THE COGNITIVE, BEHAVIORAL AND SOCIAL PROSPECTIVES OF ORGANIZATIONAL LEARNING THROUGH INFORMATION SYSTEM

Jamshid Ali Turi[1], Shahryar Sorooshian[1](PhD), Fatimah Binti Mahmud[1](PhD) &Yasir Javed[2] (PhD)

[1] Faculty of Industrial Management, University Malaysia Pahang, MALAYSIA.
[2] Department of Management Sciences, COMSATS, Abbottabad Campus, PAKISTAN.

Corresponding Author:
University Malaysia Pahang, MALAYSIA.

Email: jamshidump@gmail.com

ABSTRACT

This study set out to examine, cognitive, behavioural and social factors of learning theoretically and contemporarily with the moderating role of information system in the learning organization. Cognitive, social and behavioural theories were discussed and the use information system for organizational learning effectiveness was studied. Data was collected from the lecturers' employees working in the universities of Islamabad and Rawalpindi in Pakistan, using convenient sampling method and survey technique using questionnaire. Total of 113 Universities' lecturers from different faculties of the universities participated in the survey. Data was analysed with SPSS. The findings indicate that cognitive, social and behavioural organizational factors have significant impacts on organizational learning effectiveness with the moderating support of information system. The study recommends that for the holistic organizational learning development, all cognitive, social and behavioural aspects and factors needs to be addressed and developed.

Keywords: **Organizational Learning, Cognitive, Social & Behavioural Factors of Learning, Information System, Higher Education Institution, Pakistan.**

INTRODUCTION

Organizational learning is as old as the history of organization itself. Learning at organizational level started with the inception of organizational problems and challenges faced by members and management (Schulz, 2001; Sampe, 2012). It can be defined as the cognitive, behavioural and social approach for the pro-active organizational planning, projection to opportunities and solutions to organizational problems (Belle, 2016; A.Hart, Gilstrap, & C.Bolino, 2016). Organizational learning has gained renaissance among both academics and practitioners for development of the organizations. Early promoters of the concept found these ideas largely limited to the border of management thoughts and philosophies during the 1980s, but the 1990s saw a reawakening of interest (Apontea & Zapata, 2013). New theories and hypotheses of information creation have turned out to be noticeable and formal knowledge. As we are moving into the twenty-first century, therefore, organizational learning guarantees to be an overwhelming point of view with impact on both authoritative research and administration hone (Göhlich, 2016).

Organizations are losing learning habits while breathing in knowledge economy and information technology age (Packirisamy, Meenakshy, & Jagannathan, 2017; Cooperrider & Srivastva, 2017). Workers in small organizations could not learn due to internal instability (Coetzer, Kock, & Wallo, 2017; Bamber, Bartram, & Stanton, 2017). Divisional firms lack learning and sharing of knowledge among different departments and disciplines because of centralization and complex hierarchal structure (Geereddy, 2017). Similarly, adhocracies organizations face problems in acquisitions and preservation of learning and experiences to establish its continuity and efficiency (Palos & Stancovici, 2016). All these have resulted in the losses of organizational knowledge, effectiveness, key knowledge workers, money and competencies (Gino & Staats, 2015 ; Cooperrider & Srivastva, 2017). Cognitive, social and behavioural factors for learning in organization need to be addressed; otherwise they will cause damages to the organizational learning, which have direct effect on the organizational effectiveness and performance (Alhabeeb & Rowley, 2017; Aquilani, Silvestri, Ruggieri, & Gatti, 2017). Similarly, Crosling (2017), Alhabeeb and Rowley (2017) proclaims that information system can be used for organizational learning effectiveness and recommends its usage to develop cognitive, social and behavioural prospective of the organizations. Based on the research postulates, premises studied and the problem statement in the preceding section, main question of the research is: what are the impacts of the cognitive, social and behavioural prospective of organizational learning through information system on the organizational learning effectiveness.

