TCS and OCS), social networking (Facebook, LinkedIn, Gmail, Outlook) and personal visits. The overall response rate was 46%. Questionnaire was divided into two parts, for this study. First portion is simply related to demographics, whereas second one is related to variables; employee engagement, organizational learning and adaptive performance. Results is to be confirmed by using SPSS and AMOS.

5.0 RESULTS AND DISCUSSIONS

With respect to gender, participants are 68.4% male with majority in contrast females are 31.6%. From participants 53.9% are single and 46.1% are married. Data is collected from both public and private sectors. Only 11.2% respondents are doing jobs in public sector and 88.8% are from private sector. The average job tenure of participants are fall in 3-5 years. Most of the respondents are belonged to the organization where employees are more from 500. Whereas, the average age of participants is 21-30 years.

For inferential analysis, data was screened and cleaned and assumptions of regression analysis were tested. Specifically normality was tested with the help of skewness and kurtosis which were within the range. There was no evidence of autocorrelation, heteroscedasticity and multicollinearity. Linearity was also tested through bivariate correlation.

Table 1. Correlation Analysis

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
1. Knowledge Sharing	1										
2. Shared Vision	.41**	1									
3. Commitment To Learning	.48**	.59**	1								
4. Open Mindedness	.38**	.63**	.39**	1							
5. Handling Crisis	.20**	.37**	.18**	.39**	1						
6. Managing Stress	.29**	.08	.17*	-.07	.39**	1					
7. Solving Problems	.19**	.05	-.02	-.04	.38**	.32**	1				
8. Unpredictable Situations	.15*	.29**	.15*	.20**	.34**	.03	.16*	1			
9. Learning new Tasks	.02	.03	.04	.31**	.37**	.15*	.29**	.19**	1		
10. Interpersonal Adaptability	.27**	.21**	.14*	.26**	.62**	.42**	.40**	.10	.45**	1	
11. Physical Adaptability	.18*	.30**	.30**	.03	.24**	.34**	.22**	.07	.04	.14*	1

**Correlation is significant at the 0.01 level (2-tailed).*Correlation is significant at the 0.05 level (2-tailed).

Table 1 suggests about correlation among measured variables. First dimension of organizational learning named Intra-organizational knowledge sharing has positive and highly significant correlation ($p<0.01$) with the dimensions of adaptive performance named handling emergencies and crisis, managing work stress, solving problems creatively and interpersonal adaptability. Whereas, positive and significant relationship is found with unpredictable work situations, and physical adaptability ($P<0.05$). Intra-organizational knowledge sharing has insignificant association with learning new tasks, technologies and procedures. Second dimension of organizational learning named shared vision is positively highly correlated ($p<0.01$) with handling emergencies and crisis, unpredictable work situations, interpersonal adaptability and physical adaptability. However, insignificantly associated with managing work stress, solving problems creatively and with learning new tasks, technologies and procedures. Third dimension commitment to learning has positive and significant relationship with handling emergencies and crisis, managing work stress, unpredictable work situations, interpersonal adaptability and physical adaptability. On the other side has insignificant association with solving problems creatively and with learning new tasks, technologies and procedures. Fourth dimension of OC named as open mindedness has positive and highly significant association

(p<0.01) with all dimensions of adaptive performance named as: "Handling emergencies and crisis Managing work stress, Solving problems creatively, Unpredictable work situations, Learning new tasks, technologies and procedures, Interpersonal adaptability, and with Physical adaptability".
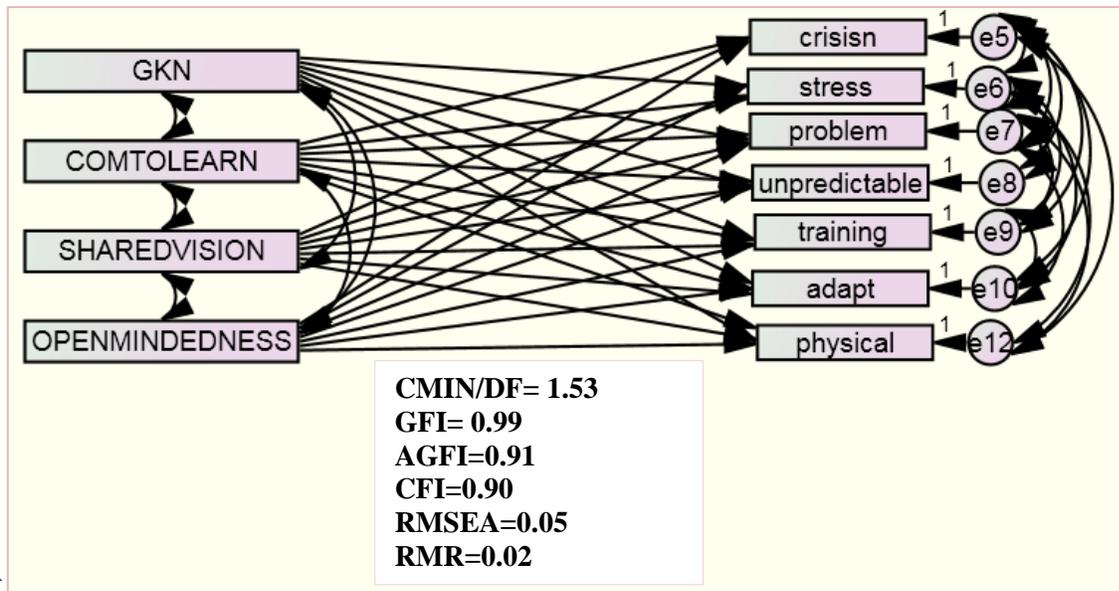