LITERATURE REVIEW

Formal debate regarding organizational learning started during World War II when behaviourists and economists challenged one another regarding models of organizational development. Simon's (1958) view was to use organizational experiences to cope with environmental challenges for better future. Behaviourists were focusing on the internal strength, development and innovations while economists were focusing on environmental changes, profit maximizations and perfect information (Schulz, 2001). Meanwhile, firm behavioural theory was presented by Cryert and March (1963) which stated that organizations are adoptive systems, learning from both internal and external changes and demands, adjusting itself between external shocks and internal operating procedure, but more focusing on internal autonomy instead of external driving factors (Gavetti, Greve, Levinthal, & Ocasio, 2012; Duckjung Shin, 2014; Argote & M.Guo, 2016; Fang, Kim, & Milliken, 2014). Adaptation Theory further enlarged the dilemma and even developed a tension between economists and behaviourists because economists were focusing on rational based long-term benefits and organizational adjustment according to the wave of external situations and behaviourists were strict to follow organizational procedure, welcoming internal ideas and innovations following limited rational policy (Gowdy, 2008; Dosi & Marengo, 2007). Limited rational policy created four types ambiguities in organizational learning cycle. Individual learning was affected by rigid bureaucratic policies which produced 'role constrained learning' (March, 2006).

Similarly, 'superstitious learning' conflicts emerged due to organizational and environmental responses. 'Audience learning' ambiguity was created between workers' and organizational learning, when individual solutions were not appreciated and supported by cultural inertia and the last one 'learning under ambiguity', which took whole organizations based on inaccurate and insufficient information and their wrong interpretation (Schulz, 2001; March, 2006).

In 1950s, in reaction to the macroeconomists' stance, contemporary research started and this journey went till 1980s. New empirical research programs were funded and organizational learning came as a diverse field of interconnected ideas (Schulz, 2001). Organizational theorists thought that, like humans, organizations also adopt learning from the environment. Contribution of the adoptive system towards organizational learning was limited, because these were not outcome oriented. The first comprehensive and formal organizational learning model was developed by Levinthal and March (1981), which focused on technology adaptation for organizational learning and performance improvement (Alsabbagh & Khalil, 2016). But still, ambiguities of on performance were felt due to continuously evolving nature of the technologies (Barbato & Turri, 2017; Sadouskaya, 2017). This severity becomes greater to the organization in the 21st century, where all the organizations are still facing complexity and uncertainty due to globalization, knowledge economy and technology disruption (Susan & Francis, 2017; Kwon, Kim, & Park, 2017). Due to the emerging virtual organizations, shifts in reading and learning paradigms, many complexities emerge in organizations, which change their structure and flow of the organization (Kwon et al., 2017). One appropriate way to cope with these challenges is continuous learning for organizations to survive, innovate and lead at global frontiers besides maintaining their competitive edge (Aragón, Jiménez, & Valle, 2016; Susan & Francis, 2017). Organizational learning focuses on organizational problems' solution, creation of new opportunities, developing new insight, synergizing and charging work environment socially and emotionally, enhancing performance and bringing cognitive, behavioural and social productive changes to organizations and its employees (Apostolou, 2014; Aranda, Arellano, & Davila, 2017; Aragón, Jiménez, & Valle, 2016).

Cognitive, social and behavioural learning theories view that learning at all levels, beside intrinsic motivations, needs extrinsic stimuli to support, promote, booster and foster it. Therefore, researchers recommend conducting and developing new learning models, methods, tools and techniques to promote and transfer learning in the best possible, feasible, optimal and economical ways (Valaski, Reinehr, & Malucelli, 2017). Among many new learning stimuli, information system and mobile devices are proving as good instincts for learning, creating motivations, agility, curiosity and enthusiasm in learning entity (Argote L. , 2013; Belle, 2016; Alhabeeb & Rowley, 2017). These devices are gaining the interest of the user and are providing help in many fields. In learning at individual level, information and communication technology are getting acceptance in the promotion of learning (Hameed, 2014; Alhabeeb & Rowley, 2017). Therefore, information system is expected to fulfil the needs of an individual, a group of individuals, and the management functionaries for improving performance and decision-making process (Joseph, 2014; Belle, 2016; Aranda, Arellano, & Davila, 2017).

THEORETICAL FOUNDATION

Cognitive Learning Theories

Organizational cognition is a discipline which adds and develops computational capacity of the organization (Apostolou, 2014). Like human, organizations process information through their own mental models, system methods and techniques (Göhlich, 2016). Cognitive system of the organizations is named mental models, cognitive maps, collective memory and cognitive memories systems (Borrelli, Ponsiglione, Iandoli, & Zollo, 2005; Mead, 2013). Simon (1991) calls organizations as an "extended individuals", as it follows natural life cycle of learning through mental mapping and modelling. Sharing and interpretation of knowledge and experiences developed shared understanding of the employees (Akgün, Byrne, Lynn, & Keskin, 2007). Through cognition, organizations detect environmental events, opportunities and threats through mental maps and reacts rationally and critically (Alhabeeb & Rowley, 2017).

Learning and experiences happen incrementally ranges from abstract concepts up to concrete experiences and active experimentation (Agarwal & Garg, 2012). This argument has support from the rational calculation model of organizational choice, computational cognitive theory, Bloom's taxonomy to choose best from alternative for the organizational learning and development (Wang & Ellinger, 2014; kerlavaj, Dimovski, & Pahor, 2010; Skuncikiene, Balvociute, & Balciunas, 2009). Bloom's taxonomy is the most cited cognitive theory, having equal application in the organizational learning because organization follows the learning process in the same way as human do. They possess cognitive structure to keep records of different things and apply them when it is required (Akgün, Gary, & Byrne, 2003; Bloom, 2010).

Behavioural Learning Theories

Behavioural learning focuses on objectively observable behaviour of the learning entity (Choo, 2016; Dosi & Marengo, 2007). This approach to understanding learning rests on the assumption that learning is the acquisition of new behaviour based on environmental conditions, organizational demands and strategies and the consequences of previous behaviour, which ultimately, directly and indirectly improve behaviours and performance of the organization (Alalwan, Dwivedi, Rana, & Williams, 2016; Akgün, Byrne, Lynn, & Keskin, 2007). For Weick (1991), the defining property of learning in organization is the combination of same stimulus and different response from the environment. Similarly, Cryert and March (1963) see organizational learning as involving adaptation to the environment. For them, organizational learning occurs when an organization, in response to "an external source of disturbance or shock", selects behaviours that lead the organization "to a preferred state" (Kolb, Boyatzis, & Mainemelis, 1999; Eisenberg, 2016). Similarly, single, Double-loop and Deutero learning are not independent from its consequences and all of them are triggered by stimulus, questioning and reasoning (Akgün, Byrne, Lynn, & Keskin, 2007; Apontea & Zapata, 2013). This can also be described as path-dependency (Nelson & Winter, 1982), mean that organizations base their future behaviour on cumulative learning that worked in the past, which is like the idea of positive reinforcement in behavioural conditioning (Alalwan, Dwivedi, Rana, & Williams, 2016). Organizations learn associative learning based on the stimulus-response model, based on questioning the consequences of behaviour and seeking a more profound understanding of the causation of organizational processes (Alsabbagh & Khalil, 2016).

Social Learning Theory

There are many theories which support organizational learning from social prospective. Assimilation theory supports the premise of organizational learning through dissemination, distribution and negotiation taking place at micro-level and worker level (Bustinza, Molina, & Arias-Aranda, 2010). Sharing of knowledge provides food for common intelligence, compels them to face uncertainties in complex business phenomenon, promotes individual and organizational learning and makes survival possible at individual and organizational level (Bustinza, Molina, & Arias-Aranda, 2010; Beauregard, Lemyre, & Barrette, 2015). Similarly, Experiential Learning Theory (ELT) states that learning in organizations occur when the organizational elements are exposed to the concrete experiences (Eisenberg, 2016; Henri, 2009). Adoptive and Generative Organizational Learning Theory focuses on the already established mental models, their underlying embedded norms, patterns and its applications in our lives that how we take and understand our surroundings, world, environment and its element (Otilia, Cristian-Valentin, Ruxandra, & Aurel, 2014). Organizations generate new ideas, new strategies regarding cost, time, quality and scope and adopt in the same way form the environment. Moreover, New Institutional Theory of Organizational Learning, which postulates that with the passage of time, organizations react to internal and external demands and reflect changes in their cognitive, normative (Social and cultural) and regulatory (Behavioural) domains (Meyer & Höllerer, 2014; Palthe, 2014). Socio-Technical Theory of Organizational Learning's basic premise and philosophy of organization is the combination of both social and technical (soft and hard) components and they are open to environment and both affect each other in a bidirectional way (Appelbaum, 2000). This theory considers both social and technical system combined and advise for their effectiveness to better comprehend environmental plans and threats (Apostolou, 2014; Comfort, 2013).