Figure 2: Paths among dependent and independent variables

In figure 2 paths from intra-organizational knowledge sharing, shared vision, commitment to learning, and open mindedness towards handling emergencies and crisis, managing work stress, solving problems creatively, unpredictable work situations, learning new tasks, technologies and procedures, interpersonal adaptability, and physical adaptability. The CMIN/DF is 1.53 (less than 3 acceptable), all the values of fit indices GFI AGFI and CFI are exceeding from 0.90. RMSEA is 0.05 (less from 0.06), RMR is 0.02 (near to zero), indicating that model is good fit. Thus, the statistical values assures about fitness and acceptance of model (CMIN/DF= 1.53, GFI= 0.99, AGFI=0.91, CFI=0.90, RMR=0.02, RMSEA=0.05.

The path analysis from intra-organizational knowledge sharing with dimensions of adaptive performance named managing work stress and solving problems creatively suggests the positive and highly significant relationship (p=0.000). In the meanwhile, positive and significant association is found with interpersonal adaptability (Regression weight= .20, p-value=0.002). In contrast, highly significant but negative relationship is found with unpredictable work situations (Reg Weight=-.374, p-value=0.000). Whereas, insignificant association was found with learning new tasks and technologies, and physical adaptability. Thus, hypotheses

H1b, H1c and H1f are accepted. Hypotheses H1e and H1g are rejected. Whereas, H1d is accepted at some extent because highly significant but negative relationship is found between intra-organizational knowledge sharing and unpredictable work situations.

The path analysis from shared vision towards dimensions of adaptive performance named handling emergencies, crisis and physical adaptability suggest the positive and significant relationship (Regression weight= .28, p-value=0.004) and (Regression weight= .35, p-value=0.000) respectively. In contrast, highly significant but negative relationship is found with learning new tasks and technologies (Reg Weight= -0.27, p-value=0.005). Whereas, insignificant association is found with work stress, solving problems creatively, interpersonal adaptability and unpredictable work situations. Thus, hypotheses H2a, H2e and H2g are accepted. Hypotheses H2b, H2c, H2d and H2f are rejected. Whereas, H2e is accepted at some extent because highly significant but negative relationship is found between shared vision and learning new tasks and technologies.

The path analysis from commitment to learning towards dimensions of adaptive performance named solving problems creatively, unpredictable situations and physical adaptability suggest the significant associations (p-value<0.05). Whereas, insignificant association is found with work stress, handling emergencies, interpersonal adaptability and learning new technologies. Thus, hypotheses H3c, H3d and H3g are accepted. Hypotheses H3a, H3b, H3e and H3f are rejected.

The path analysis from open mindedness towards dimensions of adaptive performance named with learning new tasks and technologies, handling emergencies and crisis, unpredictable work situations and interpersonal adaptability has positive and significant associations where standardized regression weights are 0.49, 0.25, 0.19 and 0.17 respectively (p-value=0.000, p-value<0.05). In contrast, highly significant but negative relationship is found managing stress, solving problems creatively, and physical adaptability where standardized regression weights are -0.26, -0.16 and -0.29 respectively (p-value=0.000, p-value<0.05). Thus, hypotheses H4a, H4d, H4e, and H4f are completely accepted. In contrast, Hypotheses H4b, H4c, and H4g are partially accepted.

6.0. CONCLUSION AND IMPLICATIONS OF STUDY

Organizational learning and adaptive performance are vital elements for employees' development and organizational success. A dimension-wise study was conducted to identify the

impact of each organizational learning dimension with adaptive performance dimensions. Keeping in view that, prompt changes occurring at workplaces in the chemical industry, practitioners are challenging with task of motivating and instructing employees to engage in adaptive performance behaviors. Intra-organizational knowledge sharing, shared vision, commitment to learning and open mindedness help the employees to enhance the adaptive performance by handling emergencies and crisis, managing work stress, solving problems creatively, unpredictable work situations, learning new tasks, technologies and procedures, interpersonal adaptability, and physical adaptability at some extent.

Limitations of the study includes that first, data is specifically collected from product based chemical industry of Pakistan. Secondly, sample size is restricted to some cities of Pakistan. For further studies, sample size should be increased to measure the dimensions of adaptive performance at immense level. Thirdly, the restricted assessment due to situational influences on adaptive performance was also visible.

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