Organizational Learning as Cognitive, Social and Behavioural Process

According to some theorists, Fiol and Lyons's (1985) organizational learning involves behavioural, social and cognitive changes. Double-loop learning, by contrast, is particularly appropriate in organizations facing more turbulent environments and those that have intensive as opposed to routine work technologies (Aquilani, Silvestri, Ruggieri, & Gatti, 2017). Individuals engage in a process of scrutinizing goals in relation to the environment and from people's personal and social environments through critical questioning. Finally, some illustrations of single versus double-loop learning in educational system can be imagined (Berends, Boersma, & Weggeman, 2003). With single-loop learning, faculty might have students locating information from the computers in place of using encyclopaedias or other classroom resources. The behaviour has been changed, but the underlying way of teaching and learning due to the incorporation of internet and computer in teaching-learning does process. With double-loop learning, faculty could decide to rethink the use of computers, perhaps using them to re-examine and alter instruction. For example, entirely new skills such as problem definition and problem solving might be emphasized (Göhlich, 2016).

With single-loop learning, employees might add a web page that serves the same purpose as a written brochure. With double-loop learning, employees might use the Internet to change the way they sell a product much in the way that Amazon.com has used the Internet to rethink ways of selling books (Meyer & Höllerer, 2014; Palthe, 2014). Taken together, the work of these four pairs of theorists suggests that both individual learning and habits of inquiry are necessary but not sufficient conditions for the organizational learning. Organizational learning arises through on-going shared interpretation of data, perceptions, puzzling events and assumptions (Choo, 2016). Organizational adaptation or single-loop learning occurs when an organization's existing frames of reference accepts the interpretation (Geereddy, 2017). These all result in behavioural, social and behavioural and cognitive change (Fang, Kim, & Milliken, 2014).

Moderation of Information System in Organizational Learning

Moderation is the process and force, having contingent effect on the mutual relationship of variables and objects. It is also called a situational force as it exerts its power and accordingly strengthens or weakens the relationship among variables or objects (Aguinis, Edwards, & Bradley, 2016). Most of the times, moderation brings consistency and quality in uncertainties and inconsistencies (Rehman, 2007). Learning phenomenon at all levels needs the support and moderation of the external elements, tools and stimuli (Aguinis, Edwards, & Bradley, 2016). Information system are considered as the most prevalent and supportive element and is proving its efficacy in the learning environment (Adcock, 2012; Aragón, Jiménez, & Valle, 2016). It has developed its capacity to promote cognitive capacity of the organization. It helps in inclusion of new super logics and deletion of the unused and obsolete practices. Research findings and many other recent practices show that information system has changed the cognitive, social and behavioural structure of the individual and organizations (Dima, M, Grabara, & V, 2010). The fact is that information system helps in prioritizing different tasks, scheduling them according to situations has improved the effectiveness and efficiency of the worker and organization (Quresh, 2008). Information system has reduced the burden of the human and organizational memory by presenting and displaying the right kind of information at right time and in right type, therefore it is highly recommended to be used as a moderator for organizational learning (kuo, 2013). Therefore, researchers have recommended that information system tools can be used as a moderator for learning at organizational level which will bring consistency learning processes.

This journey was first started by Argyris (1977), who claims that organizational learning can be better developed using new technologies. In the second phase of research, certain applications and hardware were developed from information system to support the processes of organizational learning and knowledge management.

Technologies such as data warehousing, expert systems, best-practice databases, and intranet/internet systems contain the best packages and tools of organizational learning, memory development and network technologies were used for the access of memory contents (Kane & Alavi, 2007). Versatility, capacities and capabilities of Information systems are increasing day by day, they are capturing every aspect of human life, therefore behaviourists, and social constructivists demand regeneration of organizational learning (Ahmad & Lodhi, 2014; Beauregard, Lemyre, & Barrette, 2015). Information systems are the hubs of information and the communications system (mobile technology) have created integrated networks, which has best possible role in facilitating organizational learning by providing subroutines and infrastructure (Appelbaum, 2000; Borrelli, Ponsiglione, Iandoli, & Zollo, 2005).

Some researchers proclaim that there is an intuitive connection between organizational learning and information systems. At each stage of organizational life, there are processes that evoke the metaphor of learning and information system observe, stores, interprets and institutionalizes this new learning (Tofan, 2013; Hashmi, 2013; Al-Mamary, Shamsuddin, & Aziati, 2014; Mbam, 2016; Nwaocha, 2016). It is then well utilized with the help of information system applications and devices which manifold organizational efficiency and effectiveness (Moon, Ruona, & Valentine, 2017; Ahmad, Mahmood, Hussin, & Dahlan, 2016). The role of Information systems (IS) is like a heart in the body which plays the role of supplying pure blood to all the elements of the body including the brain (Alalwan, Dwivedi, Rana, & Williams, 2016). Different applications and system have been devised for memorizing and learning, which has minimized the load of the workers (Joseph, 2014; Belle, 2016). Information system and mobile technology have devised supporting tools for learning at individual and organizational level. Therefore, many researchers as also depicted in the research problem area have recommended that information system is expected to fulfil the needs of an individual, a group of individuals and the management functionaries for organizational learning (Joseph, 2014; Belle, 2016; Balasubramanian, 2011). Based on the gaps, literature review, research questions and objectives, the proposed model is given below
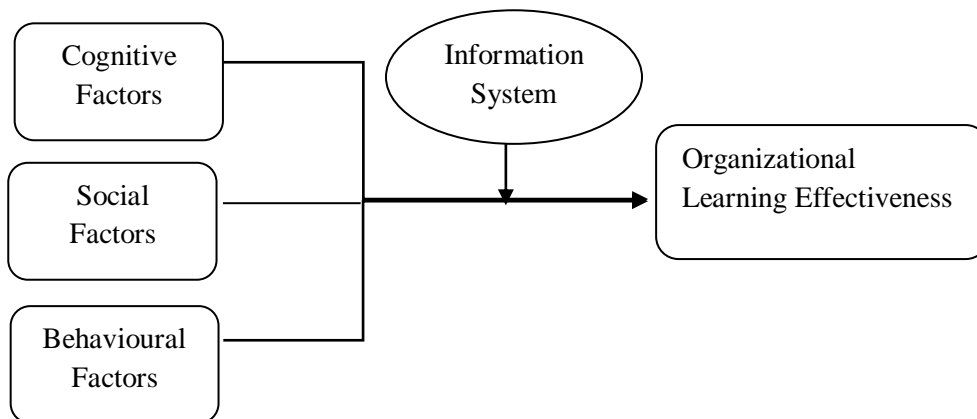

Figure 1. Conceptual Framework for the Study

Research Hypothesis

Argyris (1977), who claims that organizational learning would be helpful in solving difficulties and the use of new technologies can be much beneficial in this regard. In the second phase of research, certain applications and hardware were developed of information system to support the processes of organizational learning and knowledge management.

Technologies such as data warehousing, expert systems, best-practice databases, and intranet/internet systems contain tools, which help in organizational learning, memory development and network technologies were used for the access of memory contents (Aguinis, Edwards, & Bradley, 2016). Versatility, capacities and capabilities of the Information and communications systems are increasing day by day, they are capturing every aspect of human life, therefore behaviourists, social constructivists demand regeneration of organizational (Adcock, 2012; Ahmad & Lodhi, 2014). Information systems are the hubs of information and the communications system (mobile technology) have created integrated networks, which has best possible role in facilitating organizational learning by providing subroutines and infrastructure (Akgün, Gary, & Byrne, 2003). Information system has devised supporting tools for learning at individual and organizational level. Therefore, information system is expected to fulfil the needs of an individual, a group of individuals, and the management functionaries for improving performance and decision-making process (Joseph, 2014; Belle, 2016). These finding leads to the following hypothesis:

H_1: The use of information system moderates the relationship between cognitive learning factors and organizational learning effectiveness.

Information system has changed and reshaped the lives of individual inside the organization. They have brought innovation and creativity, has quicken the flow of work and information faster and smoother and has made learning much easier (Al-Mamary, Shamsuddin, & Aziati, 2014). Human being is a social creature by their very nature and learns from interaction and communication. In this age of technology, so many hard and soft components have been devised and many of them are under consideration and implementation, which make the learning smoother and faster. Social networking, groups and blogs are the example of social learning, which has reduced the cost, has increased the efficiency, and effectiveness and learning at individual and organizational level (Alsabbagh & Khalil, 2016). Social cognition, new institutional and organization cognition theories recommends that new technological devices support and promote learning at individual and organizational level (Apontea & Zapata, 2013). This discussion leads us to the following hypothesis.

H_2: The use of information system moderates the relationship between social learning factors and organizational learning effectiveness.

Behavioural factors affect performance and outcome of the learner and learning processes. Social Bond Theory and Social Learning Theory also seconded the opinion because of the availability of strong motivational forces and reinforcement available in the use of information system (Aquilani, Silvestri, Ruggieri, & Gatti, 2017). Perceived ease of use, perceived usefulness and behavioural control, as depicted in Theory of Planned Behaviour (TPB) explains human perceptions, working behaviour towards technology use. Activity theory states that human being initiate purposeful and meaningful activities with the help of available, valuable and helping tools (Atefeh, Hasan, Behzad, & Mahdi, 2016). Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology(UTAUT), Computer Self-Efficacy and IS theories, DeLone-McLean IS Success Model, Soft Systems Methodology and the Work Systems Method show the role of IS in the behavioural context of individual, group and organizational level (Apostolou, 2014). Due to the availability of the information and communication system, learning and performance at individual and organizational level has been increased tremendously (Gavetti, Greve, Levinthal, & Ocasio, 2012). This discussion of theories and findings leads us the following hypothesis

H_3: The use of information system moderates the relationship between behavioural learning factors and organizational learning effectiveness.

METHODOLOGY

Research Design

Since objectives of this study were to discover facts about a social phenomenon, the best suitable methodology was quantitative research. Quantitative research focuses more on the ability to complete statistical analysis to find the answer and uses measurable data to formulate facts and uncover patterns in research. Surveys are the most useful tool in describing the characteristics of a large population (Aguinis, Edwards, & Bradley, 2016). No other research method can provide this broad capability. Therefore, this study used cross-sectional survey based on primary data, collected from the universities' lecturers in Islamabad and Rawalpindi of Pakistan. A total of 113 lecturers from 21 Higher Educations comprising of recognized institutions/universities responded. The questionnaire was adapted from previous studies and its reliability was checked and found satisfactory. Questionnaire was ranked using the five-point Likert-scale starting from 1 representing "Strongly disagree" to 5 "Strongly agree" options.

Population and Sampling

The population for the data collection was from 21 universities located in Islamabad and Rawalpindi of Pakistan. Data was collected from universities' lecturers, who were actively engaged in teaching learning processes. Convenient sampling technique was applied because it remains best when the target population qualify the basic criteria (Alhabeeb & Rowley, 2017).

Instrumentation

Data was collected through adapted questionnaire (Ahmad & Lodhi, 2014; Alhabeeb & Rowley, 2017) . Their reliability and validity were checked using Cronbach Alpha, and the overall value for it was 0.875, which was found satisfactory and reliable to proceed with. The questionnaire was comprised of 58 items, based on the target variables, taken from the theories and previous studies. The main variables for investigation were cognitive, social and behavioural aspects of the organizational learning.

Data Collection

The targeted population was the lecturers, selected from 21 universities that operated in Islamabad and Rawalpindi regions of Pakistan. 113 lecturers from different faculties such as Engineering, Social Sciences and Biological Sciences participated in the survey. Convenient sampling techniques was adopted to collect primary data from the respondents and the data was evaluated using 5-point Likert scale. The scale ranged from 1= strongly disagree $\longrightarrow$ 5= Strongly Disagree.

Data Analysis

Collected Data from universities' lecturers was analysed using SPSS. Mean, standard deviation, regression model fit, Correlation, moderation analysis and reliability analysis were estimated to find out the targeted objectives of the studies.

FINDINGS

Means, standard deviation and reliability of the constructs are depicted in the following Table 1.

Table 1
Mean, Standard Deviation and Cronbach Alpha of the constructs

	Number of respondents	Mean	Std. Deviation	Cronbach Alpha
CF	113	3.6246	.57089	.914
SF	113	3.2888	.68132	.874
BF	113	3.4564	.62495	.845
OLE	113	3.4834	.63340	.865
Valid N	113			

Table 1 showed the mean, standard deviation and Cronbach Alpha values of each construct. Mean values for all constructs CF, SF and BF are near to means' values and the standard deviation's values are very small, which show that cognitive, social and behavioural factors play a pivotal role in organizational learning and the respondents also agree while considering that, employees in organization consider and accept role of information system in organizational learning. Mean values for cognitive, social and behavioural learning factors are 3.625, 3.289, 3.456 and 3.483 respectively in contrast to the values of the standard deviation which are 0.571, 0.681, 0.625 and 0.633. These numbers indicate that Universities' teachers are interested to use information system for organizational learning. Similarly, Cronbach values for CF, SF, BF and OLE are 0.914, 0.874, 0.845 and 0.865 respectively, which are greater than 0.7 and falls in the acceptable range, which prove that the questionnaire is reliable enough to proceed with it for data collection.

Table 2
Correlations

		CF	SF	BF	OLE
CF	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	113			
SF	Pearson Correlation	.573[**]	1		
	Sig. (2-tailed)	.000			
	N	113	113		
BF	Pearson Correlation	.705[**]	.797[**]	1	
	Sig. (2-tailed)	.000	.000		
	N	113	113	113	
OLE	Pearson Correlation	.600[**]	.763[**]	.786[**]	1
	Sig. (2-tailed)	.000	.000	.000	
	N	113	113	113	113

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

Table 2 shows the relationship between dependent and independent variables. There are 113 respondents which show that independent variable (CF) has moderately significant relationship with organizational learning (OLE) where (r = .600). The other independent variable (organizational elements) has a significant relationship with organizational learning where (r = .763). The third independent variable knowledge has strong significant relationship with organizational learning where (r =.786). The correlation table shows the significance relationship among the elements of the intelligence and exhibits that each independent variable has significant relationship with the dependent variable, organizational learning.

Regression Analysis

The data was depicted to be normal as in Table 1 and Table 2. Moderated regression analysis (MRA) was used to regress data in three steps. Step 1 involved the predictors of the study (Cognitive, Social and Behavioural). In this step, it was discovered that the adjusted r^2 is 0.663, indicating the predictive power of 63% of cognitive, social and behavioural factors can contribute to organizational learning effectiveness. The Beta value for cognitive, social and behavioural factors were 0.25, 0.435 and 0.245 which shows a relative important of these variables in explaining organizational learning effectiveness.

Next, the moderator variable information system was introduced. There is an increase of adjusted r^2, indicating that information system makes a significant contribution to the organizational learning effectiveness.

Step 3 involved the interactions between the moderator and predictors of the study. A slight increase of adjusted r^2 and significant F change indicating the moderator effect organizational learning effectiveness.

Table 3
Multiple Regression Analysis

Multiple Regression Result Variables		Standardized Beta	
Step 1 Without Interaction	Step 2	With Interaction	Step 3
Cognitive Factors	.251**	.181**	.136**
Social Factors	.435**	.334**	.334**
Behavioural Factors	.245**	.102	.130
Information system	.363**		.367**
CF X IS		.096	
BF X IS		.137*	
SF X IS		.058	
R^2	.820	.660	.675
Adjusted R^2	.663	.649	.657
R^2 Change	.672	.064	.015
Sig. F Change	.000	.000	.003

Table 4
Regression ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	30.184	3	10.061	74.355	.000[b]
1	Residual	14.749	109	.135		
	Total	44.934	112			

a. Dependent Variable: organizational Learning
b. Predictors: (Constant), CF, SF, BF

Table 4 showed the fitness of the model. Residual sum of square is 14.749 which shows the unexplained deviation of dependent variable i.e. organizational learning from its estimate. The F-statistics is 74.355 at .000 sig level which is less than the cut off of 0.05. This shows significant relationship between the independent variables and dependent variable. The significance value shows that the model is fit for this study.

Table 5
Coefficients of Regression

Model		Un-standardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	.503	.230		2.185	.031
1	CF	.093	.086	.084	1.080	.003
	SF	.345	.085	.371	4.077	.000
	BF	.437	.107	.431	4.098	.000

a. Dependent Variable: organizational learning (OLE)

From the Table 5 it is observed that CF has higher significant value (.003) which is less than the value (.05) so CF has a significant relation with OLE. SF has a significant value (.000) which means that there is a direct and positive relationship between SF and OLE. BF has a significant value (.000) which means that there is a direct relationship between BF and OLE. All the independent variables have significant impact on the dependent variable OLE.

To see the impact of CF, SF and BF on OLE based on gender, ANOVA was used, and its results are shown in the below table 6. Significant difference is seen in CF, SF and BF on OLE the basis of gender on all constructs of the study. It means that CF, SF and BF are different for male and female.

Table 6
ANOVA for Gender

		Sum of Squares	Df	Mean Square	F	Sig.
OLE	Between Groups	10.495	1	10.495	85.092	.000
	Within Groups	31.204	253	.123		
	Total	41.699	254			
CF	Between Groups	7.612	1	7.612	28.159	.000
	Within Groups	68.394	253	.270		
	Total	76.007	254			
SF	Between Groups	4.542	1	4.542	24.350	.000
	Within Groups	47.196	253	.187		
	Total	51.738	254			
BF	Between Groups	.110	1	.110	.782	.377
	Within Groups	35.721	253	.141		
	Total	35.831	254			

Table 7
Mean values for Gender

Gender		CF	SF	BF
Female	Mean	3.5765	3.8869	3.1129
Male	Mean	3.2213	3.6125	3.1557
Total	Mean	3.3578	3.7180	3.1392

The mean comparison in Table 7 shows that females have better "CF" (Mean=3.57) and "SF" (M=3.88) skills as compared to male colleagues and overall, they are having better cognitive and social skills as manifested by the values to "CF" (M=3.22) and "SF" (M=3.61) respectively. In contrast males have more BF (M=3.15) and are better able to professional work (M=3.10) as compared to females (M= 3.11) and (3.05) respectively.

To see the impact of CF, SF, BF on OLE based on Organizational qualification, ANOVA was used, the results are shown in the below table 8

Table 8
ANOVA for Qualification

		Sum of Squares	df	Mean Square	F	Sig.
OLE	Between Groups	8.664	2	4.332	33.046	.000
	Within Groups	33.035	252	.131		
	Total	41.699	254			
CF	Between Groups	5.879	2	2.940	10.564	.000
	Within Groups	70.127	252	.278		
	Total	76.007	254			
SF	Between Groups	3.934	2	1.967	10.370	.000
	Within Groups	47.804	252	.190		
	Total	51.738	254			
BF	Between Groups	3.348	2	1.674	12.989	.000
	Within Groups	32.483	252	.129		
	Total	35.831	254			

Significant difference exists in the level of learning (CF, SF, and BF) on OLE based on organizational qualification as evident from table 9; it means that educational qualification does matter for cognitive, social and behavioural learning.

Table 9
Means Score for Qualifications

Program of Study	CF	SF	BF
BS	3.2118	3.5986	3.0305
MS	3.5321	3.8608	3.2761
PhD	3.4571	3.7980	3.3932
Total	3.3578	3.7180	3.1392

From the mean comparison in table 9, it is shown that PhD and MS degree holders have more efficiency in adopting the new situation and forgetting soon to know new things at the organizational level.

Hypotheses Testing

The values in Table 1 of measuring the central elopement, most of the respondents responded that organizational learning factors affects the process of organizational learning. Similarly, values in Table 2 shows, that there is positive relationship among all factors of organizational learning and the dependent variable organizational learning, indicating significant effects of the independent variables on the dependent variable, and the results suggested that all the hypotheses are accepted and there exist positive correlation among the independent variable and the dependent variables. ANOVA values in Table 5 also supported the hypothesis and indicated positive correlation among the independent and dependent variables. Therefore, the study accepts all the hypothesis under investigation.

DISCUSSION

This was a comprehensive study, which covered and tested 3 major aspects (cognitive, social and behavioural) of the organizational learning. Information system have been used as a moderator and mediator with the cognitive elements/factors for organizational learning and development. The purpose of the study was to assess the effect of the moderating effect of the information system on the organizational learning effectiveness keeping in view the cognitive, social and behavioural factors of the organizational learning. Results shows that information system can be used for the cognitive, social and behavioural learning and development of the organizations. factors play crucial role in the organizational learning effectiveness with moderating support of the information system. The findings of the study can also be compared with the previous studies, having similar impacts on the organizational learning effectiveness.

Table 10
Comparison with the Previous Studies

S. No	Hypothesis	Accepted/ Rejected	Literature Support
H1	There is positive relationship between cognitive factors of learning and organizational learning with the moderating support of Information system.	Accepted	(Ahmad & Lodhi, 2014; Göhlich, 2016)
H2	There is positive relationship between social factors of learning and organizational learning with the moderating support of Information system.	Accepted	(Ahmad & Lodhi, 2014; Alalwan, Dwivedi, Rana, & Williams, 2016)
H3	These is positive relationship between behavioural factors of learning and organizational learning with the moderating support of Information system	Accepted	(Aragón, Jiménez, & Valle, 2016; Beer, 1999)

CONCLUSION & RECOMMENDATIONS

This study found that cognitive, social and behavioural learning factors have greater impacts on the organizational learning effectiveness with the moderating support of information system. Cognitive factors were more significant and these can be further boosted for capturing and utilizing organizational learning, which will improve organizational effectiveness. Similarly, information systems have changed the socio-behavioural environment of the organization and have greater effects on the organizational learning and turning it more productive. Therefore, learning organizations are encouraged to adopt and deploy robust information system for organizational learning, orienting its worker with it. Thus, the employees will feel confident using information system and it will enhance organizational learning level, which will boost organizational production. However, organizations are more complex, comprehensive and vague which needs further exploration, because there are many seen and unseen factors influence organizational learning. The results clearly illustrate that the selected constructs present a good measure for the organizational learning construct. Learning organizations are supposing to develop a culture where these practices can be regularly practiced by employees.

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